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KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

DIVISION OF STATE PARKS
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

September 28, 2016

Mr. Scott Glenn, Director
Office of Environmental Quality Control
Department of Health
235 S. Beretania St., Room 702
Honolulu, HI 96813

Dear Mr. Glenn:

The Division of State Parks, Department of Land and Natural Resources hereby transmits the draft environmental assessment and anticipated Finding of No Significant Impact (DEA-AFONSI) for the Hanakāpīʻai Pedestrian Bridge Project, Nāpali Coast State Wilderness Park, for publication in the next available edition of *The Environmental Notice*. The bridge project area is identified by TMK: (4) 5-9-001: 001 in the Nāpali District, Kauaʻi, Hawaiʻi.

Enclosed is a completed OEQC Publication Form, one copy of the DEA-AFONSI, a searchable pdf of the document, and a CD containing the DEA, Publication Form and Summary.

Should you have questions, or need additional information, please contact Lauren Tanaka, at (808) 587-0293 or by email to: Lauren.A.Tanaka@hawaii.gov.

Sincerely,

Curt A. Cottrell

Curt A. Cottrell
State Parks Administrator

Enclosures: One (1) Hard Copy of the DEA-AFONSI
OEQC Publication Form
CD containing the DEA, Publication Form and Summary

17-139

AGENCY PUBLICATION FORM

Project Name:	Hanakāpīʻai Stream Bridge Project
Project Short Name:	Hanakāpīʻai Stream Bridge Project
HRS §343-5 Trigger(s):	Use of State lands and State funds; Use of State Conservation District Land
Island(s):	Kauaʻi
Judicial District(s):	Hanalei District
TMK(s):	4-5-9-001:001
Permit(s)/Approval(s):	SMA Major Use Permit, Conservation District Use Permit
Proposing/Determining Agency:	State of Hawai'i, Department of Land and Natural Resources, Division of State Parks
Contact Name, Email, Telephone, Address	1151 Punchbowl Street, Room 310 Honolulu, Hawai'i 96813 Contact: Lauren Tanaka, Planning & Development Branch Phone: (808) 587-0293; Email: lauren.a.tanaka@hawaii.gov
Accepting Authority:	(for EIS submittals only)
Contact Name, Email, Telephone, Address	
Consultant:	Tetra Tech, Inc.
Contact Name, Email, Telephone, Address	737 Bishop Street, Suite 2340 Honolulu, Hawai'i 96813 Contact: Alison Andrews Phone: (808) 441-6651; Email: ali.andrews@tetratech.com

Status (select one)	**Submittal Requirements**
___x_ DEA-AFNSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEA, and 4) a searchable PDF of the DEA; a 30-day comment period follows from the date of publication in the Notice.
____ FEA-FONSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; no comment period follows from publication in the Notice.
____ FEA-EISPN	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; a 30-day comment period follows from the date of publication in the Notice.
____ Act 172-12 EISPN ("Direct to EIS")	Submit 1) the proposing agency notice of determination letter on agency letterhead and 2) this completed OEQC publication form as a Word file; no EA is required and a 30-day comment period follows from the date of publication in the Notice.
____ DEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEIS, 4) a searchable PDF of the DEIS, and 5) a searchable PDF of the distribution list; a 45-day comment period follows from the date of publication in the Notice.
____ FEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEIS, 4) a searchable PDF of the FEIS, and 5) a searchable PDF of the distribution list; no comment period follows from publication in the Notice.
____ FEIS Acceptance Determination	The accepting authority simultaneously transmits to both the OEQC and the proposing agency a letter of its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS; no comment period ensues upon publication in the Notice.
FEIS Statutory Acceptance	Timely statutory acceptance of the FEIS under Section 343-5(c), HRS, is not applicable to agency actions.

____ Supplemental EIS Determination	The accepting authority simultaneously transmits its notice to both the proposing agency and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is or is not required; no EA is required and no comment period ensues upon publication in the Notice.
____ Withdrawal	Identify the specific document(s) to withdraw and explain in the project summary section.
____ Other	Contact the OEQC if your action is not one of the above items.

Project Summary
Provide a description of the proposed action and purpose and need in 200 words or less.

The Department of Land and Natural Resources, through the Division of State Parks and the Engineering Division, proposes to install a 4-foot wide, 82-foot long aluminum truss pedestrian bridge across Hanakāpīʻai Stream and construct approximately 50 feet of new trail to connect the bridge to the existing Kalalau Trail in the Nāpali Coast State Wilderness Park, on Kauaʻi Island, Hawaiʻi.

DRAFT ENVIRONMENTAL ASSESSMENT
Hanakāpīʻai Stream Bridge Project
Nāpali Coast State Wilderness Park
Kauaʻi, Hawaiʻi

Prepared for

Department of Land and Natural Resources
Division of State Parks
1151 Punchbowl Street
Kalanimoku Building, Room 310
Honolulu, Hawaiʻi 96813

September 2016

Prepared by

Tetra Tech, Inc.
737 Bishop Street, Suite 2340
Honolulu, Hawaiʻi 96813

Table of Contents

Project Information Summary

Project Name:	Hanakāpīʻai Stream Bridge Project
Document Type:	Draft Environmental Assessment (DEA)
Legal Authority:	Chapter 343, Hawaiʻi Revised Statutes (HRS)
Environmental Assessment Trigger:	Use of State Conservation District Lands and Special Management Area
Determination:	Anticipated Finding of No Significant Impact (AFONSI)
Location:	Nāpali Coast State Wilderness Park, Island and County of Kauaʻi
Judicial District:	Nāpali District
Tax Map Key (TMK):	(4) 5-9-001: 001
Land Area:	Bridge area – 328 square feet (4 feet wide and 82 feet long) New trail area – 51 feet of new trail (4 feet wide)
Landowner:	State of Hawaiʻi, Department of Land and Natural Resources, Division of State Parks 1151 Punchbowl Street, Room 310 Honolulu, Hawaiʻi 96813 Contact: Curt A. Cottrell, Administrator Phone: (808) 587-0300
Applicant:	State of Hawaiʻi, Department of Land and Natural Resources, Division of State Parks 1151 Punchbowl Street, Room 310 Honolulu, Hawaiʻi 96813 Contact: Curt A. Cottrell, Administrator Phone: (808) 587-0300
Accepting Agency:	State of Hawaiʻi, Department of Land and Natural Resources, Division of State Parks 1151 Punchbowl Street, Room 310 Honolulu, Hawaiʻi 96813 Contact: Lauren Tanaka, Planning & Development Branch Phone: (808) 587-0293
Consultant:	Tetra Tech, Inc. 737 Bishop Street, Suite 2340 Honolulu, Hawaiʻi 96813 Contact: Alison Andrews Phone: (808) 441-6651
Existing Use:	Kalalau Trail in the Nāpali Coast State Wilderness Park

Proposed Action:

The Department of Land and Natural Resources, through the Division of State Parks and the Engineering Division, proposes to install a 4-foot wide, 82-foot long aluminum truss pedestrian bridge across Hanakāpīʻai Stream and construct approximately 50 feet of new trail to connect the bridge to the existing Kalalau Trail in the Nāpali Coast State Wilderness Park, on Kauaʻi Island, Hawaiʻi.

Current Land Use Designations:

- *State Land Use:* Conservation District, Resource Subzone
- *County Zoning:* Preservation
- *Special Management Area (SMA):* Within SMA

Alternatives Considered:

- *No Action:* The proposed bridge would not be constructed at the Hanakāpīʻai Stream crossing, and the existing hazard to public safety would remain for hikers on the Kalalau Trail attempting to cross the stream during flash flood conditions.
- *Alternative bridge alignments:* Alternative bridge alignments were considered across the stream. Specifically, a crossing that intersects the historic Kalalau Trail on the east bank was considered but not carried forward due to its impact to archaeological resources on the trail. No other feasible alternative alignments were identified or explored further in this analysis.
- *Alternative bridge designs:* Several design alternatives were considered. Because the bank-to-bank span is greater than 80 feet, only truss-type options were appropriate. Due to encroachment issues and uneconomically large amount of material required, suspension and cable-stayed bridges were not considered. Three alternatives were evaluated for the proposed material of the pedestrian bridge: steel, aluminum, and fiberglass. Due to the high maintenance costs and remote location, a wood structure was considered to be infeasible. A pre-fabricated truss style aluminum bridge, with plastic wood composite decking and dark brown powder coating finish is the proposed alternative as it is environmentally friendly, cost-beneficial, nearly maintenance-free and highly durable.

Potential Impacts and Mitigation Measures:

The Project would benefit the public by providing a safe way to cross Hanakāpīʻai Stream during flash flooding events while minimally altering or affecting the environment. The Project would have the following impacts by resource:

- *Air Quality:* short-term, minimal adverse effects during construction
- *Airspace:* no adverse effects
- *Biological Resources:* short- and long-term, minimal adverse effects during and from construction
- *Cultural Resources:* no adverse effects
- *Geology, Topography, and Soil:* no adverse effects
- *Noise:* short-term, minimal adverse effects during construction
- *Public Access and Recreation:* short-term, adverse effects during construction; long-term beneficial effects

- *Socioeconomics:* no adverse effects
- *Utilities and Public Infrastructure:* no adverse effects
- *Visual Resources:* long-term, minimal to moderate adverse effects
- *Water Resources:* no adverse effects

The following mitigation measures would be implemented to minimize potential adverse effects on visual, cultural, and freshwater resources:

- Dark brown powder coating will be applied to the aluminum bridge structure to better assimilate the structure with the natural landscape.
- Plastic wood composite decking will be laid on the walkway of the bridge to better match the natural aesthetic of the site.
- The proposed bridge alignment will cross the stream inland of the current stream crossing to avoid historic rock pavers, which are considered archaeological resources, and to allow for future use of the historic route of the Kalalau Trail through the stream.
- The proposed bridge will clear-span the stream to avoid any impacts to freshwater aquatic species and water quality.

Determination:

Anticipated Finding of No Significant Impact (AFONSI) for the reasons noted above.

1 Introduction

This section presents an overview of the project including location, bridge design and materials, purpose and need for the project, initial addressing of the impacts to recreation, which will be further discussed in Section 3.10, and the purpose of this Environmental Assessment.

1.1 Project Location and Description

The State of Hawai'i Department of Land and Natural Resources (DLNR) Division of State Parks proposes to build a pedestrian bridge over Hanakāpīʻai Stream for use by hikers along the Kalalau Trail.

Hanakāpīʻai Stream is located in the Hanakāpīʻai Valley in the Nāpali Coast State Wilderness Park on the North Shore of Kauaʻi. Hanakāpīʻai Beach, where the stream reaches the ocean, can only be accessed by foot on the Kalalau Trail, by boat, or by helicopter. The trail intersects Hanakāpīʻai Stream 2 miles from the trailhead at Kēʻē Beach and 300 feet inland from the beach. The proposed bridge would be an aluminum truss-type bridge with plastic wood decking and a dark brown powder coating. This bridge type and these materials were selected for their durability, cost-effectiveness, lack of maintenance requirements and minimal environmental impacts. The 4-foot wide pedestrian bridge would span the stream bank-to-bank over 80 feet in such a way that the abutments and construction work would be entirely outside of the delineated stream.

The bridge would have a shallow deck and not require any piers, since it would clear-span the stream. Its lightweight design would allow for reasonably sized concrete abutments, a reduced number of micropile supports and minimal amount of excavation during construction. The bridge would be fabricated in three segments and flown to the site by helicopter, where it would be field bolted together in a relatively short duration of time.

The proposed bridge alignment is offset from the trail on the east bank to avoid obstructing the historical route of the Kalalau Trail and would require approximately 50 feet of new trail to connect the bridge to the existing trail. See next sheet.

The expected cost of the proposed bridge is $106,500. The estimated total project cost is $506,000, including abutments, micropiles, trail improvements, helicopter installation, and construction.

Construction is expected to take approximately 10 weeks or 50 working days. An approximate construction schedule, targeted for early 2018, would be:

- 1 week for mobilization
- 1 week for site-prep
- 1 week for micropile installment
- 2 weeks for abutment installment
- 2 weeks for prep and install of bridge superstructure
- 2 weeks for miscellaneous work and trail improvements
- 1 week for demobilization

The construction area would be accessed by helicopter and on foot along the Kalalau Trail. Given the lack of utilities available in Hanakāpīʻai Valley, the construction activities would be performed without access to electricity and running water. All waste would be packed out by foot or by helicopter.

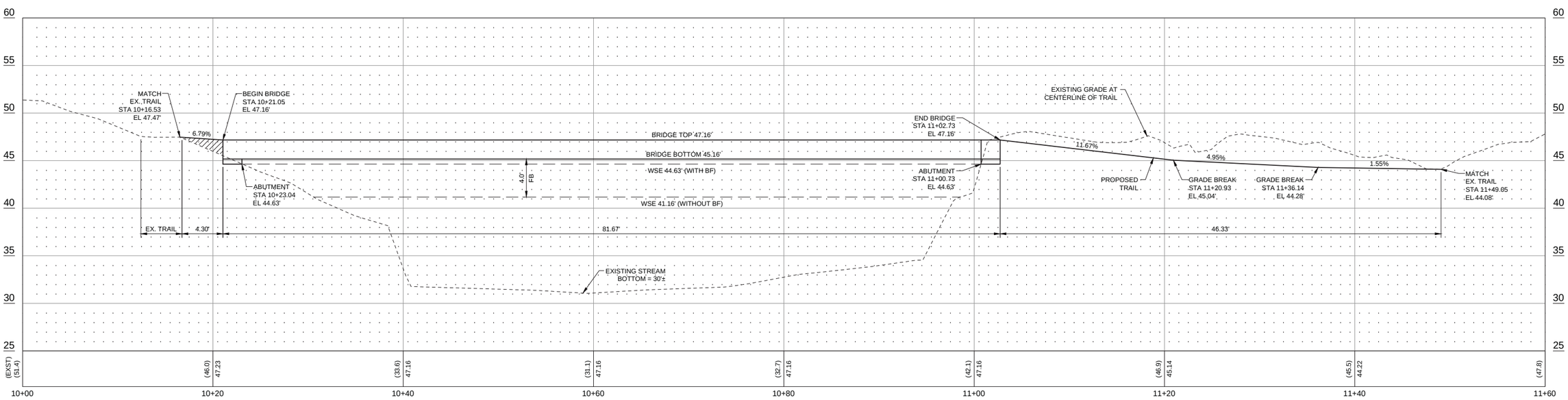
Figure 1 Rendering of approximate proposed bridge structure and alignment.

1.2 Project Purpose and Need

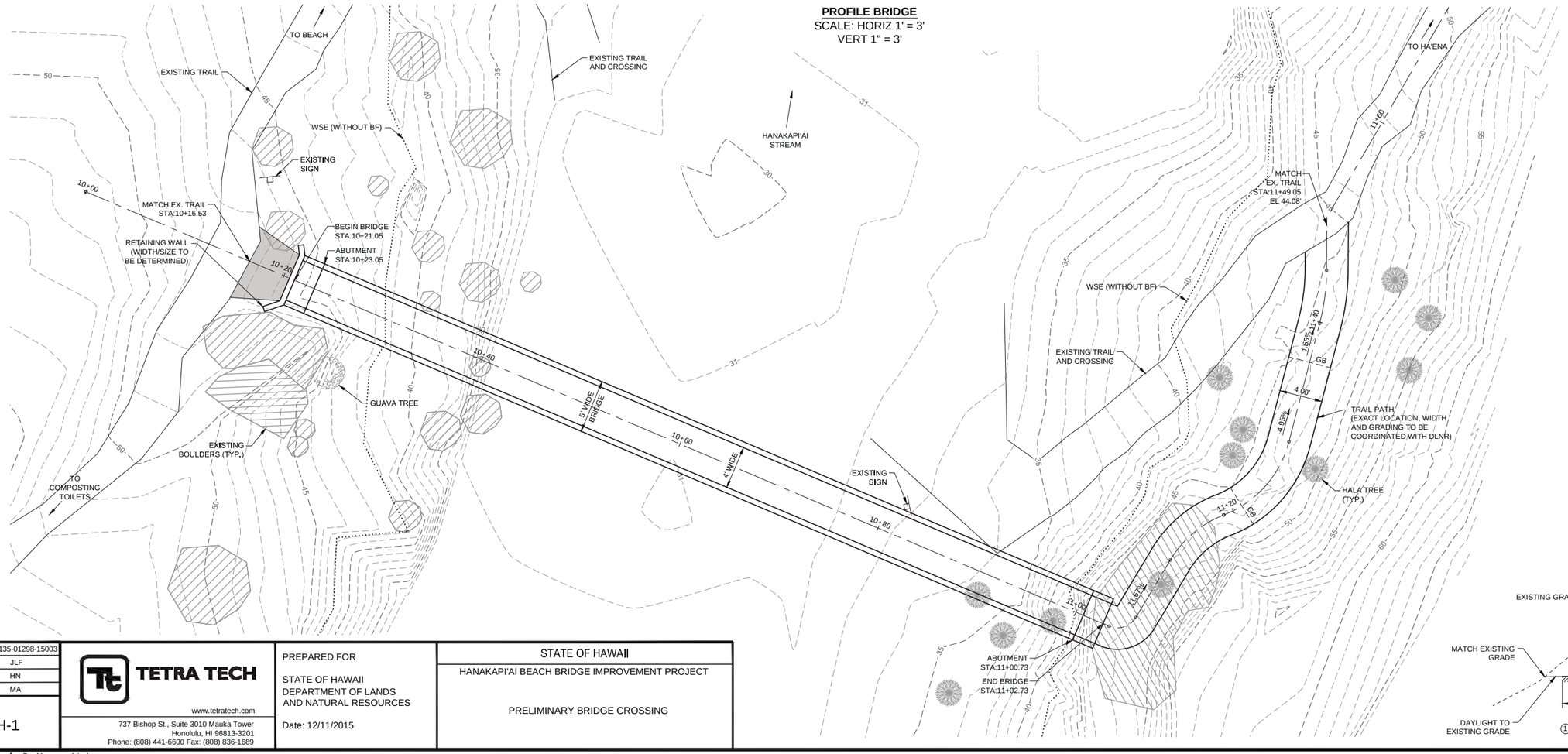
State Parks has identified a need to reduce the risk posed by flash flooding of Hanakāpīʻai Stream to hikers on the Kalalau Trail and to the County and State personnel who respond to hikers needing emergency assistance. The purpose of the project is to reduce this risk and the need for emergency missions to rescue stranded hikers.

Because of the local topography, Hanakāpīʻai Stream is prone to flash flooding, causing many hikers to be unable to safely ford the stream and return to the trailhead. In recent years, the number of hikers becoming stranded by Hanakāpīʻai Stream flooding has increased, as has the number of air and ground rescue missions. A number of hikers have died trying to cross the stream in flooding conditions. In addition, rescue personnel put themselves at risk trying to help stranded hikers. This pedestrian bridge would significantly decrease the risk of hikers attempting to ford a flooded stream and the danger posed to Kaua'i Fire Department (KFD) personnel and other rescue responders while minimizing the costs to the County of Kauaʻi for conducting such rescues.

