FREE FLOW POWER

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Ramya Swaminathan
Chief Operating Officer

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November 11, 2010

Kimberly Bose,
Secretary
Federal Energy Regulatory Commission
888 First Street, N. E.
Mailcode PJ – 12.1
Washington, DC 20426

Subject: Kahawai Power 1, LLC Application for Preliminary Permit

Dear Secretary Bose:

On behalf of Kahawai Power 1, LLC, enclosed please find a completed application for a preliminary permit pursuant to Section 4.30 of the Commission's regulations for the **Hanalei River Hydroelectric Project**.

If you have any questions regarding this submittal, please do not hesitate to contact me.

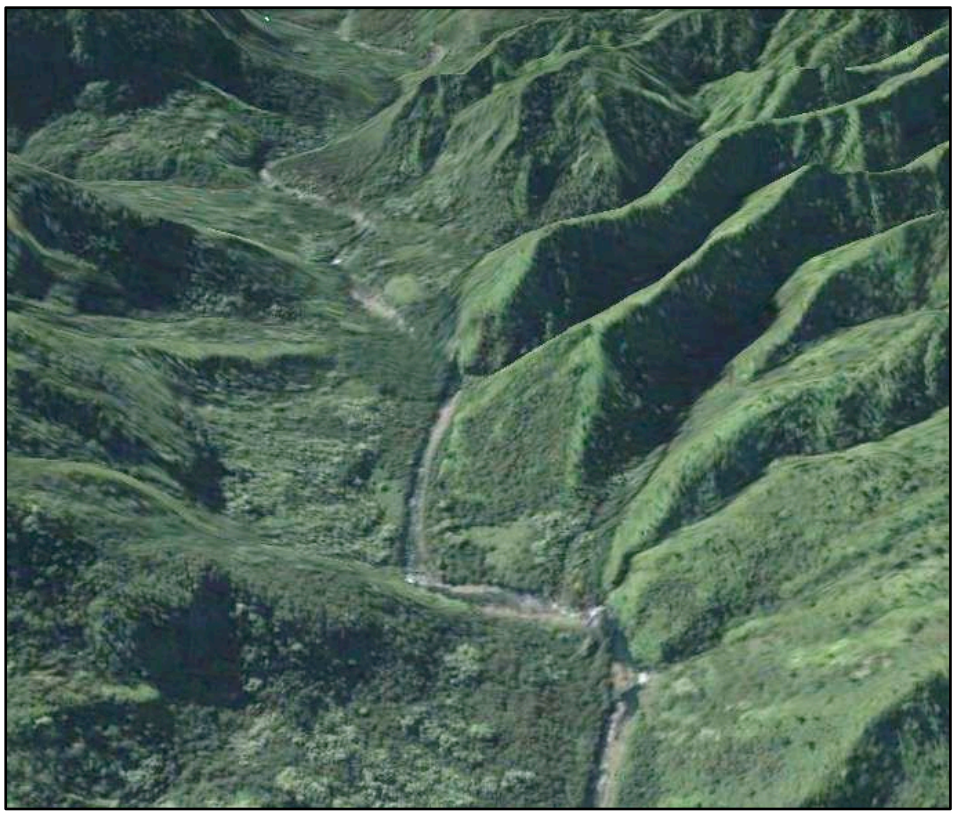
Sincerely,

Ramya Swaminathan
Kahawai Power 1, LLC

BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

APPLICATION FOR PRELIMINARY PERMIT

Hanalei River Hydroelectric Project



Kahawai Power 1, LLC
33 Commercial Street
Gloucester, MA 01930

November, 2010

VERIFICATION STATEMENT

This application for a preliminary permit for the Hanalei River Hydroelectric Project is executed in the State of Massachusetts, Essex County.

Ramya Swaminathan, Chief Operating Officer of Free Flow Power Corporation, the Managing Member of Kahawai Power 1, LLC, being duly sworn, deposes and says that the contents of this Preliminary Permit Application are true to the best of her knowledge or belief. The undersigned Applicant has signed the application on this 11 of November, 2010.

By: _____

Ramya Swaminathan, Chief Operating Officer
Free Flow Power Corporation

Subscribed and sworn before me, a Notary Public of the State of Massachusetts this 11th of November, 2010.

My commission expires on March 4, 2016

By: _____

ERIN R. MILLER
Notary Public
Commonwealth of Massachusetts
My Commission Expires
March 4, 2016

BEFORE THE UNITED STATES FEDERAL ENERGY REGULATORY COMMISSION
APPLICATION FOR PRELIMINARY PERMIT

I. Statement of Application

Kahawai Power 1, LLC applies to the Federal Energy Regulatory Commission for a preliminary permit for the proposed Hanalei River Hydroelectric Project, as described in the attached exhibits. This application is made in order that the applicant may secure and maintain priority of licensing for the project under Part 1 of the Federal Power Act while obtaining the data and performing the acts required to determine the feasibility of the project and to support an application for license.