Hanakāpīʻai Beach is one of the most dangerous beaches on the island, with at least 30 drownings occurring since 1970 (Blay 2011). Strong rip currents swiftly pull swimmers away from the beach and down the coast to the west, where there is no safe beach access for over 3 miles. Hikers who try to cross



PROFILE BRIDGE
SCALE: HORIZ 1' = 3'
VERT 1" = 3'

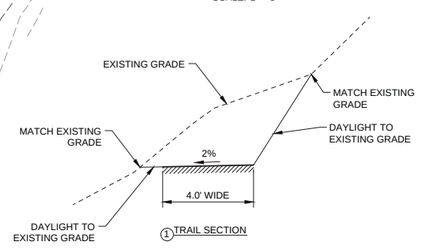


NOTE

1. BRIDGE IS DIAGRAMMATIC TO ILLUSTRATE MINIMUM HEIGHT TO MEET MINIMUM COUNTY OF KAUAI FREEBOARD REQUIREMENTS. HEIGHT OF DECK IS ESTIMATED. HAND RAILING IS NOT SHOWN.
2. PROPOSED ALIGNMENT OF TRAIL IS PRELIMINARY TO SHOW CONNECTION TO EXITING TRAIL. EXACT LOCATION, WIDTH AND GRADING TO BE COORDINATED WITH DLNR. FINAL GRADING DESIGN OF TRAIL PATH WILL BE COMPLETED WHEN VEGETATION IS CLEARED.

LEGEND

- BOULDERS
- TRANSITION AREA
- WSE — WATER SURFACE ELEVATION
- BF — BULK FLOW
- WSE (WITHOUT BF)
- LIMIT OF GRADING
- GUAVA TREE
- HALA TREE



Project No.:	135-01298-15003
Designed By:	JLF
Drawn By:	HN
Checked By:	MA

EH-1

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PREPARED FOR

STATE OF HAWAII
DEPARTMENT OF LANDS
AND NATURAL RESOURCES

Date: 12/11/2015

STATE OF HAWAII

HANAKAPI'AI BEACH BRIDGE IMPROVEMENT PROJECT

PRELIMINARY BRIDGE CROSSING

Bar Measures 1 inch

the stream at high water levels can get washed out to sea and get injured or can drown, such as the visiting hiker who drowned in February 2013 (Star Advertiser 2013).

The number of emergency calls to rescue hikers trapped on the far side of Hanakāpīʻai Stream have increased in recent years, due to the increase in the number of hikers and their varying skill levels to safely traverse the trail. Visitation to Hanakāpīʻai Beach and the Kalalau Trail has increased from 1,000 to 2,000 visitors daily (see Table 3-1). Additionally, KFD observes that stranded hikers are less likely to remain on the far side of a flooded river if rescuers are not going to retrieve them immediately, and instead attempt to ford the flooded stream. Previously, responders would immediately attend to stranded persons who were injured or in imminent danger, then wait for the flooding to recede to help the hikers out of the valley. Recently, however, an increasing number of hikers do not wait for the water to subside and have attempted to cross the flooded stream. These unassisted crossings puts the hikers in great danger and increase the number of ground and air rescues mounted by KFD to safely assist the stranded hikers (Personal Communication, KFD, 2015). For example, 121 hikers were rescued from Hanakāpīʻai Valley in April 2014 due to flooding, and 12 hikers required rescuing in February 2016.

This increase in rescue missions is costly and dangerous to both hikers and emergency responders. Most rescues to extract stranded hikers are done by helicopter during rough weather conditions. The helicopter, which is stationed in Līhue on the southwest side of the island, must fly over the mountainous center of the island to reach Hanakāpīʻai quickly. In poor visibility conditions, the helicopter flies around the mountains following the highway to reach Hāʻena. With the helicopter's limited fuel storage capacity, these long trips are dangerous for the pilot and passengers. Maneuvers within the narrow valley to pick up stranded hikers is the most dangerous part of the rescue mission for responders, with the potential to get blown into valley walls by strong winds (Personal Communication, KFD, 2015).

The KFD air rescues are costly. The KFD reported that the April 2014 rescue of 121 hikers cost the department an additional $3,560.68 in fuel and overtime costs. The actual total cost of the rescue is higher since this estimate doesn't take into account equipment, maintenance and on-duty personnel that the KFD provides under its operational budget (Star Advertiser 2014). As air rescue operations increase for Hanakāpīʻai, the equipment and operational costs to KFD are significant.

Additionally, KFD's efforts to mount rescues in Hanakāpīʻai impact the KFD's ability to respond to other emergencies in the area. When rescuing stranded hikers at Hanakāpīʻai, KFD's Hanalei Fire Station deploys their engine and most of their personnel to the trailhead at Kēʻē Beach. The Kapaʻa Fire Station is then responsible for responding to any emergencies in their own district and covering any emergencies in the Hanalei district. This may result in inevitable delays in KFD's responses to emergencies in the areas between Kapaʻa and Hanalei that occur during hiker rescue operations (Personal communication, KFD, 2015).

The proposed bridge across the Hanakāpīʻai Stream provides a practical response to the need to address the risks to both hikers and responders, and to reduce the financial and operational burdens on KFD. The pedestrian bridge intends to fill this need with minimal impacts on the cultural and natural environment in the Nāpali Coast State Wilderness Park and is not expected to increase the current usage and visitation of the park. The proposed bridge is a relatively cost-effective solution to the need through low-maintenance and damage-resistant design.

1.3 Addressing Impacts to Park Visitation

There is concern that constructing the proposed bridge across Hanakāpīʻai Stream would encourage more visitors to access Hanakāpīʻai Beach and further destinations along the Kalalau Trail, such as Hanakāpīʻai Falls. This impact is addressed in Section 3.10 with a summary of the impacts and mitigation measures provided here.

The proposed bridge is not expected to increase the number of visitors accessing Hanakāpīʻai. In recent years, there has been an increase in number of visitors on the trail going to Hanakāpīʻai Beach and Hanakāpīʻai Falls, which can be attributed to an overall increase in visitors to Kaua'i, as well as increased recreation and physical activities such as hiking and promotion by social media and online destination sites. Section 3.10 discusses the increases in visitation in more detail.

The scenic route and coastal areas of Hanakāpīʻai are the attractions for most visitors, whereas the stream and proposed bridge are part of the trail system that connects visitors to these areas. Therefore, the relatively simple bridge design is not expected to be an added attraction to Hanakāpīʻai. The bridge is intended to provide a means for stranded hikers to get out of Hanakāpīʻai during times of high stream levels caused by severe weather events. The proposed bridge is not anticipated to attract an increase in the number of visitors to Hanakāpīʻai, as this may be attributable to other factors such as promotion of not easily accessible scenic areas and fascination with Kauai's natural resources. Additionally, the two-mile hike from the Kalalau trailhead to Hanakāpīʻai is rigorous, and unprepared and inexperienced hikers are likely to be deterred and limited by the difficulty of the trail as opposed to being attracted by a bridge.

Management of increased visitors has been a focus of State Parks and is the center of the development of their *Hāʻena State Park Master Plan* (MP). Hāʻena State Park is adjacent to the Nāpali Coast State Wilderness Park and the increase of visitors is resulting in traffic and parking congestion and the continuing deterioration of trail and beach access areas in both parks. The MP process incorporated participation and collaboration with community representatives, cultural practitioners, descendants of families that resided in the park areas, and other stakeholders with involvement in Hāʻena State Park. MP strategies include but are not limited to managing the number of vehicles and visitors entering the parks and education and enforcement measures.

Therefore, the proposed bridge is not expected to significantly increase visitation to Hanakapi`ai in the long term as other factors are attributable to the increase of visitors, such as remote scenic locations and attraction to Kauai's natural resources. If and when elements of the Haʻena Master Plan are successfully implemented, visitation to Hanakapi'ai will actually decrease.

1.4 Environmental Assessment Process

This environmental assessment (EA) is prepared to fulfill the requirements under Chapter 343, HRS, the Hawaiʻi Environmental Policy Act (HEPA), and its implementing rules, Hawai'i Administrative Rules (HAR), Title 11, Chapters 200 and 201. This EA is triggered by the proposal to construct a structure on state lands classified in the Conservation District and in the County of Kauaʻi Special Management Area (SMA). State Parks is both the proposing agency for this action and is also one of the approving agencies, alongside the County of Kauaʻi Planning Department.

On the basis of the analysis provided in this EA, DLNR has determined that the proposed action would not have a significant adverse impact on the human or natural environment. Preparation of an

environmental impact statement is not needed and an Anticipated Finding of No Significant Impact (AFONSI) is appropriate.

State Parks will consider all comments submitted during the HEPA process. Once the HEPA process is complete, the Land Board will be asked to issue a FONSI and approval to proceed with the proposed actions as permitted.

2 Alternatives

2.1 No Action

Under the No Action Alternative, the proposed pedestrian bridge would not be built across Hanakāpīʻai Stream. There would be no impacts to the environment. The safety concerns associated with the flooding of the Hanakāpīʻai Stream would persist and the current high cost of rescue operations would continue to burden the KFD.

2.2 Proposed Action

Under the Proposed Action, State Parks would install a pedestrian bridge spanning Hanakāpīʻai Stream as described in Section 1.1 and in more detail below. Through a review of similar existing bridges in the State of Hawaiʻi and other state parks in the country, a 4-foot wide bridge was determined to be sufficient for the given foot traffic.

The proposed bridge type is a truss bridge, which has a frame of connected segments, called a truss. These connected segments form triangles that can support heavy loads with relatively little bridge material, making it a cost-effective option. There would be no supporting structures located in the stream. The vertical elevation was determined by the existing rock outcropping elevations and through a detailed hydrology and hydraulic analysis to allow for clear flow of the 100-year, 24-hour design storm.

Aluminum was chosen as the proposed material for this bridge because it has the advantage of being light-weight and having a high strength-to-weight ratio. It is durable and will not corrode due to the naturally occurring oxide layer that develops on the surface. This option provides a long-term, nearly maintenance-free structure that would reduce cost of ownership significantly compared to other materials. The aluminum bridge would be covered in plastic wood composite decking and finished with a dark brown powder coating to better assimilate the bridge aesthetically within the natural landscape.

The bridge and reinforced concrete abutments would be supported on MAI-type micropiles, which consist of hollow shafts with a sacrificial drill bit. They are installed by drilling with air, water and/or light grout. After achieving the required depth, the piles are then grouted in place with higher strength grout. The advantage of using MAI type micropiles is that they are adept at drilling through highly variable soils, including boulders, which are found abundantly on the site. Additionally, MAI-type micropiles can be installed in sites with limited space, using light drilling equipment.

After construction of the substructure, the bridge superstructure would be installed. The truss style aluminum bridge would be pre-fabricated off-site, delivered in three segments, and flown in to Hanakāpīʻai Valley, where it can be field bolted together in a relatively short duration of time.

The bridge configuration would require a new section of trail, approximately 50 feet long and 4 feet wide, to be created along the hillside.

2.3 Alternatives Considered But Eliminated From Further Analysis

In addition to the proposed action, which is described in Section 2.2, DLNR considered the following alternatives.

Alternative Alignments. After a site visit, topographic survey and discussions with DLNR staff, several different alignments for the proposed bridge were reviewed. After reviewing the proposed alignments, the other alignments were eliminated from further analysis because they would not minimize adverse environmental impacts. The proposed alignment would minimize impacts to the existing trail, allow the existing historic trail route to remain accessible to visitors, avoid rock pavers on the trail, which are considered archeological resources, and use existing rock outcroppings for foundation supports. In addition, the proposed alignment ultimately was the shortest clear spanning option.

Alternative Trail. Consideration was given to reopening an abandoned trail section along the eastern (trailhead) side of Hanakāpīʻai Stream. It was suggested that this alternate route would allow for hikers to proceed both up and down the valley (from the falls) without requiring a crossing of the stream during flood conditions. This alternative was not pursued for several reasons, most notably the fact that the vast majority of hikers access the beach as their final destination. Only a small percentage of visitors proceed up the valley seeking the waterfall. Those visitors seeking to reach the beach would still require a stream crossing. Additional obstacles include the environmental and construction costs of rebuilding over a mile of trail, and the fact that the trail never continued all the way to Hanakāpīʻai Falls – the route would still require multiple stream crossings further inland. For these reasons, this alternative was not pursued further in this analysis.

Design Alternatives. Several design alternatives were taken into consideration. Suspension and cable-stayed bridges were not considered as viable options due to encroachment issues and uneconomically large amounts of material required. Because the bank-to-bank span is greater than 80 feet, only truss-type options were ultimately considered viable.

Alternative Materials. Three main alternatives were evaluated for the proposed material of the pedestrian bridge: steel, aluminum, and fiberglass. A wood structure was eliminated due to the high maintenance requirements and the remote location. Each option has advantages and disadvantages related to cost, durability, maintenance, aesthetic value, sustainability of construction materials, and ease of construction. Steel is a very durable material, given that most manufacturers use weathering steel or an enamel coating, however it is much heavier than the other two materials and would require more helicopter trips, and increase the project cost. Fiberglass-reinforced plastic (FRP) is a fairly cost-effective option due to constructability ease and lightweight structure, however this material experiences surface deterioration and color fading when exposed to constant sunlight. FRP material can also exhibit high amounts of creep (continued deformation) when subjected to sustained loading. For these reasons, steel and FRP were eliminated from further analysis.

3 Affected Environment, Impacts, and Mitigation Measures

3.1 Climate

Hawaiʻi's climate is characterized by mild temperatures, frequent northeasterly trade winds and highly variable rainfall. This weather attracts tourists to the islands but can also cause dramatic and dangerous localized storms.

Hawai‘i’s subtropical latitude results in a very small annual temperature range of less than 9°F in most areas of the state. The mild and consistently warm climate of Hawai‘i is one of the main contributors to the tourist industry in Hawai‘i, attracting tourists who seek outdoor activities such as swimming and hiking (Western Regional Climate Center 2016).

Precipitation in the Hawaiian Islands is largely driven by the orographic effect in which winds cause clouds to stack up on the windward side of mountains and precipitate. This causes rainfall on Kaua’i to be largely centralized around Mount Wai‘ale‘ale and nearby ridges, including the uplands of Hanakāpī‘ai (Shade 1995). Rainfall in Hanakāpī‘ai Valley ranges from around 100 inches annually near the mouth of the valley to over 130 inches annually in the upper valley, well above the state average of around 70 inches annually (Giambelluca et. al 2013; Western Regional Climate Center 2016). Rainfall is highest in November and March and lower in the summer months between June and September (Giambelluca et. al 2013). This rainfall comes mostly in light sprinkles punctuated by occasional heavy showers which can catch outdoor recreational users by surprise (Western Regional Climate Center 2016).

The proposed pedestrian bridge is not expected to have any impact on the climate.

3.2 Geology, Topography, and Soils

The Nāpali Coastline is comprised of steep cliffs and narrow valleys of basalt rock that were formed by many centuries of erosion and faulting (Hawai‘i Coral Reef Assessment & Monitoring Program [CRAMP] 2008). This topography lends itself to flash flooding during heavy rain events as the rain is funneled into narrow valleys, such as Hanakāpī‘ai. The bridge site is located on rough mountainous terrain (United States Department of Agriculture [USDA] soil classification) with existing slopes of approximately 40% (Tetra Tech 2015).

The rock layer underlying lower Hanakāpī‘ai Valley is poorly permeable, which gives the stream a high runoff to rainfall ratio, meaning that more of the rain that falls in the watershed flows promptly into the stream as opposed to permeating into the ground (Shade 1995). During heavy rainfall this can cause water levels in the Hanakāpī‘ai Stream to rise rapidly and flood.

Hanakāpī‘ai’s steep valley slopes require the Kalalau Trail to follow several switchbacks down to the valley floor. Erosion of the slope is caused by hikers traveling off trail and runoff during rain events. For this reason, there are areas along the trail marked by signage instructing hikers to follow the trail to avoid further erosion of the hillside.

The locations of the abutments and micropilings of the bridge would be on steep slopes on either side of the stream. The MAI-type micropilings would be drilled with air, water, and grout, a good solution for drilling through the highly variable soils and rocks that are found within the site.

The proposed pedestrian bridge is expected to have negligible effects on the geology, topography, and soils of the project site because of the small footprint of the MAI-type micropiles and other substructure.

3.3 Hydrology and Water Quality

Hanakāpī‘ai Stream is a perennial stream that flows from higher ground in the Hono o Nā Pali Natural Area Reserve to the ocean at Hanakāpī‘ai Beach. The average slope of the main stream channel from source to ocean in the Hanakāpī‘ai watershed is approximately 0.18% and the elevations range from 4,200 feet in the mountains to 4.12 feet at the beach (Tetra Tech 2015).

A study of the hydrology of Hanakāpīʻai Stream was produced by Tetra Tech to understand the flow rates and water surface elevation that could result from a 100-year flood. The study modeled a 100-year flood using topographic data, 100-year 24-hour rainfall data (defined as the amount of rain that has a 1% probability of falling within a 24-hour period in any given year), and a bulking factor which takes into consideration the increase in streamflow volume due to sediment being carried downstream. It was determined that the watershed area covers 1,890 acres and the 100-year 24-hour rainfall is 20 inches. The bulking factor used was 1.67, based on the soil types found in the valley. The resulting peak flow rate was 14,784 cubic feet per second, which increases the stream depth in the proposed bridge locations to between 12.5 feet and 29 feet depending on bridge location (Tetra Tech 2015).

The State of Hawaiʻi Department of Health (DOH) monitors water quality parameters in state water bodies, which are published in Water Quality Monitoring and Assessment Reports every two years. In both 2012 and 2014, DOH had "insufficient data" for Hanakāpīʻai Stream on all water quality parameters usually monitored in water bodies (DOH, Clean Water Branch [CWB] 2012, 2014). Therefore, this Project is unaware of current water quality in the stream.

In Tetra Tech's analysis of the location's hydrology, it was found that the hydrology would not be affected by the presence of the proposed bridge. The stream's peak flow rate would not change for the post-development conditions because there would be minimal increase in impervious area, which would all occur outside the stream channel. The water surface elevation at the approximate location of the bridge would not increase because the bridge micropilings and abutments would be located outside of the bulked 100-year, 24-hour water surface elevation influence zone (Tetra Tech 2015).

The pedestrian bridge may have a positive impact on water quality in the stream by decreasing the turbidity caused by the hundreds of hikers walking through the streambed on a daily basis.

3.4 Biological Resources

Hanakāpīʻai Valley is densely vegetated and home to both native and introduced flora and fauna.

Flora

The vegetation in the valleys of the Nāpali Coast is transitioning from a previously agricultural or pastoral state to a new equilibrium, which is characterized by many exotic species. A survey of nearby Kalalau Valley found that because of previous cultivation and human occupation of the valley floor, exotic grasses and plants dominated, and native species grew only on the steeper valley walls and cliffs. The mouth of Hanakāpīʻai Valley, where the project area is located, was identified as less likely to harbor native species than the head of the valley because of increased human visitation (DLNR, Division of State Parks 1981). In a 2012 survey of native plants found within 6 feet of the Kalalau Trail, no native plants were identified along the trail in Hanakāpīʻai Valley (Pono Pacific Land Management 2012). Very few rare and endemic species are found on the valley floor now, and are dominated by more common trees such as hala (*Pandanus tectorius*) and guava, or kuawa, (*psidium guajava*) (Tangalin et. al 2012, Pono Pacific Land Management 2012).