2. The location of the proposed project is:

State:	Hawaii
County:	Kauai County
Nearby Town:	Hanalei, HI
Body of Water:	Hanalei River, Pekoa Stream, Kaapahu Stream, and Kaiwa Stream

3. The exact name, business address, and telephone number of the applicant is:

Kahawai Power 1, LLC
33 Commercial Street
Gloucester, MA 01930
978.283.2822

The exact name, address, and telephone number of persons authorized to act as agent for the applicant in this application are:

Daniel R. Irvin
Free Flow Power Corporation
33 Commercial Street
Gloucester, MA 01930
978.252.7631
dirvin@free-flow-power.com

Daniel Lissner
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Gloucester, MA 01930
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Jason Hines
Free Flow Power Corporation
2200 Rimland Drive, Suite 104
Bellingham, WA 98226
978.252.7112
jhines@free-flow-power.com

4. Preference under Section 7(a) of the Federal Power Act

Kahawai Power 1, LLC is a domestic limited liability company, and is not claiming preference under the section 7(a) of the Federal Power Act.

5. Term of Permit

The proposed term of the requested permit is 36 months.

6. Existing Dams or Other Project Facilities

There are no existing dams or other existing project facilities that will be used by the project.

SECTION 4.32(a)

1. **Identify every person, citizen, association of citizens, domestic corporation, municipality, or state that has or intends to obtain and will maintain any proprietary right necessary to construct, operate, or maintain the project;**

   Kahawai Power 1, LLC is the only entity that has or intends to obtain and will maintain any proprietary rights necessary to construct, operate, or maintain the proposed property.

2. **Identify:**

   (i) Every county in which any part of the project, and any Federal facilities that would be used by the project, would be located:

   The project would be located in the following County:

   Kauai, Hawaii

   Kauai County Clerk
   4396 Rice Street, #206
   Lihue, HI 96766

   (ii) Every city, town, or similar local political subdivision:

   (A) In which any part of the project, and any Federal facilities that would be used by the project, would be located:

.

A portion of the proposed project is located in the Halelea Forest Reserve, managed by Department of Land and Natural Resources, Division of Forestry and Wildlife:

Department of Land and Natural Resources
Division of Forestry and Wildlife
Kauai Branch
3060 Elwa Street, Room 306
Lihue, HI 96766-1875

A portion of the proposed project is located in the population center called Hanalei Homesteads which is not a census designated or incorporated place.

(B) That has a population of 5,000 or more people and is located within 15 miles of the project dam:

Lihue, HI

Mayor's Office
4444 Rice Street, #235
Lihue, HI 96766

Kapaa, HI

Mayor's Office
4444 Rice Street, #235
Lihue, HI 96766

(iii) Every irrigation district, drainage district, or similar special purpose political subdivision:

No irrigation district, drainage district, or similar special purpose political subdivision has been identified in association with the proposed project.

(iv) Every other political subdivision in the general area of the project that there is a reason to believe would likely be interested in, or affected by, the application;

Hawaii 2nd Congressional District

Congresswoman Mazie K. Hirono
5-104 Prince Kuhio Building
300 Ala Moana Boulevard
Honolulu, Hawaii 96850

Senator Dan Inouye
300 Ala Moana Boulevard, Room 7-212
Honolulu, Hawaii 96850

Senator Daniel Kahikina Akaka
300 Ala Moana Boulevard, Room 3-106
Box 50144
Honolulu, Hawaii 96850

(v) All Indian Tribes that may be affected by the project;

The applicant has identified the following Indian Tribes that may potentially have an interest or be affected by the project using the National Park Service's Native American Consultation Database:

Hui Malama I Na Kupuna O Hawai'i Nei, Hawaii

Mr. Kunani Nihipali
Hui Malama I Na Kupuna 'O Hawaii Nei
P.O. Box 967
Kailua, HI 96734

Kauai/Niihau Island Burial Council

Mrs. LaFrance Kapaka-Arboleda
Kauai/Niihau Island Burial Council
P.O. Box 585
Anahola, HI 96703

Office Of Hawaiian Affairs

Mr. Clyde Namuo
Office of Hawaiian Affairs
711 Kapiʻolani Blvd., Suite 500
Honolulu, HI 96813-5249

BEFORE THE UNITED STATES FEDERAL ENERGY REGULATORY COMMISSION
APPLICATION FOR PRELIMINARY PERMIT

EXHIBIT 1 – GENERAL DESCRIPTION

Section 4.81(b)

1. **General Configuration & Information**

The proposed Hanalei River Hydroelectric Project is located on the Island of Kauai, Hawaii, approximately 3.5 miles southeast of the town of Princeville and approximately 4.25 miles southwest of Kilauea, near the town of Hanalei, Hawaii.