Fauna

There are several native seabird species found along the Nāpali Coast such as the threatened ʻAʻo, Newell's shearwater (*Puffinus auricularis newelli*) (DLNR, Division of State Parks 1981). These and other migratory birds are protected by the federal Migratory Bird Treaty Act. The coast and upland forests are

also important habitat for forest birds including the endangered Kaua'i 'ākepa (*Loxops caeruleirostris*) and Kaua'i creeper (*Oreomystis bairdi*) (DLNR, Division of Forestry and Wildlife 2011). Feral goats are found in Hanakāpī'ai Valley, which can be destructive to ecosystems through erosion and overgrazing (DLNR, Division of Forestry and Wildlife 2011). Feral pigs and Columbian black-tailed deer (*Odocoileus hemionus columbianus*) also contribute to erosion and degradation of the natural ecosystem. The streams of the Nāpali Coast are some of the few perennial streams to flow uninterrupted by channelization or other development to the sea (DLNR, Division of State Parks 1981). Hanakāpī'ai Stream and others along the coast were once rich with endemic species but more recently exotic aquatic fauna have taken over. An upper section of Hanakāpī'ai Stream, near Hanakāpī'ai Falls, provides critical habitat for Newcomb's snail (*Erinna newcombi*), which is a threatened species under the Endangered Species Act (ESA) (DLNR, Division of Forestry and Wildlife 2011).

Current Threats to the Ecosystem

There are several threats to the ecosystem in Hanakāpī'ai Valley. Plant species are at risk of being trampled by hikers widening trails or hiking off trail. This foot traffic can also cause erosion, further harming hillside flora. Hikers can also unknowingly spread seeds of invasive plant species, such as strawberry guava (*Psidium cattleianum*), on the bottoms of their shoes. Additionally, feral goats graze on many plant species, which tends to favor invasive species whose regrowth is quicker than endemic species (DLNR, Division of State Parks 1981).

The proposed bridge is not expected to have a significant impact on the flora and fauna of the project area. The bridge configuration would require a new section of trail, approximately 50 feet long and 4 feet wide, to be created along the hillside. This would have a minimal impact on the flora and fauna of the valley as a whole because no endangered or rare native species are found within the footprint of the project. Approximately 200 square feet of vegetation would need to be removed, including one native hala tree (*Pandanus tectorius*). This removal is considered insignificant for the ecosystem as a whole as hala is found with relative frequency in Hanakāpī'ai Valley and elsewhere along the trail, as are the other vegetation in the project site.

The bridge is not expected to have an impact on the native forest bird or seabird populations as they are not commonly found in the immediate project area. Because the bridge was designed such that the entire structure would remain outside of the stream channel, the aquatic environment is not expected to be impacted.

3.5 Natural Hazards

There are several natural hazards in Hanakāpī'ai Valley that must be considered for the safety of hikers and the sustainability of the proposed bridge. As explained in Section 3.2, the low permeability of soil in Hanakāpī'ai Valley contributes to the occurrence of flash floods. In addition, the steep valley walls contribute to erosion, especially along the well-travelled path. For these reasons, the bridge's substructure would be located outside of the stream channel and the crossing would be higher than the projected water surface elevation during a 100-year flood.

Sea level is projected to rise across the globe in the next century due to climate change, potentially rising over 3 feet by the year 2100 in the Hawaiian Islands (Fletcher 2010). At an elevation of approximately 44 feet above mean sea level and around 300 feet inland of the shoreline, sea level rise would not affect the proposed bridge (National Oceanic and Atmospheric Administration [NOAA] 2016).

Hanakāpīʻai Beach has experienced wave run up in excess of 10 feet or 20 feet resulting from tsunamis originating in the Aleutian Islands in the Northeast Pacific (Walker 2004). The proposed alignment of the bridge is safely inland of these past run-up areas and the proposed bridge is not likely to be affected by tsunamis.

3.6 Visual Resources

Hanakāpīʻai Valley is narrow and deep with many attractive vistas and is known for its natural scenery. The beach is sandy in the summer and rocky in the winter with impressive waves and several sea caves near the shoreline. The Hanakāpīʻai Falls Trail follows the usually clear, calm stream up the valley, passing through lush vegetation, remnants from taro terraces and an abandoned coffee mill. The view of Hanakāpīʻai Falls, a dramatic 300-foot waterfall, at the end of this trail is what drives many visitors to complete the 8-mile roundtrip hike. According to a 2007 Hawaiʻi Tourism Authority report, 73% of park users visit Hawai'i State Parks for the scenic views and photographs (OmniTrak Group Inc. 2007).

Hanakāpīʻai Valley remains a relatively undeveloped area, with the exception of the existing composting toilets and shelter. The installation of a bridge would introduce an additional man-made feature and alter some views in the area. The bridge will not be visible in many areas due to the dense foliage of the valley. In recognition of this impact, the proposed bridge materials and design were selected to mitigate this impact to the extent possible. The aluminum bridge would be finished with a dark brown powder coating to better assimilate with the color palette of the forest and stream banks. Additionally a plastic wood composite decking is proposed to cover the walkway of the bridge, adding a more natural aesthetic to the bridge. In conclusion, the bridge would unavoidably alter the visual resources of the project area, but mitigation measures have been included to have minimal encumbrance on the visual landscape.

3.7 Air Quality

Air quality in Hawaiʻi is generally good with trade winds helping to disperse pollutants. On Kauaʻi Island, air quality is monitored at a station in Niumalu, south of Līhue on the southeast side of the island. DOH has not reported exceedances of the National Ambient Air Quality Standards at this station in the last 5 years (DOH Clean Air Branch 2016).

Construction of the Project would result in minor short-term adverse impacts, including construction-generated emissions, such as exhaust from helicopters bringing equipment to the site. Construction would last approximately 10 weeks, so emissions would be limited in magnitude and duration. Emissions would not cause the area to exceed federal or state ambient air quality standards. Upon completion of construction, the Project is not expected to generate air emissions. Long-term, air emissions would be reduced compared to current conditions since fewer helicopter trips would be needed to rescue stranded hikers. No mitigation measures for air quality are necessary or proposed.

3.8 Noise

Due to its isolation from development and inaccessibility for most vehicles, Hanakāpīʻai Valley has minimal human-produced noise. This relative absence, leaving ambient noise to be dominated by the sounds of wind, waves, and fauna, is one of the draws of visitors to the site. Therefore the introduction of human-produced noise from other hikers (such as music players) and helicopters passing overhead detract from the value of the place.

DLNR, Division of State Parks recorded noise from helicopters in order to quantify its effects. Testing in nearby Hanakoa Valley showed that a helicopter passing at 500 feet above an observer produced a noise level 62 decibels adjusted (dBA), which is well above the background sound level of 48 dBA in that area. The noise levels increase to around 90 dBA when within 100 feet of a helicopter (DLNR, Division of State Parks 1981).

Construction of the Project would result in short-term, minimal adverse impacts. Construction activities would generate noise that would be audible on the trail and in the surrounding area. This noise could be perceived as a nuisance to hikers but would attenuate (lessen) with distance from the construction area. Construction noise would last approximately 10 weeks. Once construction was complete, the project would not produce noise and noise levels would return to their current state. Long-term, human-produced noise levels would be reduced compared to current conditions since fewer helicopter trips would be needed to rescue stranded hikers. No mitigation measures are necessary or proposed.

3.9 Socioeconomic Environment

There are no residents living in the surrounding area of the Nāpali Coast State Wilderness Park. The nearest population center is Hāʻena, located east of Hāʻena State Park. Hāʻena had a population of 431 people in 2010. The population of Kauaʻi County was 67,091 people in 2010 (U.S. Census Bureau 2010).

The Project would improve health and human safety in the Nāpali Coast State Wildnerness Park, which would benefit local park users and Kauaʻi County as a whole by minimizing the financial burden of KFD rescue missions. Construction and operation of the Project would have no short- or long-term adverse impacts on socioeconomics. Impacts on population or the local economy are not anticipated. Project construction would last approximately 10 weeks and maintenance trips after installation would be minimal. Therefore, the Project would not measurably affect the local population's welfare. No mitigation measures are necessary or proposed.

3.10 Recreational Use and Health and Human Safety

The Nāpali Coast is highly appreciated by both visitors and Kauaʻi residents alike for its scenic beauty, recreational opportunities, and social and cultural significance. People visit the coastline by boat, by air and on foot. As the Kalalau Trail sees increased foot traffic, particularly by inexperienced recreational users, the issue of health and human safety has become a more prominent public burden.

The Nāpali Coast is promoted to visitors as a recreational and scenic area worth visiting. It is described as "one of the precious jewels in the crown of the Hawaiian Islands" in Kauaʻi's Official Guide Map provided to visitors by the Kauaʻi Visitor's Bureau (KVB). A photo of the Nāpali Coast is featured on the cover of the 2015/2016 Official Travel Planner for Kauaʻi by the KVB and the area is a "Featured Attraction" in the publication described as epitomizing "epic beauty." The Nāpali Coast is also the backdrop for several popular movies, which is advertised in brochures for visitors and contributes to visitation to the coastline.

Viewing natural scenery and experiencing the recreational opportunities therein are considerable attractions for tourists to visit the island, according to a survey conducted by the KVB. Of the visitors surveyed, 83% were motivated to visit Kauaʻi in part by natural beauty/scenery, and 39% were motivated in part by adventure activities (KVB 2014). In the same survey in 2014, 25% of visitors were satisfied with the island's parks and 61% of visitors were *very* satisfied with the parks. Forty one percent

of respondents report hiking during their visit. Of the respondents, 59% report having visited the Nāpali Coast in some form.

State parks across the islands remain highly important and frequented venues for public recreation. According to a 2007 Hawai'i Tourism Authority Report, Hawai'i state parks had a total of 10,140,300 users that year. They represent a strong draw for visitors, as 67% of park users were out-of-state visitors. The Nāpali Coast State Wilderness Park was the ninth most visited state park, out of 55 state parks in Hawai'i, with 423,100 visitors in 2007 (OmniTrak Group Inc. 2007). Estimates of visitation of the Nāpali Coast State Wilderness Park have increased in the last 20 years from less than 500 daily visitors in peak season in 1993 to over 2,000 daily visitors in 2011.

Table 3-1 Past Hā'ena State Park Visitation Records. Adapted from Hā'ena State Park Master Plan 2015.

Year	Month/ Season	Day of the Week	Visitors per day	Source	Notes
1993	Off-peak	NP	50 (average)	The Keith Companies 2001	NP
1993	August	NP	353 (average)	The Keith Companies 2001	NP
1998	September	Friday	1,501	Stepath 1999	NP
1999	NP	NP	1,700	Stepath 2006	NP
2008	August	Holiday weekend	1,950 (estimate)	ATA 2013	Estimated based on 2.5 persons per vehicle
2010	February	Wednesday	1,247 (estimate)	DLNR Division of State Parks	Counts only conducted from 9:00 am to 4:00 pm. Estimated based on 2.5 persons per vehicle.
2011	July	Monday	2,028 (761 cars)	UH Hawaiian Studies (informal count)	Measured from 6:00 am to 6:30 pm. Includes 8 on bicycles, 14 hikers, 5 joggers, 20 pedestrians.

Notes:
Full references for all sources are included in the references section.

ATA	Austin Tsutsumi & Associates
DLNR	Department of Land and Natural Resources
NP	Not Provided
UH	University of Hawai'i

Risks to health and safety at Hanakāpī'ai have increased alongside this increase in visitation. In efforts to minimize injuries and death related to flooding in the region, several agencies have tried to increase awareness about safe practices. In a pamphlet produced by Hawai'i Tourism Authority (HTA) entitled "Tips for a Safe Vacation", it is noted that "island rainstorms can occur quickly and even brief downpours can cause flash floods. If the water level suddenly rises in a creek, drainage canal or other waterway, head immediately for higher ground" (HTA n.d.). Hanakāpī'ai Beach is recognized as one of the most dangerous beaches on the island and ocean safety tips are provided in a brochure produced jointly with the Kaua'i Lifeguards Association, KFD Ocean Safety Bureau, and several other partners and sponsors.

During heavy rain and flash flooding events, the bridge would provide a safe option for hikers to leave Hanakāpīʻai. The intent is to reduce the risk of hikers trying to cross a flooded stream that may potentially sweep them out to the ocean, where many drownings have occurred. For hikers that choose not to exit Hanakāpīʻai due to exhaustion and lack of water and supplies, a shelter has been built on the far side on the stream and emergency water and provisions are stocked by KFD in a secured area to accommodate these hikers. The bridge is intended to provide a safety factor for hikers, eliminating strandings and the associated risk of attempting a dangerous stream crossing, and for rescue responders, eliminating the need to extract stranded hikers.

The construction of this proposed pedestrian bridge may require temporary, intermittent trail closures during installation. This impact may occur during some portions of the 10-week installation period but will cease after construction.

In the long-term, this Project is not expected to alter recreational use in the Nāpali Coast Wilderness State Park. It is unlikely that the bridge would cause an increase in foot traffic because under normal conditions, the Hanakāpīʻai Stream crossing is approximately 1-foot deep with relatively slow moving water, which is manageable for most hikers who have the fitness and balance to traverse the first 2 miles of the Kalalau Trail to reach Hanakāpīʻai. The crossing becomes dangerous only under heavy rain conditions and the bridge is intended to provide a safe option to leave this section of the trail.

Hikers continuing inland to Hanakāpīʻai Falls or further along the coastal Kalalau Trail, will encounter additional stream crossings without bridges. Camping permits are required for those traveling beyond Hanakāpīʻai, and the streams in those areas do not pose the same safety risk. The number of hikers in these areas are not expected to increase due to the proposed bridge.

3.11 Public Facilities and Utilities

Due to Hanakāpīʻai's remoteness and location within a state wilderness park, there are few public facilities and no utilities. Existing composting toilets serve the visitors to Hanakāpīʻai Beach.

A rain shelter, constructed in 2016 to replace a previous collapsed feature, exists just inland of the existing composting toilet to provide minimal shelter to stranded hikers.

As noted in Section 3.10, the proposed bridge installation is not expected to increase use of the area, and therefore the Project is not expected to have any impacts on public facilities and utilities.

3.12 Historical and Cultural Resources

The impact of the proposed bridge on manmade features in the area dating from antiquity can be determined by an examination of the cultural, historical, and archaeological records as presented in Appendix C of this document.

As the DLNR does not currently provide leases for anyone to live or farm in the *moku* of Nāpali as the government allowed in 1938 and earlier—apart from cabins on the mountaintop in the area around the Kōkeʻe State Park—cultural practices in the *moku* are limited to hiking, camping with permit, hunting with permit, fishing, and gathering of foliage for cultural practices, such as *lāʻau lapaʻau* (traditional herbal medicines and practices), hula, or for various types of material culture. The non-profit organization, Nāpali Coast ʻOhana (napali.org), has a stewardship agreement to study, maintain, and restore cultural sites in the *moku* and currently focuses its work on the *ahupuaʻa* of Nuʻalolo (both the *ʻili* of Nuʻalolo Kai and Nuʻalolo ʻĀina) and Miloliʻi. Formerly, the ʻOhana also worked to help maintain

cultural sites in Kalalau. It is possible the group could consider doing the same at Hanakāpīʻai or perhaps another similar type group could endeavor to maintain and/or restore cultural sites in Hanakāpīʻai. Such opportunities open the door for the full range of cultural practices to be done in the *moku* as done around Kauaʻi. Such has been the case at sites the ʻOhana has done its work and a great many people from around Kauaʻi and beyond have benefitted from these opportunities.

Given the location of identified features by archeological data presented in Tomonari-Tuggle (1989) and the various *wahi pana* described in Appendix C, and given the topographical and geographical features deemed most appropriate to anchor the two ends of the spanning bridge for stability, the proposed spanning bridge does not appear to infringe or otherwise disturb manmade features in the immediate area of the proposed bridge. Features *ma uka* and *ma kai* of the proposed foundation of the bridge on both the east and west sides of Hanakāpīʻai Stream are located several meters away and therefore should remain intact.

3.13 Secondary and Cumulative Impacts

Secondary impacts are those impacts that manifest as an indirect result of the proposed bridge. Cumulative impacts are those that manifest as a result of this action in the context of other actions, past present and future, at the same location.

With increased visitors to the Hāʻena State Park and the Nāpali Coast State Wilderness Park and their impacts upon park resources, DLNR recognizes the need to manage this situation. A proposed Management Plan for Nāpali Coast SWP will provide the guidance on management options supported by the community. In concert with implementation of the Hāʻena State Park Master Plan, this will regulate visitation, because increased traffic on the trail could result in degradation of the natural environment and cultural resources as well as a diminished sense of isolation and immersion in nature that many hikers seek in the state park. The Division of State Parks, however, does not believe that keeping the dangerous conditions at Hanakāpīʻai Stream is the best way to manage park usage. Abstaining from constructing a bridge at Hanakāpīʻai Stream would not be the most effective way of managing visitation because visitors have already invested effort in hiking the two miles to reach Hanakāpīʻai Valley. They are presently undeterred by the inconvenience of fording the stream. The ideal place, however, to regulate visitation is at the trailhead at Hāʻena State Park, which is being proposed by the Division of State Parks (Personal Communication, Division of State Parks, 2015).

In the case that the proposed bridge causes an increase in the number of visitors, the issue of managing park visitation is already being addressed by the Division of State Parks through the Hāʻena State Park proposed MP and associated Draft Environmental Impact Statement submitted in July 2015. In the MP, Division of State Parks cites an increasing number of visitors over the past 30 years which could have detrimental effects on the natural and cultural resources in the area (see Table 3-1). In response, Hāʻena State Park proposes for the first time to impose limits on the number of visitors allowed to enter the park to 900 people per day. Because hikers have to pass through Hāʻena State Park to reach the Kalalau Trailhead, access to the trail and Hanakāpīʻai would be limited to 900 daily visitors as well. (DLNR Division of State Parks 2015). Because the timeframe of getting the MP approved and then implemented is longer than that of this bridge approval and construction, there would likely be a period during which the bridge exists but the limitations do not. Given the urgency of the health and human safety threat, the bridge is needed to improve the safety of hikers in the park and decrease the cost of rescuing stranded individuals.

4 Relationship to Government Plans and Policies

In this section, several relevant plans and policies from the State of Hawai‘i and the County of Kaua‘i are described in relation to the proposed action.

4.1 Hawai‘i State Plan

The Hawai‘i State Planning Act, codified in HRS Chapter 226, established the Hawai‘i State Plan, which guides development, resource protection and other actions of state agencies through goals, objectives and policies. The overall themes of the Hawai‘i State Plan, which guide policies of the plan, are: independence and self-sufficiency; social and economic mobility; and community well-being, including the preservation of “social, economic and physical environments that benefit the community as a whole” (HRS Section [§] 226-3). The proposed pedestrian bridge aligns with these themes of the Hawai‘i State Plan by allowing safe access to recreational opportunities for all users while having a minimal impact on the adjacent natural environment.