The project site is located at:

Coordinates:	Latitude:	22° 10' 35.85"N
	Longitude	159° 27' 56.58"W

The project utilizes water from the Hanalei River as well as three tributaries that run along its eastern border, the Kaiwa, the Kaapahu, and the Pekoa streams. The Hanalei River drains directly into the Pacific Ocean between Hanalei Landing and Puu Poa Point.

The proposed development of the site involves the construction of a new 3.5 MW hydropower facility on the Hanalei River. The project will consist of the following major elements:

Hanalei Diversion Structure – A 15 foot high and 80 foot long reinforced concrete diversion weir and intake structure will be constructed on the Hanalei River. The diversion structure will contain a coanda type intake and a low level outlet gate. The weir will be of ogee section to permit passage of excess stream flow without obstruction and will maintain a normal water surface elevation of 600 feet msl.

Kaiwa Diversion Structure – A 5 foot high and 35 foot long reinforced concrete diversion weir and intake structure will be constructed on Kaiwa Stream. The diversion structure will contain a coanda type intake and a low level outlet gate. The weir will be of ogee section to permit passage of excess stream flow without obstruction and will maintain a normal water surface elevation of 600 feet msl.

Kaapahu Diversion Structure – A 5 foot high and 35 foot long reinforced concrete diversion weir and intake structure will be constructed on Kaapahu Stream. The diversion structure will contain a coanda type intake and a low level outlet gate. The weir will be of ogee section to permit passage of excess stream flow without obstruction and will maintain a normal water surface elevation of 600 feet msl.

Pekoa Diversion Structure – A 5 foot high and 35 foot long reinforced concrete diversion weir and intake structure will be constructed on Pekoa Stream. The diversion structure will contain a coanda type intake and a low level outlet gate. The weir will be of ogee section to permit passage of excess stream flow without obstruction and will maintain a normal water surface elevation of 600 feet msl.

Hanalei Main Penstock – The primary project penstock, a new 23,500 foot long, 42" diameter steel penstock, with both buried and above ground portions, will convey water from the Hanalei Diversion Structure to the powerhouse. Along its path, the main penstock will intersect with three feeder penstocks to collect water from the Kaiwa, Kaapahu, and Pekoa Streams.

Kaiwa Feeder Penstock – Additional flows collected at the Kaiwa Diversion Stucture will flow through a new 1,100 foot long, 24" diameter steel feeder penstock, with both buried and above ground portions. The Kaiwa Feeder Penstock will intersect with the main penstock approximately 21,500 feet from the powerhouse.

Kaapahu Feeder Penstock – Additional flows collected at the Kaapahu Diversion Stucture will flow through a new 2,800 foot long, 24" diameter steel penstock, with both buried and above ground portions. The Kaapahu Feeder Penstock will intersect with the main penstock approximately 17,500 feet from the powerhouse.

Pekoa Feeder Penstock – Additional flows collected at the Pekoa Diversion Stucture will flow through a new 1,700 foot long, 24" diameter steel penstock, with both buried and above ground portions. The Pekoa Feeder Penstock will intersect with the main penstock approximately 10,900 feet from the powerhouse.

Powerhouse – The powerhouse will be a reinforced concrete structure 60 feet long and 40 feet wide with a machinery floor elevation of 85 feet msl. The new powerhouse will contain the turbine/generator, switch gear, control system, and auxiliary equipment.

Substation – A 4 MVA 4.16/25kV three phase step-up transformer will be located in a new substation 85 feet from the powerhouse. The substation will also contain high side and low side disconnects and will be surrounded by a containment dike and a security fence.

Access Roads – The project will utilize existing roads and one new road. New road construction will involve a new gravel roadway approximately 3/4 mile in length extending from the existing Ohiki Road for powerhouse and substation access.

2. Reservoir

The Hanalei diversion will create a small reservoir with a surface area of about 1.0 acre and approximately 7.7 acre-feet of storage. The three smaller diversions will each

impound a surface area of less than 0.10 acres and have a volume of less than 0.25 acre-feet.

3. Proposed Transmission Line

A new transmission line will connect the project substation to the local utility distribution system owned by the Kauai Island Utility Cooperative. The interconnection features and characteristics, including the final transmission line design, voltage, and route, are dependent upon the results of studies to be carried out during the term of permit.

The applicant anticipates the transmission line will be approximately 1 mile in length and having a voltage of 25kV.

4. Proposed Generating Equipment

- A single two-jet turgo turbine will be installed at the project with a design flow of 100 cfs and a rated capacity of 3.5MW.
- The total installed nameplate capacity of the turbine-generator unit will be 3.5 MW.
- The estimated average annual energy production is 12.25 GWh.
- The hydraulic head used for estimating capacity and energy output is 515 feet.
- The turbine and generator will be newly manufactured for the project.