4.2 Hawai‘i State Land Use Law

The Hawai‘i State Land Use Law, passed in 1961 and codified as HRS [§] Chapter 205, established the State Land Use Commission (LUC), which determines the zoning of all land in the state into four categories: Urban, Rural, Agricultural and Conservation. Within Conservation Districts, land is classified as one of five subzones based on environmental sensitivity: Protective (most sensitive), Limited, Resource, General (least sensitive) and Special. The LUC has identified appropriate and allowed land uses within each of these subzones. The Project site is within the Conservation District, Resource Subzone, which has the objective to “ensure with proper management, the sustainable use of the natural resources of those areas” and has identified uses that fall within that objective (HAR [§] Chapter 13-5). The proposed pedestrian bridge falls under the category of “public purpose uses” requiring a Conservation District Use Permit, specified as “not for profit land uses undertaken in support of a public service by an agency of the county, state or federal government” (HAR Chapter [§]13-5).

4.3 Hawai‘i Coastal Zone Management Program

The Hawai‘i Coastal Zone Management (CZM) Program (HRS Chapter [§] 205A-2) complies with the federal Coastal Zone Management Act of 1972 (16 USC § 1451-1456). It is designed to protect valuable and vulnerable coastal resources. The CZM area includes all of the lands in the state, and thus, includes the Project. The SMA permitting process, with which the Project is conforming, is a component of the CZM Program. A discussion of the Project’s consistency with the objectives and policies of the CZM Program follows:

Recreational Resources

The objective and policies for recreational resources address providing coastal recreational opportunities to the public. The Project would not alter the current coastal recreational opportunities in the area and would improve the safety of public access. Therefore, it would be consistent with the objective and policies for recreational resources.

Historic Resources

The objective and policies for historic resources address preserving and enhancing significant historic and prehistoric resources. As discussed in Section 3.12, cultural, archaeological, and historical research

for the Project, determined that the proposed bridge would not alter any known historic and cultural resources at the site. The surrounding area contains multiple historic properties, but these would not be adversely affected by the Project. Therefore, the Project would be consistent with the objective and policies for historic resources.

Scenic and Open Space Resources

The objective and policies for scenic and open space resources address preserving, and, where desirable, enhancing the quality of coastal scenic and open space resources. As described in Section 3.6, the Project would result in minor to moderate adverse visual impacts. The proposed bridge structure and materials took into consideration this impact and employed mitigation measures to minimize this impact to the extent possible. Therefore, the Project would be consistent with the objective and policies for scenic and open space resources.

Coastal Ecosystems

The objective and policies for coastal ecosystems address protecting these valuable resources. The Project is approximately 300 feet inland and would not have an adverse impact on the shoreline ecosystem. The project would have a minor impact on the biological resources through removal of vegetation in the bridge and proposed trail footprint. No rare or endangered species would be removed, however, so the impact to the ecosystem as a whole is considered negligible. Therefore, the Project would be consistent with the objective and policies for coastal ecosystems.

Economic Uses

The objective and policies for economic uses address the development of public and private facilities and improvements, primarily coastal-dependent development, in suitable locations. As previously stated, the proposed pedestrian bridge is an allowable Public Purpose Use in Conservation District, Resource Subzone lands, with a permit approved by the Board of DLNR. A Conservation District Use Application for the Project would be submitted to the DLNR, and the Project would not proceed until the permit is approved. Therefore, the Project would be consistent with the objective and policies for economic uses.

Coastal Hazards

The objective and policies for coastal hazards address hazards associated with tsunamis, storm waves, stream flooding, erosion, subsidence, and pollution. The Project is outside the tsunami inundation zone and potential areas vulnerable to projected sea level rise. The design and alignment of the bridge took into consideration the potential for a 100-year flood. There is no danger of subsidence or point or nonpoint source pollution hazard for or from the Project. T herefore, the Project would be consistent with the objective and policies for coastal hazards.

Managing Development

The objective and policies for managing development address improving the development review process, communication, and public participation. DLNR Division of State Parks' communication and public participation efforts are described in Consultations, Section 8 of this document. During the planning process, State Parks has engaged regulatory agencies, community groups, and other

stakeholders and responded to their comments and questions. Therefore, the Project would be consistent with the objective and policies for managing development.

Public Participation

The objective and policies for public participation address stimulating public awareness and participation. State Parks' public outreach and participation efforts are described in Consultations, Section 8 of this document. During the planning process, State Parks has engaged stakeholders and responded to their comments and questions. Therefore, the Project would be consistent with the objective and policies for public participation.

Beach Protection

The objective and policies for beach protection address protecting beaches for public use and recreation. The Project area is approximately 300 feet inland from Hanakāpīʻai Beach. The proposed bridge would not contribute any pollution that could affect the beach downstream. Therefore, the Project would be consistent with the objective and policies for beach protection.

Marine Resources

The objective and policies for marine resources address protecting and sustainably using and developing marine resources. No impacts to marine resources are anticipated from the Project. Section 3.3 of this document – Hydrology and Water Quality – addresses potential impacts to surface water, which are negligible. Therefore, the Project would be consistent with the objective and policies for marine resources.

4.4 County of Kauaʻi General Plan

The County of Kauaʻi's General Plan (GP), first adopted in 1971 and updated in 1984 and 2000, sets policies and guidance for development, both public and private, across the island with a long-term vision. The GP forms planning policies around: caring for land, water and culture; developing jobs and businesses; preserving Kauaʻi's rural character; enhancing towns and communities and providing for growth; building public facilities and services; and improving housing, parks and schools. This project is in alignment with the priorities outlined in the GP by improving safety of the Nāpali Coast Wilderness State Park while not impacting the natural and cultural environment.

4.5 Permits and Approvals

The following permits and approvals will be required prior to implementation of the Project.

- Special Management Area Use Permit from the County of Kauaʻi Planning Department
- Conservation District Use Permit from DLNR, Office of Conservation and Coastal Lands
- State Historic Preservation District approval

5 Unavoidable Adverse Impacts

Construction would result in unavoidable short-term, localized, minimal adverse impacts related to air quality, noise, public access, and recreational use. Construction-related impacts would be temporary.

In the long term, the Project would result in minimal to moderate adverse impacts to visual resources. The Project would result in long-term, minimal adverse impacts to biological resources and negligible

impacts to air quality and noise.

The Project would also benefit the public by improving public safety for recreational users and emergency responders in the area while minimally altering or affecting the environment.

6 Irreversible and Irretrievable Commitment of Resources

A commitment of resources is irreversible when the primary or secondary impacts limit the future options for a resource. An irretrievable commitment refers to the use or consumption of resources that are neither renewable nor recoverable for future use.

The Project would require the irreversible and irretrievable commitment of fiscal, human, and material resources for its construction. These commitments would be minimal and are considered appropriate since hikers and emergency responders would benefit from improved safety on the trail.

A small area of land would be committed to the proposed bridge footprint; however, this commitment would not be irreversible or irretrievable since the land could be restored to a pre-Project state, if future conditions warrant.

7 Determination

The proposed bridge installation is not expected to have any significant negative impacts on the environment. The site's climate, geology, topography, soils, hydrology, water quality, natural hazards, air quality, and historic and cultural resources are not expected to be affected by the Project. Minimal impacts on the site's flora and fauna, noise, air quality, public access and recreational use are expected to occur during construction and cease post-installation. The Project may have minimal lasting impacts on visual resources and recreational use, which will be addressed through mitigation measures. The Project is expected to positively impact health and safety.

State Parks, the accepting agency, has determined a FONSI for this EA pursuant to Chapter 343, HRS. This finding is based on the impacts and mitigation measures examined in this document and the analysis under the criteria in Section 11-200-12, HAR.

8 Consultations

8.1 Pre-Assessment Consultations

Pre-assessment consultation was conducted with stakeholders from local agencies and the community in Hā‘ena in March 2015 to solicit feedback about the proposed stream bridge. The purpose of this scoping meeting was to solicit input from state and local agencies, organizations, and individuals with technical expertise, or that may have an interest in or be affected by the Project. Input received at this meeting was used to inform the content of the Draft EA . A list of agencies and other stakeholders who were contacted about this meeting and/or attended can be found in Appendix A.

8.2 Draft EA Comment Period

The Draft EA will be published in the State of Hawai‘i Office of Environmental Quality Control's *The Environmental Notice*, on October 8, 2016, initiating a 30-day public comment period. Draft EA consultation letters were mailed to the parties identified in Appendix B, along with the publication date of the Draft EA.

The purpose of the Draft EA comment period is to coordinate with federal, state, and local agencies, organizations, and individuals with technical expertise or that may have an interest in or be affected by the Project. Comments received in response to the Draft EA consultation letters will be used to further refine the content of the Final EA. Copies of any comments received and responses will be included in an appendix of the Final EA.

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Appendix A – Pre-Consultation

Below is a list of organizations, agencies or other affiliations of invitees and/or attendees of the stakeholder scoping meeting held in March 2015 in Hā‘ena on the proposed pedestrian bridge at Hanakāpī‘ai Stream.

National Tropical Botanical Garden

University of Hawai‘i at Mānoa

‘Aha Moku

Limahuli Garden

Hanalei Community Association

Hui Maka‘āinana o Makana

Hanalei Watershed Hui

Waipa Foundation

Nā Pali Coast ‘Ohana

Kaua‘i Fire Department

Kaua‘i Ocean Safety

Kaua‘i County, Economic Development

Kaua‘i County, Engineering Division

Kaua‘i Visitor’s Bureau

Division of Conservation and Resource Enforcement

Appendix B – DEA Distribution List

Below is a list of agencies and organizations to whom consultation letters will be mailed simultaneously with the publication of the draft EA. There are also a number of individuals from whom consultation will be sought.

Federal Agencies
Army Corps of Engineers
U.S. Fish and Wildlife Service

State Agencies
Department of Health, Environmental Planning Office
    Disability and Communications Access Board
Department of Land and Natural Resources
    OCCL
    Land Division
    DOCARE
    DOFAW
    DAR
    Engineering Division
    SHPD
Office of Planning
Office of Hawaiian Affairs

Hawai'i State Library, Hawaii Documents Center
Līhue Regional Library
Kaua'i Community College Library

County Agencies
Fire Department
Ocean Safety Bureau
Police Department
Department of Planning
Kauai Civil Defense Agency
Department of Water
Office of Economic Development
Engineering Division, Dept. of Public Works

Organizations
Hui Maka'āinana o Makana
Hanalei Watershed Hui
Nā Pali Coast 'Ohana
National Tropical Botanical Garden
Limahuli Garden and Preserve

ʻAha Moku
Kauaʻi Visitors Bureau
Waipā Foundation
Princeville at Hanalei Community Association

Appendix C – Cultural Analysis

Hanakāpīʻai Valley

Moku of Nāpali
Ahupuaʻa of Hanakāpīʻai
County of Kauaʻi

Cultural Analysis

Prepared for Tetra Tech Inc. by
Keao NeSmith, PhD, and Honua Consulting

Keao NeSmith, PhD
Trisha Kehaulani Watson, JD, PhD
Rosanna Thurman, MA
Bee Thao, BA

September 2016

Table of Contents

1. The authors

Keao NeSmith, PhD (traditionalhawaiian.com), is a consultant, advising commercial enterprises on rebranding and re-imaging and the public sector on culturally- and community-based projects that enhance cultural and community awareness. Keao is a former teacher of Hawaiian and Tahitian languages and Hawaiian studies at the Universities of Hawai‘i at Hilo and Mānoa. Keao has taught at universities in French Polynesia and New Zealand, where he also studied. He is an author and translator of numerous books, including well-known international titles.

Honua Consulting (honuaconsulting.com) has been in operation since 2003 and provides the Hawaiian community with critical opportunities to learn about economic, environmental or community consultation opportunities. Honua Consulting consists of a small group of Hawaiian contractors who work in Hawai‘i to provide professional services in the areas of culture, education, community relations and environmental services.

2. Executive summary

The Kalalau Trail from Kē‘ē Beach at the border of the *moku* of Halele‘a and Nāpali to Hanakāpī‘ai Valley—the most traversed section of the 11-mile trail—has seen a dramatic rise in foot traffic, particularly since the 1980s. Increased incidents of lives being put in danger, near deaths, and deaths on the trail and at Hanakāpī‘ai Stream and Beach have likewise increased in the same time period and this has led to heightened concern among State and Kaua‘i County officials, and the public in general, with regards to public safety.

The State of Hawai‘i Department of Land and Natural Resources (DLNR), State Parks Division, proposes to construct a pedestrian bridge to cross Hanakāpī‘ai Stream. The bridge is proposed to be built 300 feet inland of the mouth of Hanakāpī‘ai Stream to mitigate accidents and deaths due to people attempting to approach or cross the stream during flash flood events. Carpenter (2015) provides an overview of infrastructure needs to facilitate management of the Nāpali Coast State Wilderness Park and the proposed foot bridge likewise facilitates management as one of its functions. Tetra Tech Inc. was enlisted by the DLNR to assess and determine the most plausible location for a pedestrian crossing bridge over Hanakāpī‘ai Stream. The result of this effort was The Bridge Type Selection Report produced by Tetra Tech in which a truss-type bridge is recommended. According to the report (Tetra Tech, 2016), the proposed bridge design,

> . . . reduces the impacts to the existing trail, allows the existing trail to remain open to visitors, avoids rock pavers that are considered arhaeological resources, utilized existing rock outcroppings for foundation supports and ultimately was the shortest clear spanning option. There will be no supporting structures located in the stream.

3. Scope of this report

This report is provided as an addendum to the Environmental Assessment and describes the cultural significance and functions—past and present—of the Kalalau Trail and Hanakāpīʻai Valley and *ahupuaʻa*. This report also recounts some relevant events in history in the *ahupuaʻa*.

4. Hanakāpīʻai: A description

Hanakāpīʻai Valley, in the *moku* of Nāpali on Kauaʻi's north shore, is a funnel-shaped, two-mile deep valley with the wide end on the coast.[1] It is about 1,000 ft. wide at its widest point. The valley is enclosed on its northwestern and southeastern sides with cliff walls about 200 feet high at the coast that ascend in elevation inland, where they meet at the head of the valley to join the Honoonāpali range at an elevation of 1,786 feet.[2] Despite being a deep valley, Hanakāpīʻai has very little flat land as the slopes of its two steep cliff walls terminate abruptly at the stream below.

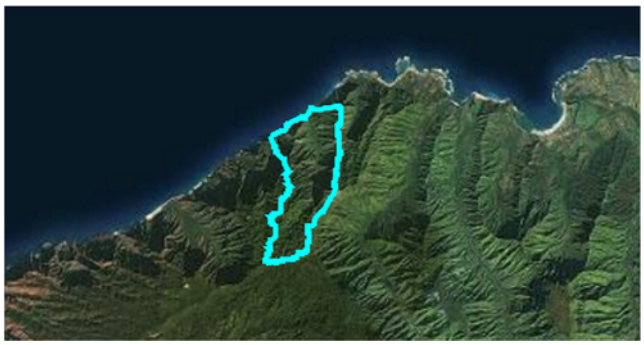

Fig. 1: Hanakāpīʻai Valley highlighted.

The mottled white and black sand on its beach shifts seasonally from plenty in the summer to none in the winter. The calm, summer months see the largest volume of sand at the beach, while most of the sand is washed away in the winter months, when seasonal swells from the north generate enormous, powerful waves that wash away the sand and expose black basalt rocks on the coast.[3]

Fig. 2: Hanakāpīʻai Beach sand and ocean conditions on a typical summer day.

Fig. 3: Sands washed away on a typical winter day with rough seas.

[1] See Tomonari-Tuggle (1989, p. 25) for a detailed description.
[2] Juvik & Juvik (1998, p. 5).
[3] See Daehler (1978).

There is a perennial stream in the valley known as Hanakāpīʻai Stream that is primarily fed by a ledge waterfall known as Hanakāpīʻai Falls at the head of the valley, with periodic heavy rains and runoff augmenting volume in the stream. The winter months generally experience more rainfall than in the summer months. Hanakāpīʻai Falls is about 300 feet high and plummets down the groin at the head of the valley. There is no regular recording of rainfall in Hanakāpīʻai Valley, but the valley receives roughly the same amount of annual average rainfall as Hanalei, for which 77.76 inches average is recorded.[4]

Among the most dangerous situations involving flooding in the Hanakāpīʻai Stream was one incident on February 16, 2016, when more than a dozen hikers were stranded overnight on their return to Kēʻē Beach from Kalalau Valley[5] and another on April 7, 2014, when more than 100 people needed to be rescued by emergency rescue crews.[6]

Fig. 4: Hanakāpīʻai Stream in calm conditions.

Fig. 5: Hanakāpīʻai Stream during a flood event.

Fig. 6: A view of Hanakāpīʻai Valley from the ocean. Steep slopes of the two cliff walls of the valley end abruptly at the stream at the valley floor.

Hanakāpīʻai is also the name of the *ahupuaʻa* (subdistrict) in which the valley is located.[7] Of the seven *ahupuaʻa* in the *moku* of Nāpali,[8] Hanakāpīʻai is the first when approaching from the start

[4] https://rainfall.weatherdb.com/.
[5] http://dlnr.hawaii.gov/docare/news/nr16-034d/.
[6] http://khon2.com/2014/04/07/rescue-underway-for-70-hikers-stranded-at-hanakapiai-trail-on-kauai/.
[7] Traditional Hawaiian *kālaiʻāina* system of land management established by King Manokalanipō in the early 15th century. A *moku* is the largest district of an island, an *ahupuaʻa* is a subsection of a *moku*, and an *ʻili* is a subsection of an *ahupuaʻa*. See Hommon (2013, pp. 12-14); Wichman (1998, pp. 102-103), and Handy & Handy (1991, pp. 46-51).
[8] From east to west: Hanakāpīʻai, Hanakoa, Pōhakuao, Kalalau, Hanapū, ʻAwaʻawapuhi, Nuʻalolo.

of the Kalalau Trail at Kēʻē Beach, which is the generally accepted border between the *moku* of Haleleʻa (which includes Hanalei) and Nāpali. As an *ahupuaʻa*, Hanakāpīʻai spans not just the valley in which Hanakāpīʻai Stream is found, but also all of the area from mountain to sea including the length of the Kalalau Trail from Kēʻē Beach to Hanakāpīʻai Beach. On the walk from the start of the Kalalau Trail at Kēʻē Beach, hikers encounter about 14 *ʻōawa* (mini valleys) and about 9 *hulaʻana* (rocky points that can only be passed by swimming around them were it not for the Kalalau Trail) and the trail winds through switchbacks at each of these. There is no doubt that each of these *ʻōawa* and *hulaʻana* have names, but only some of these names have thus far been learned through research of maps and literature. Features such as these are *ʻili* and are significant in describing the *ahupuaʻa* and its various natural resources.

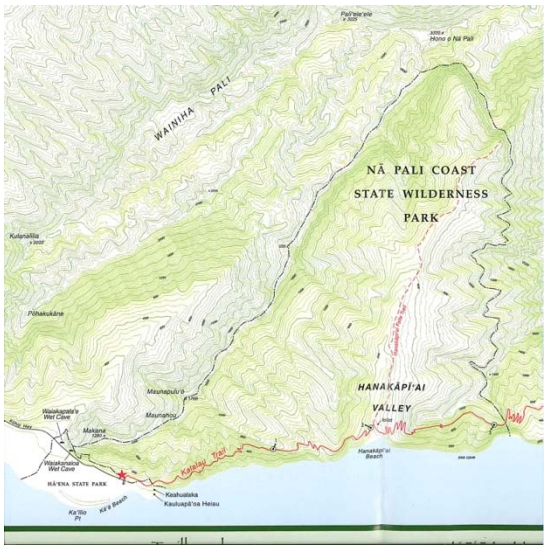

Fig. 7: Contour map showing switchbacks (*ʻōawa* and *hulaʻana*) on the trail between Kēʻē Beach and Hanakāpīʻai Valley.[9]

Fig. 8: A Google Earth image of the start of Kalalau Trail to Hanakāpīʻai Beach.

[9] See brochure: Kalalau Trail: Nāpali coast State Wilderness Park Kauaʻi.

Fig. 9: This map by Gay and Robinson (1891) shows names of some points, valleys, and peaks in the area of Hanakāpīʻai.

Fig. 10: This iconic view of Hanakāpīʻai Beach is seen from Kaleinakauila Point indicated in Gay & Robinson (1891).

Various maps since the early 1800s contradict each other with regards to *moku* and *ahupuaʻa* borders, and this has been true also relative to the border between the *moku* of Haleleʻa and Nāpali. Whereas Harvey (1901) describes the *moku* of Nāpali as inclusive of Kēʻē Beach and terminating at Limahuli Stream (where the National Tropical Botanical Garden is located), most maps pre-dating and post-dating Harvey, such as Coulter (1935, p. 228), use Kēʻē Beach as the border point, with Kēʻē included in the *moku* of Haleleʻa. This is the widely accepted border.

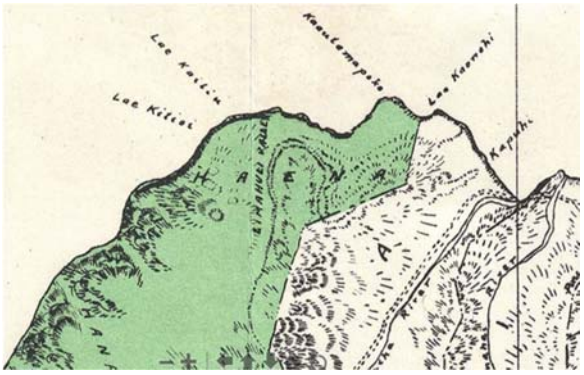

Fig. 11: Harvey (1901) includes Hāʻena in the *ahupuaʻa* of Hanakāpīʻai, *moku* of Nāpali.

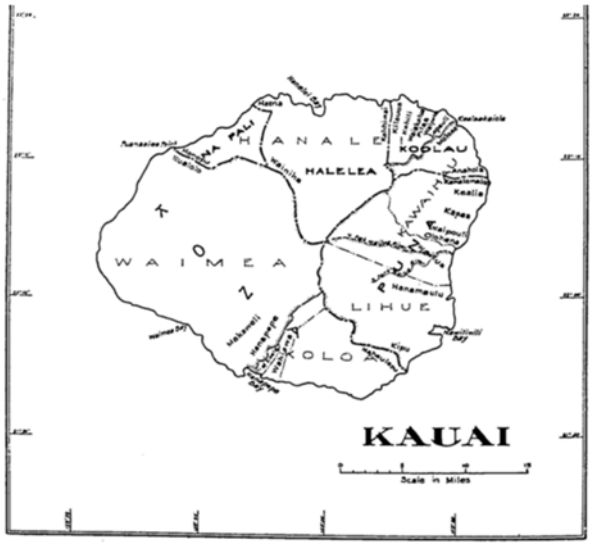

Fig. 12: Coulter (1935) places Hāʻena in the *moku* of Haleleʻa, with Nāpali and Hanakāpīʻai beginning at Kēʻē Beach.

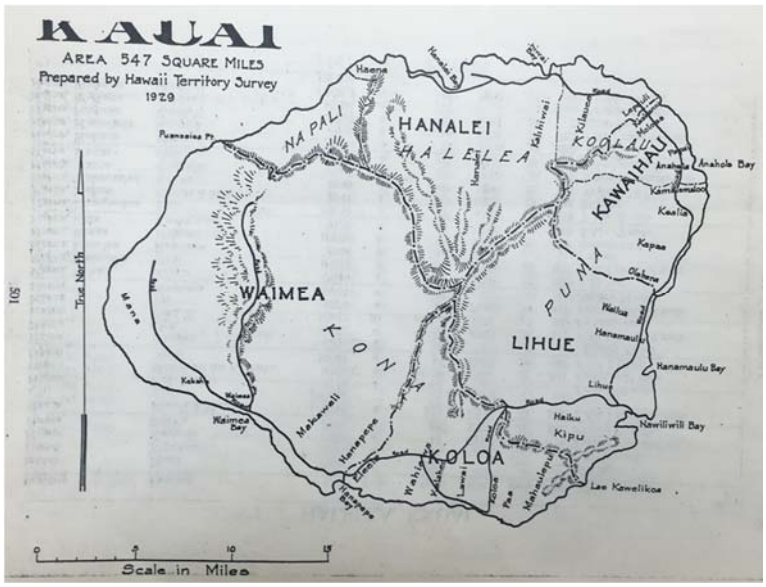

Fig. 13: Moku borders under the Territory of Hawai‘i (1929). Moku names and borders changed.[10]

The boundary certificate of the Hawaiian Kingdom government of 1874 (below) describes the eastern-most border of the *ahupua‘a* of Hanakāpī‘ai as Waikāama Valley just west of Kē‘ē Beach.[11] Wichman (1998, pp. 137-138) also places the border here. According to Wichman (p. 138):

> The first headland between Kē‘ē and Hanakāpī‘ai, at the top of the climb from Kē‘ē on the Wundenberg Trail, is Ka-leina-ka-uila, “jumping off place of lightning.” The cliff that drops from here is Wai-kā-ama, “water striking the canoe outrigger.” It marks the boundary between Hanakāpī‘ai and Hā‘ena. Its name indicates the first of many waterfalls cascading down the cliffs, splashing in the sea.

[10] Territory of Hawai‘i (1929, p. 501).
[11] State of Hawai‘i Department of Land and Natural Resources (1969, pp. 112).

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Boundary of the Ahupuaa of Hanakapiai

From the foregoing evidence the following decision was rendered

Decision

The Boundary of this land commences on the sea shore at a place called Waikaama and thence to a place called Kokuapoue, thence to a ridge called Laaukea thence up ridge to point or hill to a place called Namanamanai. Thence following up same ridge to point or hill called Pookaloko, thence up ridge to peak called Puanui Thence up same ridge to peak Kalapoakalulu thence up ridge to Alinui the furthest point of Haena and the limit of this land with Wainiha, thence continuing up along Wainiha to a peak Hakea thence up through forest to peak Waiau. Thence to Alakaai the highest point on Eastern boundary. Thence round the head of this land to Kapoioa the commencement of Western boundary thence down Western boundary to a cave in cliff called Halehaila thence down to peak Kaoou. Thence continuing down ridge to Peak Pohakuakauai. Thence down ridge to Peak Pohakaea thence to peak on ridge Hoolulu. Thence to a rock where the gods used to meet and called Kailua thence to a rocky stream on the sea shore and called Waipunahaea and thence round to place of commencement

Duncan McBryde
Commissioner of Boundaries
Island of Kauai

Fig. 14: Boundary Certificate for the Ahupua‘a of Hanakāpī‘ai. Hawai‘i State Archives.

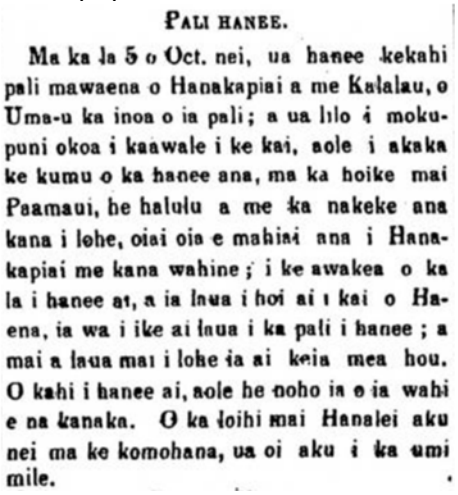
4.1. The Kalalau Trail

The start of the hiking trail is at Kēʻē Beach at the end of the Kūhiō Highway. This trail is approximately 11 miles long and ends up at Kalalau Beach, four *ahupuaʻa* into the *moku* of Nāpali. Wichman (1998, p. 136) reports the following about this trail:[12]

> Precipitous trails, well maintained, climbed in and out of each valley. However, the trail from Hāʻena to Kalalau, which is often said to be an ancient one, was actually created in 1860 under the supervision of Controller of Roads Gottfried Wundenberg. He set off over 400 blasts of dynamite. The trail was created in order to bring out coffee and oranges being grown commercially in the valleys of Kalalau, Hanakoa, and Hanāpīʻai. For this reason the trail was made wide enough for a heavily laden donkey to walk comfortably.

As a remote place with steep, unmaintained cliffs, the area of Kalalau Trail is susceptible to landslides. As reported in 1871:

Ka Nūpepa Kūʻokoʻa, 21 Oct. 1871, p. 3.



PALI HANEE.

Ma ka la 5 o Oct. nei, ua hanee kekahi pali mawaena o Hanakapiai a me Kalalau, o Uma-u ka inoa o ia pali; a ua lilo i mokupuni okoa i kaawale i ke kai, aole i akaka ke kumu o ka hanee ana, ma ka hoike mai Paamaui, he halulu a me ka nakeke ana kana i lohe, oiai oia e mahiai ana i Hanakapiai me kana wahine; i ke awakea o ka la i hanee ai, a ia laua i hoi ai i kai o Haena, ia wa i ike ai laua i ka pali i hanee; a mai a laua mai i lohe ia ai keia mea hou. O kahi i hanee ai, aole he noho ia e ia wahi e na kanaka. O ka loihi mai Hanalei aku nei ma ke komohana, ua oi aku i ka umi mile.

LANDSLIDE

On the 5th of October, a cliff collapsed between Hanakāpīʻai and Kalalau. The name of the cliff was ʻŪmaʻu. It became a separate rock island in the sea. The reason for the landslide is not known. According to Paʻamaui, there was a loud roar and crackling sound while he was farming in Hanakāpīʻai with his wife in the afternoon of the day of the landslide, and as they were heading back to Hāʻena, that is when they saw the landslide. This news was reported by the two of them. The area where the landslide occurred was not inhabited by anyone. The distance from Hanalei to the west was more than ten miles.

Carpenter and McEldowney (2010) did an exhaustive survey of the Kalalau Trail from Kēʻē to Hanakāpīʻai providing a historical overview, a review of archaeological features, and conditions of the trail at various points.

4.3. Name variants: ʻHanakāpīʻaiʼ and ʻHanakapīʻaiʼ

The name, *Hanakāpīʻai*, has been translated into English by Pukui, Elbert & Mookini (1976, p. 40) as "bay sprinkling food" (*hana kāpī ʻai*); in other words, a bay where food (*ʻai*) is sprinkled (*kāpī*), usually with salt for seasoning or preservation. Wichman (1998, pp. 137-138) also uses this spelling and interpretation of the place name. However, the name can also be interpreted as *Hanakapīʻai*, 'bay of the *pīʻai* berry' (*hana ka pīʻai*) or 'bay of one who is stingy with food' (*hana ka pī ʻai*). Given that a number of interpretations are possible for the meaning of this

[12] See also Carpenter & McEldowney (2010, p. 86).

place name, more context is needed to make a determination as to which interpretation is most reliable. If a story were to be found that provides an explicit interpretation, this would help establish a more definitive interpretation. So far, no story that explicit has been uncovered. It is also possible, however, that the multiplicity of interpretations was intentional on the part of the name giver or the people of the *ahupuaʻa* or *moku* from generations ago, especially given that each of the interpretations presented here are equally plausible.

Rice (1923, pp. 42-44) explains that the valley was named after a Menehune chiefess named Hanakāpīʻai who died giving birth on the ridge above the head of Hanakāpīʻai Valley. The Menehune were traveling in a large group on the ridge above at the time, and so the company paused to mourn the death of the chiefess. Rice states that this event correlated with the exodus of the Menehune people from Kauaʻi, a single event known in Kauaʻi lore. When this event occurred is unclear. So if the time period of the departure of the Menehune can be determined, the naming of this valley can also be dated.

Many of the *heiau* on Kauaʻi are attributed to the Menehune, including the *aliʻi heiau* of Poliʻahu and Malaehaʻakoa in Wailua, and so their exodus must have coincided with the reign of one of Kauaʻi's *mōʻī* (kings) some time before the last reigning *mōʻī*, Kaumualiʻi. If this can be done, the question remains, "What was the valley called before then?"

Wichman (1998, p.138) offers another interpretation of the place name:

> A play on words transposes the name into Hana-ka-pīʻei, "constant looking out to protect a love affair." A certain chiefess named Hanakoa liked to "make trouble" with a handsome chief named Wai-ʻehu. They met in a cave, thinking themselves secure from prying eyes, but brought attention to themselves by constantly peeking out to see if they were observed.

'Hana' as a prefix in a place name is understood to mean 'bay' and perhaps 'bay and including the valley inland of the bay'. Other Polynesian variants of 'hana' seen in place names of South Pacific islands are *faʻa*, *hanga*, *hana*, *haʻa*, *whanga*, and *ʻanga*, each having the same meaning as 'hana'.

Kauaʻi is unique in the Hawaiian Islands in that its bay names are 'hana' (e.g. Hanapēpē, Hanakāʻape, Hanalei), whereas the other islands have 'hono' place names, as in Honolulu (Oʻahu), Honolua (Molokaʻi), Honomanu (Maui), Honokōhau (Kona, Hawaiʻi), and Honoliʻi (Hilo, Hawaiʻi).[13] It is likely that 'hono' is a relatively recent and uniquely Hawaiian innovation of the traditional Polynesian 'hana'. This possibly also indicates that the language of Kauaʻi's people

[13] Hanakoa (the usual pronunciation among Kauaʻi locals) is sometimes rendered in 19th century Hawaiian language newspapers as Honokoa. Honopū (the usual pronunciation among Kauaʻi locals), the valley to the west of Kalalau in Nāpali, is also recorded in some accounts as Hanapū. It is likely that people started referring to Hanakoa as Honokoa and Hanapū as Honopū in the 1800s with the influence of the variety of Hawaiian of other islands on Kauaʻi people in the time period.

maintained some of its proto-Polynesian roots over time while those of the other islands of the archipelago altered the language.

There is an old Kauaʻi story of a man of Hanamāʻulu on Kauaʻi's east coast who was stingy (*pī*) with his food (*ʻai*) when passers-by would pass near his home. It is traditional Hawaiian custom to call out to passers-by, "Hui! Hele mai ʻai!" (Come eat!) to welcome strangers, especially long-distance travelers, into one's home and feed them and provide drink. But this man would shy away from such niceties or he would offer poi that was so watered down that it was nearly liquid. He would add small pieces of tough, dried squid to the poi so that his unwanted guest would chew constantly until they became tired and fell asleep and his food would be spared for himself. This is a story that is passed on by elders and is often cited as the source of the expression, "Kauaʻi pī" (stingy Kauaʻi people). This story is sometimes misidentified as a Hanakāpīʻai story due to the words, *pī* and *ʻai* being used to recount the story in Hawaiian, but according to elders, this story originates in Hanamāʻulu and not Hanakāpīʻai.

4.4. *Wahi pana* and traditional stories of Hanakāpīʻai

Although Pukui & Elbert (1986, p. 313) describe a *pana* as a "celebrated, noted, or legendary place", a clearer understanding of a *wahi pana*—as known among native speakers of Hawaiian—is a particular object, such as the remnants of an old, stone house foundation, a rock or rock outcropping, a pool, spring, hill, cliff, tree or grove, surfbreak, reef, fishing spot, or some other identified object or geographical feature that has a story attached to it. Usually, a *wahi pana* has a name, but sometimes while the story remains, the name is lost to time.

The *ahupuaʻa* of Hanakāpīʻai has a number of *wahi pana* in it, and some stories have survived until today and are noted here:

From the unpublished manuscript compiled by Kauaʻi native, J. A. Akina in 1868, the following stories and *wahi pana* in Hanakāpīʻai are found:

pp. 137-138.

Maio ame Akiua

Aia no mauka loa aku o ke awawa o Hanakapiai, he ahua pohaku na na keikikane Menehune ame na kaikamahine Menehune i hana a kukulu ai, i mea hoike no ka hoomaamaa a hahai ana o ua poe keiki Menehune nei i na hana a lakou i ike ai i ka hana ia e ko lakou mau makua Menehune, o ka like ole wale no nae ma keia hana a na keiki, oia no ka huipu ana o na keikikane ame na kaikamahine Menehune a hana pu me ka lokahi o ka manao, aia wale no ka lakou nana o ka paa a ku o ke ahua pohaku i oleloia ma ka lakou hana a hooikaika ana. I ka paa ana o

Māio and ʻAkiua

Far inland in the valley of Hanakāpīʻai is a heap of stones that Menehune boys and Menehune girls built and set up in order to show off and practice the skills of Menehune children as they followed in the ways of their Menehune parents. The only thing, however, that was different about what these Menehune children would do is that Menehune boys and girls would gather together and work with one thought and purpose in mind, which was to build a rock heap until it was sturdy and stood upright by their hard work. When the heap was put

ua ahua pohaku nei ua kapa aku la no ua poe keiki Menehune nei i ka inoa o ua ahua pohaku nei o “Ma-i-o”. He pohaku nui no kekahi a ua poe keiki Menehune nei i hana a lawe a hooku pu maluna o ke ahua pohaku a lakou i hana ai, a o ka inoa o keia pohaku nui a ua poe keiki Menehune nei i kapa ai, oia no o “A-ki-ua”. O ka inoa keia o ke keikikane Menehune nana i alakai a kuhikuhi i ke ano o ka lawelawe ame ka hana ana a paa ai ua ahu pohaku nei a ua poe keiki Menehune nei i hana ai, a o keia keiki ke keikikane a ke kaukaualii Kahuna Kalai Pohaku a Kalai Laau o na ano mea apau o ke alii “Maoli-ku-lai-a-kea”, a he keiki Menehune piha makaukau no keia i kekahi mau hana akamai e hoahele ana no hoi ma ka meheu o kona makuakane. A he mea hoike aku keia pohaku nui a ua poe keiki Menehune nei, i ko lakou mau makua Menehune no ko lakou hana ana i keia hana aiwaiwa a ua lilo no ia mau hana a ua poe keiki nei i mea hoohauoli nui loa aku i na makua o lakou.

together, the Menehune children called the heap of rocks Māio. One of the rocks that the Menehune children made and took and erected on the heap was large, and the name the Menehune children gave the large rock was ‘Akiua. This was the name of Menehune boy who led and directed the carrying out of the way the work was to be done as the Menehue children built and erected the stone altar, and this Menehune boy was the son of the lesser chief Stone Carving and Wood Carving Master Kahuna of all things for the king, Maoli-kū-la‘i-ākea, and this was a Menehune who was gifted at these kinds of clever acts that followed in the footsteps of his father. This large stone was set up to demonstrate the skill of the Menehune children to their Menehune parents in accomplishing this kind of amazing feat, and this type of action of these children became something that their parents really enjoyed.

pp. 138

Ke Kuapa o Hanakapiai me Pohakuao

He ku-a-pa pohaku kekahi mea nui hoomanaoia a keia poe keiki Menehune i hana a kukulu ai, ma kahi ano kahakai o Hanakapiai ame Pohakuao, a aia no ke ike ia nei he hapa wale no paha o keia mau ku-a-pa i keia manawa, mamuli o ka wawahi liilii mau ia ana e na manawa kaikoo ikaika o na wa i hala loa aku nei, a me na kanaka Hawaii no paha i noho ai ma keia mau awawa, a ke waiho mokaki ala no nae na pohaku o ua mau ku-a-pa nei a na keiki Menehune i hana ai, a he kakaikahi wale paha ka poe i ike a lohe paha he mau pohaku ia mai na ku-a-pa mai a na poe keiki Menehune i hana ai ma ia mau wahi. He mau ku-a-pa nunui manoanoa, a kiekie kupono no keia i hanaia ai e ua poe keiki Menehune nei, a no ka nui a lehulehu

The Reef Fish Pond Wall of Hanakāpī‘ai and Pōhakuao

There is a fish pond rock wall built out on the reef that was set up as a memorial that these Menehune children made and built on a kind of beach of Hanakāpī‘ai and Pōhakuao, and only a portion of the wall is seen today due to it being dashed to bits over time by the strong swells in times long past, and by Hawaiians too who lived in these valleys, and the rocks of the wall that the Menehune children made are strewn about and only a few remain who have seen or heard about these rocks that used to be part of the fish pond wall that the Menehune children built in those places. The fish pond walls built by these Menehune children were quite huge and thick, and they were quite tall, and since they did so much of these kinds of things it

no hoi ua lilo i mea ole wale no ka hana nui i hana ia ai e lakou, e lawe ana no hoi i ka (moto) mea i maa i ko lakou mau makua i ka hanaia (He po hookahi no a ao pau ka hana nui i ka hana ia) pela no i mau ai ke o mau ia ana o keia mau olelo ae la i keia lahui Menehune a hiki i ko lakou nee hele ana no ka aina o Kapaia-haa (Nu Kilani), ame ko lakou hoi hou ana mai i Hawaii nei ma o ke kii ana a "Pi" he kanaka hapa Menehune a hapa Hawaii, moopuna ponoi a ke kamaaliiwahine Menehune "Eke-ke", kaikamahine ponoi a ke alii Menehune "Ma-oli-ku-lai-a-kea" me "Puhene" kana aliiwahine, ke kamaaliiwahine hoi i hoao ia ai me ke kaukaualii Menehune Kahuna Nui "Ku-maka-hia-a" o ke akua "Kiai Ola" o ua lahui Menehune nei.

became of no consequence that so much was done by them. They took the motto that their parents were used to (Only one night and in the morning the work is done that is undertaken) seriously and this is how these words were perpetuated among the Menehune people until they moved away to Kapaiahaʻa (New Zealand) and their return again to Hawaiʻi when Pī went and got them, a part Menehune and part Hawaiian man, a direct grandson of the Menehune princess, ʻEkekē, the actual daughter of the Menehune king, Maolikūlaʻiākea, and Pūhene, his queen, the princess who was betrothed to the lesser Menehune Kahuna Nui, Kūmakahiaʻā, of the god, Kiaʻi Ola of this Menehune people.

pp. 139-140

Ka Waa Pohaku o Hanakapiai

Ua kalai waa pohaku no hoi na keikikane Menehune, he kalai wale iho no paha ka ua poe keikikane Menehune nei ma ke ano he hana paani a le'ale'a wale iho no ia a lakou e hana ana. Aka, nae i ka ike ana o na makuakane Menehue akamai i ke kalai waa pohaku o ua poe keiki Menehune nei, i keia hana a na keiki a lakou a no ke ano hoohemahema a haalele wale no hoi o na poe keikikane Menehune i ka hana ana i ka hana a lakou i hana ai, no ia mea, ua lawe ae la ua poe makuakane Menehune akamai nei o ua poe keiki Menehune nei, i ka hana kalai a hoopau pono ana aku i na wahi hemahema i koe o ka waa pohaku a na keiki Menehune i hana ai. I ka pau pono ana o na hana i hanaia ai no ua waa pohaku nei a na keikikane Menehune i hana ai, ua hapai ia aku ua wahi waa pohaku nei a waihoia maluna o kahi moo pali mawaena o na awawa o Pohakuao ame Hanakapiai, a ma kahi hoi i kapeke ai ka wawae o Pohakuao a haule ai aia i ka pali a makepa'u ai, e like me ia i oleloia mamua loa ae nei, a waiho ua wahi waa pohaku nei

The Stone Canoe of Hanakāpīʻai

Menehune boys also carved stone canoes, and Menehune boys would do this kind of carving as a pasttime game and they would have lots of fun doing so. But when skilled Menehune fathers saw the Menehune boys doing stone canoe carving, they would note how inexperienced and terrible they were at it, so the Menehune boys abandoned doing this, so the skilled Menehune fathers of these Menehune boys took it upon themselves to finish up the remaining parts of the stone canoe that the Menehune boys did so badly. When all was done having to do with the carving of this stone canoe that the Menehune boys built, the canoe was carried and left on top of a cliff ridge between the valleys of Pōhakuao and Hanakāpīʻai, and where Pōhakuao's foot twisted causing him to fall off of the cliff where he died and turned to stone, as was recounted earlier, the stone canoe was left on top of this mountain ridge. The Menehune fathers all came back along with their sons and reported to the king, Maolikūlaʻiākea about

maluna o ua wahi moo pali nei. Ua hoi nui maila na makuakane Menehune ame na keiki a lakou a hoike aku la i ke alii “Ma-oli-ku-lai-a-kea” no keia mea he waa pohaku a na keikikane Menehune i hana ai, ame ka hapai ana aku o lakou i ua waa pohaku nei a waiho ma kahi i olelo mua ia ae la, ua apono loa maila ke alii “Ma-oli-ku-lai-a-kea” i keia mau hana apau i hanaia e na keikikane Menehune a kona mau makaainana.

this incident, the stone canoe that the Menehune boys built, and also reported about how the stone canoe was carried by them and placed where it was said earlier, and Maolikūlaʻiākea approved all that was done by the Menehune sons of his subjects.

A he manawa loihi mai nei mahope mai, mamuli paha o ka holo mau ia ana e ka wai a ka ua o na kuaua nui koʻikoʻi i haule ma ua wahi moopali la, ame ka poʻa ia ana o ka lepo malalo ae o kahi i waihoia ai ua wahi waa pohaku nei, no ia mea paha i olokaa ai ua waa pohaku nei a haule ma kahi ano awawa ma ka huli Haena o kahi moo pali i oleloia mawaena o Pohakuao ame Hanakapiai. A ma ia haule ana paha o ua waa pohaku nei ma kahi i oleloia ae la, ua haki ua waa pohaku nei a na keikikane Menehune i hana ai i na apana ekolu a eha paha, a aia no paha malaila kahi i waiho ai o ua mau apana pohaku nei o ua wahi waa pohaku la.

A very long time afterwards, due to the constant flow of the water and rain of the torrential rainfalls that fell upon these mountain ridges, and due to the dirt under this stone canoe being dug up, this is likely the reason this stone canoe rolled over and fell into a kind of valley on the Hāʻena side of the ridge that was said to be Pōhakuao and Hanakāpīʻai. It was probably when the stone canoe fell where it was stated earlier, the stone canoe that the Menehune boys built broke into three or four pieces, and there they remain where those stone pieces of the stone canoe landed.

Each of the objects identified in the three accounts given by Akina above, a) the rocks, Māio and ʻAkiua, b) the fish pond wall, and c) the stone canoe is a *wahi pana* as each is a feature or object with a story. The places that are referred to where these incidents occurred are also *wahi pana*. In the case of the stone canoe, according to the story, the fragments of the canoe fell on the Hanakāpīʻai side of the ridge, and so these rock fragments would likely be seen as rock outcroppings or large rocks on the western slope of Hanakāpīʻai Valley.

The following is an account reported in the Hawaiian language newspaper, Ka Nūpepa Kūʻokoʻa, Oct. 22, 1892 (p. 4):

Elua haneri i-a mai a Waikapalae aku a hiki i Kilioe. He heiau nui keia kahi a ka poe hula e kananae hope loa ai mahope o ka uniki ana. O Hiiakaikapoli ka inoa o keia heiau. I keia wahi i hookani ai o Hiiaka i ka pahu Ka-eke-ee a lohe o Pele i Hawaii.

Two hundred yards from Waikapalae up until Kilioe is a large *heiau* where hula dancers worship in the final stages of their graduation ceremony. Hiʻiakaikapoli is the name of this *heiau*. In this place is where Hiʻiaka played the drum known as *kāʻekeʻeke* and Pele heard it in Hawaiʻi.

Pii aku he mau wahi alu uuku a hoea i kahi o Kanaloa ma laua me Kamapuaa i hookuku kiekie ai. O Kanaloa ka i pii mua a pina-wele-wele i ka lewa, a ia manawa o Kamapuaa i pii ai a nana iho maluna o Kanaloa. Lilo ka eo ia Kama, a iho aku la ke poo a loaa ka ulumaia i kela awawa o Kokuapuu; maanei iki mai o Hanakapiai. Ilaila oia i ai maia ai, a ua kaleo oia e pau ka hua ana o ia maia. O ka pau ia o ka hua ana o ka maia a hiki i keia la. He mau tausani o na kumu maia.

You climb a few shallow valleys and you reach where Kanaloa and Kamapuaʻa competed in reaching the highest height. Kanaloa was first to climb and he reached way up. At that moment, Kamapuaʻa climbed up and looked down on Kanaloa. So, Kamapuaʻa won, at which time he descended and found a grove of bananas in the valley of Kōkuapuʻu on this side of Hanakāpīʻai. That is where he ate bananas and proclaimed that these bananas would never bear fruit again. This is how the bananas in this area do not bear fruit any more. There were thousands of banana trees.

The valley of Kōkuapuʻu and the banana grove there are therefore also *wahi pana* as a result of this story.

Hoʻolulu is an *ʻili* in the *ahupuaʻa* of Hanakāpīʻai to the west of Hanakāpīʻai Valley consisting a shallow valley high above ocean level, a steep coastal cliff and a round bay on the coast with sheer cliff walls, 200–300 ft. high. The name means ‘to shelter’ or ‘to make peaceful’. This cove is well known to boaters as an ideal hideout when the Lawakua wind blows down the coast from east to west, and as long as there are no northerly swells as seen in the winter, one experiences glassy conditions in the cove if the ocean is blown over with whitecaps outside the cove. Hoʻolulu can also mean ‘to gather together’ as people meeting. It makes sense that this cove would be used as a gathering spot for two or more vessels to gather in safety, especially if the Lawakua wind is particularly strong. With the current pulling east to west on the coast, any person or kayak taken on the current would likely end up in this sheltered cove. The function of this cove is referred to in *mele* in the following exerpt from the Hawaiian newspaper, Ka Hōkū o ka Pākīpika (Nov. 14, 1861):

Kai-uli o Hoolulu,	*The sea is dark at Hoʻolulu*
E lai ai na waa,	*Where canoes enjoy tranquility*
Lula mai na pea,	*The sails are calm*

Fig. 15: Hoʻolulu Cove in the foreground with Hanakāpīʻai Beach in the background and Kēʻē at the far end.

Fig. 16: View of Hoʻolulu Cove from outside the mouth of Hanakāpīʻai Stream.

Waiahuakua is a valley between Hoʻolulu and Hanakoa and is the western edge of the *ahupuaʻa* of Hanakāpīʻai. Waiahuakua has a cliff face with a dramatic and majestic waterfall, 3,733 feet high, which plummets down two ledges above the ridge and into a hole over a horseshoe cave with two entrances. The waterall is best appreciated by boat or helicopter, but the cave can only be experienced by sea. Boaters refer to Waiahuakua Cave as Two-Door Cave, and small boats, such as zodiacs and kayaks, can pass through from the western opening of the cave and come out the eastern end, where the hole in the ceiling is and where Waiahuakua Falls ends falling into the ocean in the cave. Particular stories or names of this amazing feature have not yet been found, but the name, Waiahuakua (wai ahu akua) suggests a watery altar (*ahu*) to the gods (*akua*). One can infer from this that the top of the waterfall could be considered a type of *ahu* to the gods (likely Kāne, god of fresh water and rain clouds) as often the tops of these cliffs are covered in clouds.

Fig. 17: View of Waiahuakua Falls. The horseshoe sea cave with two openings is beneath this waterfall.

Fig. 18: View from inside of Waiahuakua Cave looking out passing from the western opening and exiting on the eastern opening. Waiahuakua Falls terminates through the opening in the ceiling.

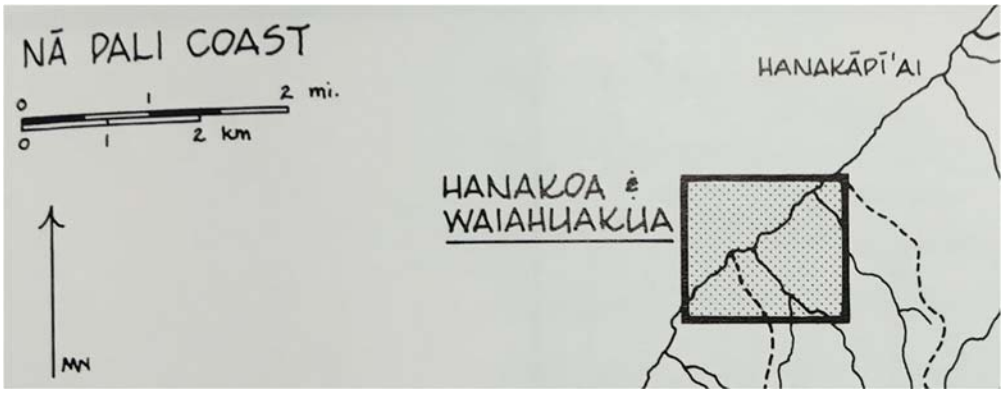


Fig. 19: Waiahuakua, the western border of the *ahupua‘a* of Hanakāpī‘ai. Tomonari-Tuggle (1989, p. 29).

4.5. Wind names, rain names, and local icons

In Hawaiian tradition, local winds and rains are given names. The names are poetic and often descriptive of the nature of the wind or rain identified. Often, the names are specific to a wind or rain that moves in a particular direction and of a particular force, whether strong or gentle, etc. Therefore, a particular area could have multiple wind and rain names, each identifying a type of wind or rain relative to its force and direction. The names are not always a description of the wind or rain. Sometimes they are a reflection of sentiment, perhaps in memorial of an event or person, and therefore the name may not have anything to do with the characteristics of the wind or rain.

The wind of Hanakāpī‘ai is known in *mele* (songs, chants) as the *Peke* wind. This is an interesting name as it has multiple meanings. A *peke* is a type of *‘o‘opu* (freshwater goby) fish. Perhaps this is because of this type of fish being found commonly in Hanakāpī‘ai Stream in the past or perhaps across Nāpali, but known as a favorite of the people of Hanakāpī‘ai. The rationale is not known today. One meaning of *peke* is a dwarf—a person of short stature—but a euphamism for the *peke* fish is the *maka poko* (short-faced) fish. Therefore, *peke* and *maka poko* fish are the same.

Perhaps this name is a reference to Menehune since Nāpali is well known to have been inhabited by Menehune. In fact, as noted above, the place name, Hanakāpī‘ai, is likely named after a Menehune princess. Menehune are reported to be short in stature, and therefore this could be the link to the wind name, *Peke*. This could also make sense when considering the euphemism, *maka poko*, a term that could be descriptive of the appearance of Menehune. It is not known whether the *Peke* is the wind of only Hanakāpī‘ai Valley or the whole *ahupua‘a*. Nor is the force or direction of this wind described in literature thus far. Therefore, this name is used as a general name for the wind of the whole *ahupua‘a*.

The *‘o‘opu* known as *peke* or *maka poko* became known as a symbol or icon of Hanakāpī‘ai in *mele*, and using this fish as a term that implies the people of Hanakāpī‘ai is a common literary device. Therefore, the people of Hanakāpī‘ai can be referred to in a poetic sense as *peke* or *maka poko*. Again, as *‘o‘opu* is a known favorite food of Menehune people, a connection

between the place name, the wind name, and the moniker for the fish and people of the area point to a likely connection between these names and epithets and Menehune.[14]

The following are sayings or epithets that describe the wind, *ʻoʻopu* fish, or people of Hanakāpīʻai derived from 19th century Hawaiian language newspapers and other literature:

Ka ʻoʻopu maka poko o Hanakāpīʻai.	*The short-faced ʻoʻopu of Hanakāpīʻai.*[15]
Nā ʻoʻopu maka peke o Hanakāpīʻai.	*The stunted-faced ʻoʻopu of Hanakāpīʻai.*[16]
Ola i ka ʻoʻopu peke o Hanakāpīʻai.	*Living off of the peke ʻoʻopu of Hanakāpīʻai.*[17]
He Peke ka makani o Hanakāpīʻai.	*The wind of Hanakāpīʻai is the Peke.*[18]
Ka iki koaiʻe a Hanakāpīʻai.	*The little koaiʻe tree of Hanakāpīʻai.*[19]

The 18th century *mōʻī* of Oʻahu, Kūaliʻi, despite having been born in Kailua, Oʻahu, is of a Kauaʻi lineage of Manokalanipō, *mōʻī* of the Kauaʻi Kingdom in the 15th century. The Oʻahu and Kauaʻi Kingdoms were at times one political unit and at other times only loosely associated. One birth chant offered for Kūaliʻi references the strength of the political unity between the two kingdoms. Kūaliʻi is said to have ruled over at least part of Kauaʻi from Oʻahu. Hanakāpīʻai is used as an epithet referencing the people of Kauaʻi and consuming the *ʻoʻopu maka poko* is a figurative way of describing dominion over the land and people, as shown in the following excerpt of the chant:

Ka Nūpepa Kūʻokoa, 11 April, 1868, p. 1.

Mano hele lalo o Kauai—e,	Shark headed down to Kauaʻi
O la-lo o Kauai ko aina—	Down to Kauaʻi, your land
Ke holo nei o Ku i Kauai—e	Kū is traveling to Kauaʻi
Ke holo nei o Ku i Kauai,	Kū is traveling to Kauaʻi
E ai i ka oopu maka poko	To eat the *ʻoʻopu maka poko*
O Hanakapaiai—e,	Of Hanakāpīʻai
Ke hoi nei o Ku i Oahu,	Kū is returning to Oʻahu
E ike i ka oopu kuia,	To see the *ʻoʻopu kuʻia*

[14] According to Wichman (1998, p. 139), the neighboring *ahupuaʻa* to the west, Hanakoa, is also named after a Menehune princess. Wichman reports a number of stories of Menehune in the *moku* of Nāpali.
[15] Ka Nūpepa Kūʻokoʻa, 24 November 1866, p. 4; Ka Naʻi Aupuni, 26 June 1906, p. 1.
[16] An interchanging of *poko* and *peke*; Ke Aloha ʻĀina, 27 July 1912, p. 2.
[17] Ka Nūpepa Kūʻokoʻa, 26 February 1909, p. 5.
[18] Ka Naʻi Aupuni, 25 June 1906, p. 3.
[19] Pukui (1983, p. 152): "A boast of that locality on Kauaʻi. Once may be small in stature but he is as tough and sturdy as the *koaiʻe* tree."

In this excerpt, the shark (*manō*) referred to is likely a play on Mano (as in Manokalanipō, 15th century Kauaʻi king and ancestor of Kūaliʻi), and the returning to Kauaʻi is likely a reference to Kūaliʻi's Oʻahu origin but having dominion over Kauaʻi as well. In this case, the *ʻoʻopu maka poko* and Hanakāpīʻai are epithets for the people of the Kauaʻi Kingdom. A poetic link is made in the pairing of the *ʻoʻopu maka poko*—typical of Hanakāpīʻai—and the *ʻoʻopu kuʻia*—an epithet typical of Kailua, Oʻahu. This clarifies Kūaliʻi's reign over both Oʻahu and Kauaʻi.

The wind that blows down the coast of Nāpali roughly from Kēʻē to Miloliʻi is known in lore and *mele* as the Lawakua wind. While almost each valley and ridge might have their own local winds, the Lawakua is described in literature as the strong wind that blows down the coast on the sea. The logic of this wind name is evident in the various interpretations possible as the meaning. Pukui (1986) describes *lawakua* in the following:

> **lawa.kua. 1.** vs. Strong-backed, muscular, of strong physique, bulging with muscles. See ex., *konapiliahi*. **2.** vt. To bind or tie fast, as on the back. *Fig.*, to be a dear friend or companion. (PH 218.) *Ua lawakua i kō aloha* (dirge), bound to your love. **3.** *(Cap.)* n. Name of a mountain wind at Nā-pali, Kauaʻi. See ex., *noiele*. **4.** *(Cap.)* n. A *lua* fighting stroke.

The wind pushes a canoe paddler down the coast from east to west from the back, so Lawakua seems a most appropriate wind name. While Pukui describes the Lawakua wind of Nāpali as a "mountain wind" (3rd definition), this wind is mentioned in literature in relation to various valleys and ridges along the coast of Nāpali, and so this wind can be understood to be more general and blowing down the coast from east to west. The following are examples of the Lawakua wind being used as a general wind name along the coast of Nāpali:

He lawakua ko na pali	*Nāpali has the Lawakua wind.*[20]
Kuu hoa o ka makani lawakua o Kalalau,	*My dear friend of the Lawakua wind of Kalalau*
a me ka lauae o Makana	*and the lauaʻe of Makana Peak*[21]

5. Residents of Nāpali and Hanakāpīʻai

As reported above in Section 4.1, a man named Paʻamaui and his wife farmed Hanakāpīʻai Valley in 1871 and may have lived there at the time. Daehler (1978) notes "ancient Hawaiian taro terraces" in the valley on the ascent towards the head of the valley. This would indicate that in pre-Hawaiian Kingdom times (pre-1840), people lived in and farmed the valley on a regular or permanent basis. The number of *loʻi kalo* (taro patches) would indicate that a sufficiently sizable community lived in the valley to sustainably cultivate *kalo*. This also would accord with the findings of Tomonari-Tuggle (1989, pp. 20, 26) and Yent (1981, pp. 2-6) who produced reports and maps of pre-Hawaiian Kingdom habitation sites. If there were *loʻi kalo* and people, there must have also been other types of crop plants and animal husbandry in the

[20] Ka Hae Hawaiʻi, April 17, 1861, p. 12.
[21] Ka Hae Hawaiʻi, Dec. 25, 1861, p. 155.

valley to sustain the population. Given the civic duty of *maka'āinana* (commoners) of the era to pay *'auhau* (taxes) annually in the form of a portion of one's harvest or work, there must have been a stable infrastructure in Hanakāpī'ai Valley to support its resident population.

An infamous Hanakāpī'ai resident of the 15th century is an un-named man, but described by Fornander (1918) as a man-eating *'ōlohe* (martial arts expert) of the valley who travelled to Wailua on Kaua'i's east shore—the compound of Kaua'i's highest royalty and families—and challenged Kapakohana, the Kaua'i Kingdom's strongest warrior, and threatened to eat him and everyone else in the area. After a long, tough battle, and after some of Kapakohana's men were eaten by the *'ōlohe*, the cannibal was finally defeated and his eyes plucked out and fed to sharks.[22]

5.1. Land Commission Awards and Boundary Certificates

No Land Commission Awards (LCAs) were noted in the Indices of Awards (Territory of Hawai'i, 1929), which means that residents of Hanakāpī'ai before the US takeover in 1898 were lessees under the Hawaiian Kingdom government. However, Deverill (see below) is noted as having been "ona" (owner) of Hanakāpī'ai Valley in 1892. This means that Deverill must have been awarded the LCA, which is now lost, or he should have more correctly been referred to as a "mea hoolimalima" (lessee) under the Hawaiian Kingdom government. The same might be said of Kinney (also below) in Hanakoa.

Hanakāpī'ai lessees described in the Nā Pali-Kona Forest Reserve Management Plan (2009, p. 17) are as follows:

Table 1: Lessees of Hanakāpī'ai Valley.

Type	Action/Lease #	Lease Period	Description	Acres	TMK
General Lease	GL 345	25-Jul-1883 to 25-Jul-1913	D.W. Pua et al – transferred to W.E.H. Deverill 11-Dec-1891; Ahupua'a of Hanakāpī'ai	Not specified	[4] 5-9-001:001 (portion)
General Lease	GL 1299	27-Nov. 1920-27 Nov. 1935	W.H. Rice Sr; Hanakāpī'ai pasturage	260	[4] 5-9-001:001

5.2. Residents: W. E. H. Deverill and K. W. Kinney

The following was reported in the same article referred to above in Ka Nūpepa Kū'oko'a, Oct. 22, 1892 (p. 4):

Na Pali—O Hanakapiai, he awawa nui keia nona na eka kupono i ka hanai holoholona,	Nāpali—Hanakāpī'ai is a large valley with enough acerage for animal husbandry, nearly

[22] Fornander (1918, p. 211, 213).

he aneane hookahi tausani paha. Ke noho ona ia nei e Mr. W. E. H. Deverill. Ma keia aoao o ke alapii nui o Hamau, e hoomaopopo e na makamaka ma keia wahi hoomaka aku ka ulu paina o Kapalakiko, wahi a kekahi kaikamahine lalawai o Molokai, oiai oia e hele ana ma keia ala. O ke kumu o ka puka o keia no ka like o ka pali me ka ulu paina. Hoomau aku la oia i ka hele ana a hoea i keia aina o Waiehu, he mau awawa keia elua i hookaawaleia e kekahi wahi ohu kualapa uuku. Noke aku o ke kapae o Leinahoa a ike ia Waila, a he aina no keia i mahuahua iki ae ia Walehu, kupono paha no hookahi haneri poo holoholona.

one thousand acres. It is resided by the owner, Mr. W. E. H. Deverill. On this side of the large ladder of Hāmau, if our friends remember that at this place the pine forest of San Fransicso begins, according to a well-to-do girl of Molokaʻi, as she proceeded down this pathway. The reason this was said was due to the resemblance of the cliff to the pine forest. She carried on her way until she reached the land of Waiehu, which are two valleys separated by a roundish and small ridge. As she carried on she reached Leinahoa and saw Waila, which is a land a bit more fruitful in the month of Walehu, perhaps sufficient for a hundred head of animals.

Oiai ka malihini e hele nei, a mamua o ka hoea ana i Honokoa, ua piha mua ka ihu i ka hanu ala o na lau nahelehele like ole. E laa ka palai, awapuhi, mokihana, lauae a me ka hinahina, a o kekahi wahi iloko wale no o ka laau e hele ai a hala he hapalua hora me ka ike ole i ka la a hoea i Honokoa, ke kikowaena o ko Mr. K. W. Kinney wahi. O keia paha kekahi aina nana e hoopahohao i ka noonoo o na makaikai. He nani kona helehelena ma na ano a pau. E laa hoi ke kihapai pua o Elenale. Ma keia aina he ulu na mea a pau a ke ulu mau nei ma ke ano ahiu a hiki wale i ke kudala ia ana i Iulai, 1892, a lilo ia K. W. Kinney. E loaa no keia mau mea ono i ka ai e like me keia malalo iho, alani, lemi, piku, a pela wale aku. Mawaho ae o keia mau mea a pau he maikai ke ea a oluolu pono ka noho ana. Pela kou mea kakau i noonoo ai o Honokoa kekahi o na aina maikai loa o ka Pae Aina, a mawaho ae o Honokoa, pili mai o Kawaipapa, Waikulu, Malaea, Pohakuao a me Makanikahao. He poe aina liilii maikai wale no keia i kupono no ke kanu kekahi wahi a me ka hanai holoholona kekahi wahi. Pii i ke alapii o Kauokoa a huli ma keia aoao nana pono aku ia Kalalau.

While the visitor carried on further and before reaching Honokoa, the nose caught the fresh scent of the different types of foliage, like ferns, wild ginger, mokihana, lauaʻe, and hinahina, and there was a portion of the way that was traveled in the brush and a half hour passed without every seeing thus sun, and then we arrived at Honokoa, the base of Mr. K. W. Kinney's residence. This is perhaps one place that amazes tourists. It is beautiful in appearance in every way. It resembles the flower gardens of England. In this land everything grows and things grew wild until it was auctioned off in July 1892 when it became K. W. Kinney's. Found there are these things we love to eat below, oranges, lemons, figs, and so on. Apart from all this, life is pleasant and good. This was the opinion of your reporter that Honokoa was one of the best lands in the whole archipelago, and after Honokoa was Kawaipapa, Waikulu, Malaea, Pōhakuao, and Makanikahao. These are good and small patches of land good for planting and for raising animals in some areas. One climbs the ladder of Kauʻokoʻa and you turn this way to get a good view of Kalalau.

6. The archaeological record

The primary resources cited for archaeological data on Hanakāpīʻai, both the valley and the *ahupuaʻa*, are Tomonari-Tuggle (1989) and Yent (1981). Tomonari-Tuggle describes the following features in the valley of Hanakāpīʻai:

6 or more platforms possibly used as habitation sites; perhaps 2 or 3 of these could have been *heiau*;
13 terrace complexes, each with multiple terraces; most agricultural in nature and some possible shifting function over time from agricultural to habitation;
1 paved area, use uncertain;
1 retaining wall
1 petroglyph
1 coffee plantation site with possible water wheel and chimney still present

Table 2: Summary of archaeological sites in Tomonari-Tuggle (1989 pp. 52-62).

Site Number (HKP)	Site Description	Site Condition
1	**Platform:** located at the mouth of the valley about 30 m W of the stream; 6 m long and 3.5 m wide dirt floor, 50 cm high boulder face on *ma kai* side.	Very poor due to winter surf and camper damage.
2	**Platform:** located at the mouth of the valley about 15 m W of the stream, 102° MN/10 m from the Kalalau-Hanakāpīʻai Loop Trail junction; 5 m x 5 m partially paved dirst platform. Slope behind this structure partially cut away. Likely a recently-built structure.	Fair; partial disrepair
3	**Series of terraces:** located on the W side of the stream at the mouth of the valley; extending from the cliff at the sea inland about 200 m and from 15-22 m high on the bank to about 135 ft above sea level; likely agriclture use.	Very poor; used as campsite
4	**Paved area:** located on top of the cliff at the sea on the W side of the stream; likely a habitation site; 4 m x 2 m boulder paving with retaining wall; dirt area to one side 6 m x 6 m.	Fair; used as campsite
5	**Platform:** located on east bank of the stream at the valley mouth about 40 m below the trail crossing; boulder alignment forming a sand and silt platform floor 4 m x 4 m.	Poor; damage due to winter surf
6	**Retaining walls:** located at the junction of the Hanakāpīʻai Loop Trail and the Falls trail on a steep slope; a series of retaining walls of cobbles and boulders, about 15 m x 20 m; possible habitation site or *heiau*.	Good
7	**Series of terraces:** located on the E bank of the stream; extends 650 m 765 m inland of the valley mouth rising from stream level to about 100 m high; irrigation system (*ʻauwai*).	Excellent; possibly used as a long-term campsite
8	**Series of terraces:** located on W bank of the stream extending 550 m – 700 m inland of the valley mouth and rising from 6 m to 240 ft above sea level terminating at the Loop Trail; *ʻauwai* system *ma uka* to *ma kai* alignment from the trail to the stream; two levels.	Excellent; partially overgrown
9	**Series of terraces:** located on the W side of the stream; extending from the Loop and Falls trail junction to about 200 m inland; rising from stream level to 320 ft above sea level; more than 20 well-constructed terraces; water source identified as the side stream at the *ma uka* end of the site; 60 m or more long	Excellent; the Falls Trail cuts through the site

	‘auwai from the gully and through the terraces; possible habitation terraces above the ‘auwai at the upper end.	
10	**Series of terraces:** located on S side of a branch stream on the W side of the valley and between the Falls Trail and the base of the talus slope about 45 m in distance; likely agricultural site; series of crudely constructed terraces made of cobble and boulder.	Poor
11	**Petroglyph:** located N of site HKP 10 about 30 m above the Falls Trail; resembles a mammalian eye; unique motif relative to known Hawaiian carvings.	Excellent
12	**Series of terraces:** located in a small gulch on the E side of the stream about 1,525 m inland of the valley mouth and 125 m inland of the first stream crossing of the Falls Trail; a series of well-constructed terraces; likely agricultural; the trail cuts across three terrace walls.	Excellent
13	**Series of terraces:** located on the E side of the valley extending from about 1,675 m to 1,830 m inland of the valley mouth near the Forestry ¾ mile stake; terraces built of small rocks and partially eroded; part of the complex likely habitation site.	Good to excellent
14	**Platform and terraces:** located about just under a mile inland of the valley mouth in a gulch on the E side of the stream; possible house site	Fair to good
15	**19th century structures:** located at the *ma uka* end of Site HKP 8 between the Loop Trail and the stream bank; likely remains of a coffee plantation with stone and cement chimney; piece of machinery (possibly a water wheel) present.	Excellent
16	**Series of terraces:** located about 65 m inland from where the Loop Trail crosses the stream on the E side of the valley near a small waterfall.	Fair
17	**Series of terraces:** located from where the Loop Trail crosses the stream to a gully 70 m *ma kai* of that point; about 30 m wide from the stream bank to the talus slope.	Excellent
18	**Platform:** located about 685 m inland of the valley mouth on the E side of the stream near the ½ mile stake adjacent to the Loop Trail; well-constructed dirt platform which may have been used for habitation or as a *heiau*.	Excellent
19	**Series of terraces:** located about 275 m to 565 m inland of the valley mouth extending from the Loop Trail to the base of the steep talus slope about 50 m; a small tributary stream runs near the E side of the site; several of the terraces of this site at the base of the talus slope likely used as habitation sites (uncertain as no midden or artifactual evidence to support this supposition).	Excellent
20	**Series of terraces:** located in a small gully on the E side of the stream about 45 m inland of the first stream crossing on the Falls Trail; terraces on the slope covering about 600 sq m; agricultural site consisting of terraces from the base of the talus slope to the trail.	Poor
21	**Series of terraces:** located on a stream bench on the E side of the valley about 90 m below the first stream crossing of the Falls Trail covering about a 4,400 sq m area; agricultural complex; plastic covered house structure situated on the site which was still lived in at the time of this survey and the occupant altered the terrace; banana and plumeria trees planted by the occupant near a spring, where the occupant built a stepping stone trail to reach the spring.	Excellent except in the immediate area of the structure

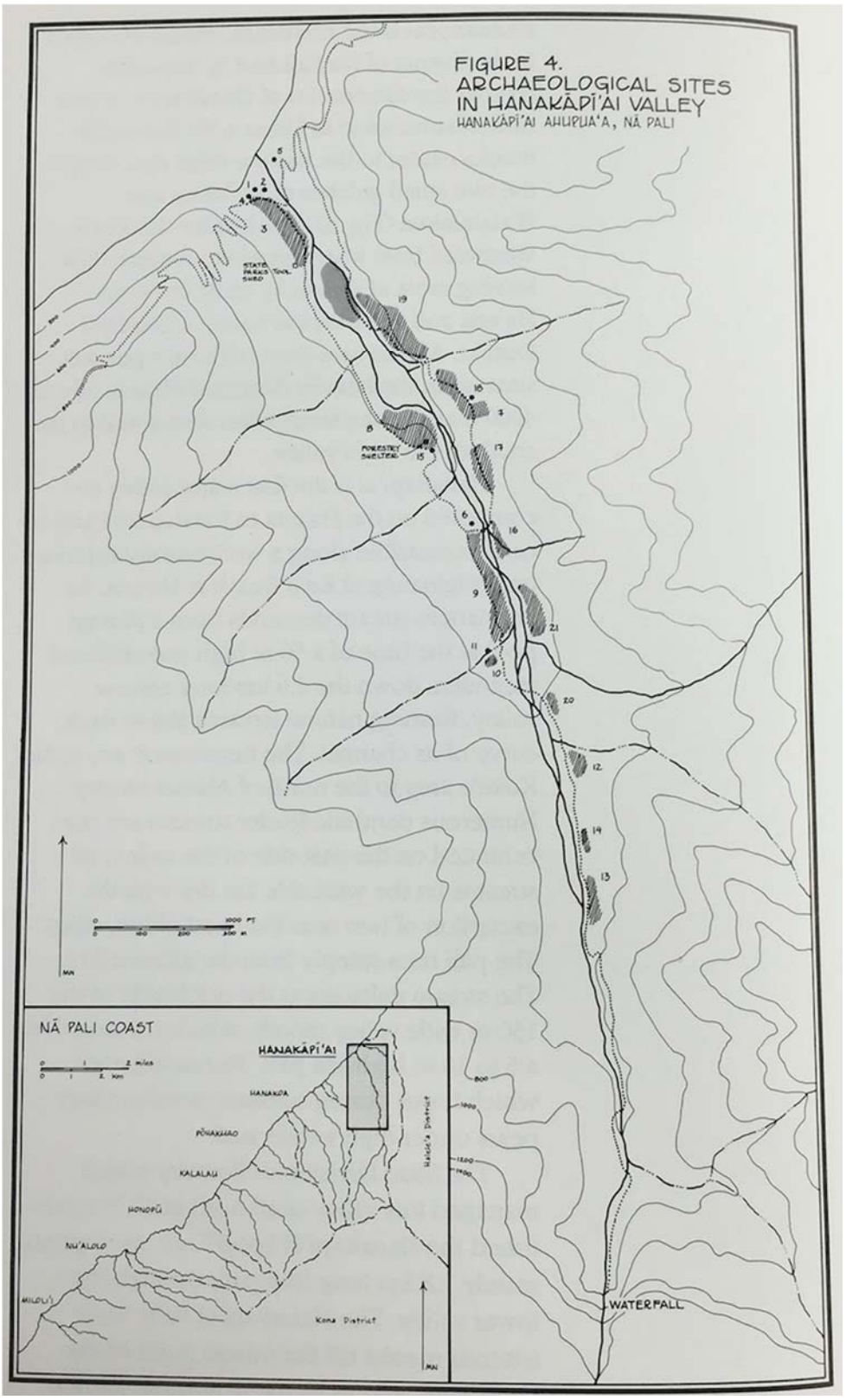


Fig. 21: Map showing archaeological features of Hanakāpīʻai Valley. Numbers correspond to the HKP site numbers of Table 1.
Tomonari-Tuggle (1989), p. 26.

Given the clearly extensive agricultural terraces, farmers of Hanakāpīʻai Valley of the pre-Hawaiian Kingdom era must have had the capacity to feed hundreds of people on a regular basis. These would likely have been people who lived in the entire *ahupuaʻa* and perhaps some of the crops produced could have been exported to other areas of the *moku* or the island, as for *ʻauhau* (taxes), for example. This is evidence of a once robust local economy.

The revelations of the archaeological study help to put a story and a face to people like the Menehune, Paʻamaui, Deverill, and Kinney mentioned above and helps readers contextualize the functions of Hanakāpīʻai and the past. The literature further provides context and the stories of the area with accounts, culture, and dealings among the people who lived in the area in the past. But as much of Nāpali is now a State Park and leases are no longer provided to farm or live in the reserve, the activities of people in the *ahupuaʻa* of Hanakāpīʻai are now only limited to day hikes, fishing, and occasional hunting.

What the archaeology does not show, however, is whether people of the valley or the *ahupuaʻa* were tradesmen, craftsmen (such as wood or stone carvers), feather gatherers or makers of featherwork, fishing gear makers, basket makers or other houseware items, *kāhuna* (priests), or adherents of hula or *lua* (martial arts). While stone artifacts endure over time, any of these other products of craftwork would not likely endure in the tropical climate of the area and therefore, evidence of a trade economy or crafting specialty is lacking.

The number of identified house sites and possible house sites in Hanakāpīʻai Valley perhaps accommodated around 100 people when they were inhabited. It is unclear whether archaeology work in the *ahupuaʻa*, particularly in Hanakāpīʻai Valley, is considered complete and therefore finished, but additional field work and mapping could be warranted, which may produce more data and uncover more manmade features, such as described above.

7. Territorial Forest Reserve

Although the Reserve was established in 1907, Daehler (1970) reports,

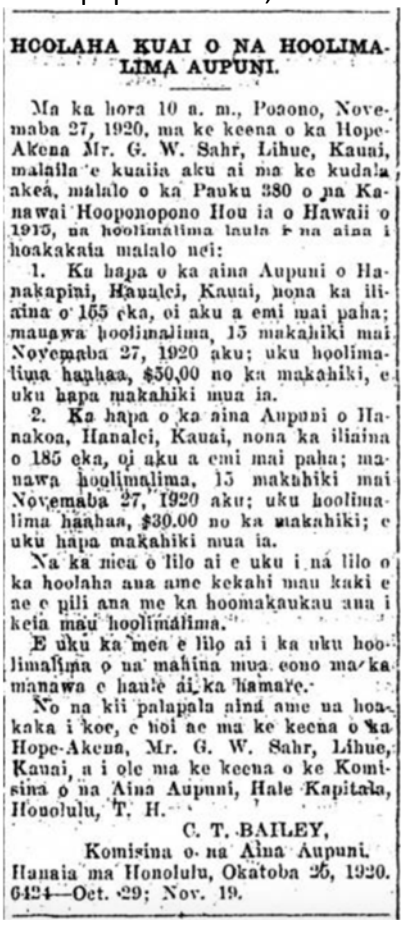
> The highlands of the Na Pali were dedicated to Territorial Forest Reserve protection status in 1907. This protection, however, did not include the lower areas near the Kalalau trail nor the coastal valleys which were at that time being used for agriculture. Taro was still being grown in Hanakapiai.

As there were residents living in the valley in the first decade of the 20th century, other types of crops were also known to be thriving at the time, such as coffee, which had ceased by 1920, and oranges.[23] The valley is also known to have been used to raise cattle and horses, even on the ridges along the Kalalau Trail. This also means that people must have been living in the area in the early- to mid-1900s to care for the animals. Daehler (1970) also notes that people were granted leases for these purposes, as listed above.

[23] Daehler (1970, p. 9).

The following is an announcement regarding leasing land in the area of Hanakāpīʻai in the early 1900s:

Ka Nūpepa Kūʻokoʻa, 29 Oct. 1920, p. 3



HOOLAHA KUAI O NA HOOLIMALIMA AUPUNI.

Ma ka hora 10 a. m., Poaono, Novemaba 27, 1920, ma ke keena o ka Hope-Akena Mr. G. W. Sahr, Lihue, Kauai, malaila e kuaiia aku ai ma ke kudala akea, malalo o ka Pauku 380 o na Kanawai Hooponopono Hou ia o Hawaii o 1915, na hoolimalima laula i na aina i hoakakaia malalo nei:

1. Ka hapa o ka aina Aupuni o Hanakapini, Hanalei, Kauai, nona ka iliaina o 165 eka, oi aku a emi mai paha; manawa hoolimalima, 15 makahiki mai Novemaba 27, 1920 aku; uku hoolimalima haahaa, $50.00 no ka makahiki, e uku hapa makahiki mua ia.

2. Ka hapa o ka aina Aupuni o Hanakoa, Hanalei, Kauai, nona ka iliaina o 185 eka, oi aku a emi mai paha; manawa hoolimalima, 15 makahiki mai Novemaba 27, 1920 aku; uku hoolimalima haahaa, $30.00 no ka makahiki; e uku hapa makahiki mua ia.

Na ka mea o lilo ai e uku i na lilo o ka hoolaha ana ame kekahi mau kaki e ae e pili ana me ka hoomakaukau ana i keia mau hoolimalima.

E uku ka mea e lilo ai i ka uku hoolimalima o na mahina mua eono ma ka manawa e haule ai ka hamare.

No na kii palapala aina ame na hoakaka i koe, e hoi ae ma ke keena o ka Hope-Akena, Mr. G. W. Sahr, Lihue, Kauai, a i ole ma ke keena o ke Komisina o na Aina Aupuni, Hale Kapitala, Honolulu, T. H.

C. T. BAILEY,
Komisina o na Aina Aupuni.

Hanaia ma Honolulu, Okatoba 25, 1920.
6424—Oct. 29; Nov. 19.

ANNOUNCEMENT OF SALE OF GOVERNMENT LEASES

At 10 a.m., Satudrday, November 27, 1920, at the office of the Assistant Agent, Mr. G. W. Sahr, Līhuʻe, Kauaʻi, a public auction will be held pursuant to Section 380 of the Revised Statutes of Hawaiʻi, 1915, of general leases for the lands stated below:

1. The portion of government land of Hanakāpīʻai, Hanalei, Kauaʻi, whose acerage is 165 acres, more or less; length of lease, 15 years, from November 27, 1920 onwards; lease, $50.00 minimum per year, with a half-year's worth due at the onset.

2. The portion of government land of Hanakoa, Hanalei, Kauaʻi, whose acerage is 185 acres, more or less; length of lease, 15 years, from November 27, 1920 onwards; lease, $30.00 minimum per year, with a half-year's worth due at the onset.

Lesee to cover all expenses for the announcement, with additional charges related to the preparation of these leases.

Lessee to pay the first six months of the lease upon the striking of the gavel.

For maps and further clarifications, report to the office of the Assistant Agent, Mr. G. W. Sahr, Līhuʻe, Kauaʻi, or the office of the Commissioner of Government Lands, Captiol Building, Honolulu, T. H.

C. T. BAILEY
Commissioner of Government Lands

Performed in Honolulu, October 25, 1920.
6424—Oct. 29; Nov. 19.

The lower portions of Hanakāpīʻai Valley and the Kalalau Trail were merged into the Forest Reserve in 1938 after leases came to an end at which time people were moved out of the *moku*. Today, the only legal residents of the *moku* of Nāpali are lessees of cabins on the mountaintop in the area of the Nāpali side of the Kōkeʻe State Park (left side of the highway).

8. Activities in Hanakāpīʻai

Since becoming a forest reserve, the lowlands of Nāpali were occasionally lived in illegally by unpermitted long-term campers, often people wishing to live apart from civilization. Often these people would plant gardens on a small scale to sustain themselves. This continues to be a problem for the DLNR in the *moku* with regards to enforcement.[24] In the late 1960s and into the 1970s, Hanakāpīʻai, as well as Kalalau, became known for its illegal, live-in nudist community and was considered an extension of Taylor Camp, a nudist camp in Limahuli near Kēʻē Beach.[25] But with the shutting down of Taylor Camp in 1977[26] and the sharp rise in the popularity of Nāpali as an adventure tourist destination in the 1980s, the dramatic increase in clothed foot traffic outnumbered the unclothed, and with the proliferation of adventure hiking guides in the 1990s until today, the thousands who make their way to Hanakāpīʻai daily are overwhelmingly typical tourists.

While the overwhelming majority of people visiting Hanakāpīʻai Valley today are tourists, a small percentage of the hiking traffic are Kauaʻi or Hawaiʻi locals who, like tourists, want to visit the famed beautiful valley and experience a completely wild environment, but also to get a firsthand view of the mass of tourists on the trail and in the valley. Since the 1990s, native Hawaiians and other locals have taken a keen interest in traditional Hawaiian cultural practices and many have taken advantage of visits to Nāpali, including Hanakāpīʻai, as opportunities to seek inspiration in developing ideas and plans to become involved in cultural practices today, such as *kalo* or other kinds of farming, *heiau* or old cultural site preservation and restoration, or other aspects of cultural practice. The value of Hanakāpīʻai Valley for Kauaʻi and Hawaiʻi locals has therefore increased in the past couple of decades for its potential source of inspiration.

8.1. Hunting and fishing

Hunting is permissable today at Hanakāpīʻai when the Department of Land and Natural Resources determines a need for wild pig and/or goat eradication—the only remaining animals in the valley. Bowhunting is allowed year round in the park in addition to the special rifle hunts. As advised in the following announcement on August 14, 2014:[27]

> LIHUʻE — The Department of Land and Natural Resources (DLNR) will conduct a feral goat and feral pig control hunt on Aug. 16 and 17 in the Napali Coast State Park – Hunting Unit G. The animal control is necessary for watershed protection purposes, pursuant to Title 13, Chapter 123 (13-123-9).
>
> The section of the Kalalau trail to Hanakapiai and Hanakapiai Falls will remain open to the public for hiking and will not be not affected by the animal control. However, the remainder of the trail to Hanakoa and Kalalau will be closed to non-control participants.

[24] See, for example, http://www.forkauaionline.com/dlnr-tv-renegades-risks-rewards-napali-coast/.
[25] Wehrheim (2009, p. 66).
[26] Wehrheim (2009, p. 7).
[27] Aug. 14, 2014; http://dlnr.hawaii.gov/huntered/2014/08/14/nr14-097h/.

> The areas open to animal control will be between Hoʻolulu valley (4 miles) to Kalalau valley (11 miles) portions of Hunting Unit G.

As Kauaʻi has quite a sizable local population of hunters and fishermen, the eradication practices of the DLNR have a potential of benefitting locals who hunt for food and sport, and who teach their children these activities. Fishing occurs up and down the Nāpali coast, primarily *ʻopihi* picking on the coasts, spear fishing (reef fish), surround net fishing (akule, for example), and trawling (mahimahi, ʻahi, snapper, for example). It is still considered among local families particularly special to be able to feed one's family with food hunted or fished on the island, and so Nāpali is appreciated for its bounty. As Nāpali is inaccessible except by hiking or boating, the volume of game is greater in the area than in the more populated parts of Kauaʻi.

8.2. Culture, but not Hawaiian culture

Likely since the late 1960s it has become customary for many hikers, usually tourists, to stack rocks in a tower at hiking destinations and other remote locations. In traditional Hawaiian culture, an *ahu pōhaku* (stone altar) would be erected as a drystack four-sided *kuahu* (a synonym for *ahu*) upon which offerings would be left for *ʻaumākua* (guardian spirits/ancestors) or *akua* (gods), such as Kāne, Kanaloa, or Lono. If intended as a *kūʻula* (fishing shrine), offerings would be left on such an *ahu* in hopes of or in gratitude for bounteous fishing. Some locals are known to do this occasionally today, but in the case of the ubiquitous rock stacks at hiking destinations and sacred sites across Hawaiʻi, such is not a traditional Hawaiian cultural practice.

This custom is likely originally attributable to the Taylor Camp influence of the late 1960s and early 1970s, when such a thing was done. This act therefore caught on among visitors and recent immigrants to Kauaʻi. Christine Hitt reports in an article (Aug. 9, 2016)[28] that rather than an *ahu* in the traditional Hawaiian sense,

> . . . the rocks at Hanakapiai are not being utilized in this way. Instead, they're being built to memorialize a person's visit. This is not a new trend, nor is it only an issue in Hawaii. In the same way that people have carved their names into the banyan tree in Lahaina on Maui, or have used white coral to write their names by a road and stacked lava rocks at Kilauea volcano on Hawaii Island, it's considered by many to be a form of graffiti.

Such imported notions of rock stacking sometimes offend locals and native Hawaiians in particular for seeming to parody traditional Hawaiian culture rather than respecting ancient traditions with understanding. The rationale for rock stacking is little understood, but while it has a graffiti aspect to it as Hitt explains, it appears that those who do this think of the act as somehow spiritual as well. Whether rock stackers believe that they are honoring *heiau* culture or *ʻai kapu* religious traditions, which pre-date Christianity in Hawaiʻi, or whether they are using *heiau* and rock stacking as a way to somehow channel spiritual thought in a more general sense

[28] http://www.hawaiimagazine.com/content/why-rock-stacking-hanakapiai-beach-isn%E2%80%99t-considered-pono-right

is uncertain. This act may even have no particular function other than as a marker that one was there or art.

Rock stacking becomes particularly disturbing when done on already established sacred sites. Poliʻahu Heiau in Wailua, for example, is one such *heiau* where rock stacking is known to occur. Many *heiau* restoration and repair projects are underway on Kauaʻi, but to do rock stacking at a *heiau* means moving rocks of the *heiau* to stack them. This alters the *heiau* structure and runs counter to *heiau* restoration goals and can cause tension among Kauaʻi locals with respect to those who stack rocks.

Fig. 22: Rock stacks at Hanakāpīʻai Beach. Stacking is a relatively new phenomenon and not connected with traditional Hawaiian practices.

Fig. 23: Rock stacks at Poliʻahu Heiau in Wailua. Rock stacking on sacred sites is particularly disturbing to native Hawaiians.

9. Conclusion

The DLNR State Parks Division proposes that a pedestrian bridge be built to traverse the Hanakāpīʻai Stream. The impact of such a feature on manmade features in the area dating from antiquity can be determined by an examination of the cultural, historical, and archaeological records as presented above.

As the DLNR does not currently provide leases for anyone to live or farm in the *moku* of Nāpali as the government allowed in 1938 and earlier—apart from cabins on the mountaintop in the area around the Kōkeʻe State Park—cultural practices in the *moku* are limited to hiking, camping with permit, hunting with permit, fishing, and gathering of foliage for cultural practices, such as *lāʻau lapaʻau* (traditional herbal medicines and practices), hula, or for various types of material culture. The non-profit organization, Nāpali Coast ʻOhana (napali.org), has a stewardship agreement to study, maintain, and restore cultural sites in the *moku* and currently focuses its work on the *ahupuaʻa* of Nuʻalolo (both the *ʻili* of Nuʻalolo Kai and Nuʻalolo ʻĀina) and Miloliʻi. Formerly, the ʻOhana also worked to help maintain cultural sites in Kalalau. It is possible the group could consider doing the same at Hanakāpīʻai or perhaps another similar type group could endeavor to maintain and/or restore cultural sites in Hanakāpīʻai. Such opportunities open the door for the full range of cultural practices to be done in the *moku* as done around Kauaʻi. Such has been the case at sites the ʻOhana has done its work and a great many people from around Kauaʻi and beyond have benefitted from these opportunities.

Given the location of identified features by Tomonari-Tuggle (1989) and the various *wahi pana* described above, and given the topographical and geographical features deemed most appropriate to anchor the two ends of the spanning bridge for stability, the proposed spanning bridge does not appear to infringe or otherwise disturb manmade features in the immediate area of the proposed bridge. Features *ma uka* and *ma kai* of the proposed foundation of the bridge on both the east and west sides of Hanakāpīʻai Stream are located several meters away and therefore should remain intact.

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Fig. 1: http://kipukadatabase.com/kipuka/Ahupuaa.html?ObjectID=610&b=2

Fig. 2: http://www.perfectdayshawaii.com/assets/HikingHanakapiaiBeach_HanakapiaiBeach-1.jpg

Fig. 3: https://calitrails.files.wordpress.com/2014/01/nptrail4.jpg?w=930&h=619

Fig. 4: http://media-cache-ec0.pinimg.com/originals/e5/39/58/e5395842fb7472d5d9f5bfedae143ea3.jpg

Fig. 5: http://www.staradvertiser.com/wp-content/uploads/2016/03/web1_20160217_hanakapiai_stream_flooded.jpg

Fig. 6: http://hawaiian.com/wp-content/uploads/2015/06/Hanakapiai-Beach-Kauai-Hawaii.jpg

Fig. 8: https://farm6.staticflickr.com/5216/5385854836_c9055e6331_z.jpg

Fig. 10: http://www.aloha-hawaii.com/wp-content/uploads/2011/10/hiking-kalalau.jpg

Fig. 15: http://adventuretravelromance.com/wp-content/uploads/2012/09/Hawaii-NapoliCoast-1024x679.jpg

Fig. 16: http://www.dickschmitt.com/travels/Hawaii/kauai-na-pali/20050812_kauai-helicopter_132.JPG

Fig. 17: http://www.paulrene.com/travel/KT_Waiahuakua_wfall.jpg

Fig. 18: http://worldtoptop.com/wp-content/uploads/2011/09/waiahuakua_cave_falls.jpg

Fig. 22: http://www.hawaiimagazine.com/content/why-rock-stacking-hanakapiai-beach-isn%E2%80%99t-considered-pono-right

Fig. 23: Courtesy of Alan Carpenter.
Fig. 25: Courtesy of Randy Wichman.
Fig. 26: Courtesy of Keao NeSmith.