5. Lands of the United States

There is no federally owned land within the project boundary.

6. Utilization of Water Resources

The proposed project would develop, conserve, and utilize the water resources of the region in the public interest. Further, the project will operate in accordance with terms and conditions of any new license issued by the Commission to protect and enhance non-power resources, and will further increase domestic renewable green energy generation.

BEFORE THE UNITED STATES FEDERAL ENERGY REGULATORY COMMISSION
APPLICATION FOR PRELIMINARY PERMIT

EXHIBIT 2 – DESCRIPTION OF STUDIES

Upon the issuance of a preliminary permit, more detailed studies will be conducted to determine the ultimate feasibility of the project and potentially support the preparation of an application for license, as detailed below.

1. General Description of Proposed Studies

The following studies are planned:

1. Description of proposed studies

a) Information Review: Publicly available general information will be compiled and reviewed. This will include Department of Land and Natural Resources management plans, local survey data, utility distribution and transmission information, previous hydroelectric feasibility analyses, as well as material previously submitted to FERC for earlier development initiatives.

b) Hydrologic Studies: Publicly available gaging station record data and field data will be used to develop detailed daily stream flow forecasts for the river at the project site. Field data will be gathered and used to refine data for the proposed diversion location.

c) Geological Studies: Studies will be performed to support design and cost estimating for the new diversions, penstock alignment, and powerhouse. Test borings, as required, will be made with a small portable machine to ensure minimal environmental impact. Each boring site will be restored to its original state.

d) Develop and Review Alternatives: Alternatives will be developed and reviewed in project layout and sizing to maximize the power generated, minimize environmental impact, and otherwise select the optimal project to ensure the best possible use of the resource.

e) Preliminary Engineering and Design: The information generated in the preceding studies will be incorporated into an optimized design suitable for a definitive estimate of project cost and feasibility.

f) Energy Generation and Cost Estimates: The flow and head data created in Task (b) coupled with the selected project design alternatives from Tasks (c) and (d) will allow energy generation to be modeled for the project. Daily forecast energy generation will be determined and typical, wet, and dry year generation estimated will be made. Initial budgetary development and construction costs will be developed. A tentative permitting and construction schedule will be defined.

g) Feasibility Analysis: The previous work will be compiled into a final feasibility analysis along with data gathered on then-current and forecast wholesale power prices, financing costs, and O&M costs to determine the economic feasibility of the project.

If the result of the feasibility analysis is positive, the following activities are envisioned to take place during the remaining preliminary permit term to support licensing and development of the project.

h) Informal Stakeholder Consultation and Discussions

i) Develop Notice of Intent (NOI)

j) Develop Pre-Application Document (PAD)

k) Begin Scoping Activities

*It is anticipated that tasks (a) through (g) will be completed within 12 months of the permit issuance. Tasks (h) through (k), if undertaken, will be performed during the remaining permit term.

2. New Road Construction

Access for all field surveys will be via existing roads. No new roads are required for the purpose of conducting studies for the proposed project.

3. New Dam Construction

The project will involve the construction of four small intake diversions, as specified in Exhibit 1 above.

While the project will involve construction of new diversion structures, the only field surveys or studies which are planned for the proposed project are as follows:

a) Test Borings:

As required, test borings will be made at the proposed locations for the new diversions, penstock alignment, and powerhouse. The test boring sites will be impacted, but only in the smallest possible area that will accommodate two men and a small boring machine which can be carried into place by hand. The sites will immediately be returned to their natural state.

b) Gaging Stations:

At the diversion and powerhouse sites, gaging stations will be installed at locations which allow the utilization of natural streambed contours and provide dimensionally stable transects, thereby eliminating the need for measurement weirs and minimizing impact to the waterway and shorelines.

4. Waiver

The applicant does not request the Commission to waive the field study requirement.

5. Statement of Cost and Financing

a) Estimated Costs:

The total cost for completing tasks (a) through (g) as outlined above is estimated to be $100,000. If task (h) through (k) are undertaken the total cost is estimated to not exceed $500,000.

b) Expected Sources of Financing:

The studies will be financed by the applicant.

BEFORE THE UNITED STATES FEDERAL ENERGY REGULATORY COMMISSION
APPLICATION FOR PRELIMINARY PERMIT

EXHIBIT 3 – MAPS

1. General Location of Proposed Project

Attached are maps showing the location, the project layout, and the project boundary for the proposed project. The location of the project is shown on two maps, Map 1 – Vicinity and Map 2 – Location.

2. Project Layout

The probable locations of the primary project features are shown on Map 3 - Layout.

3. Proposed Boundary

The proposed project boundary is shown on Map 4 – Boundary.

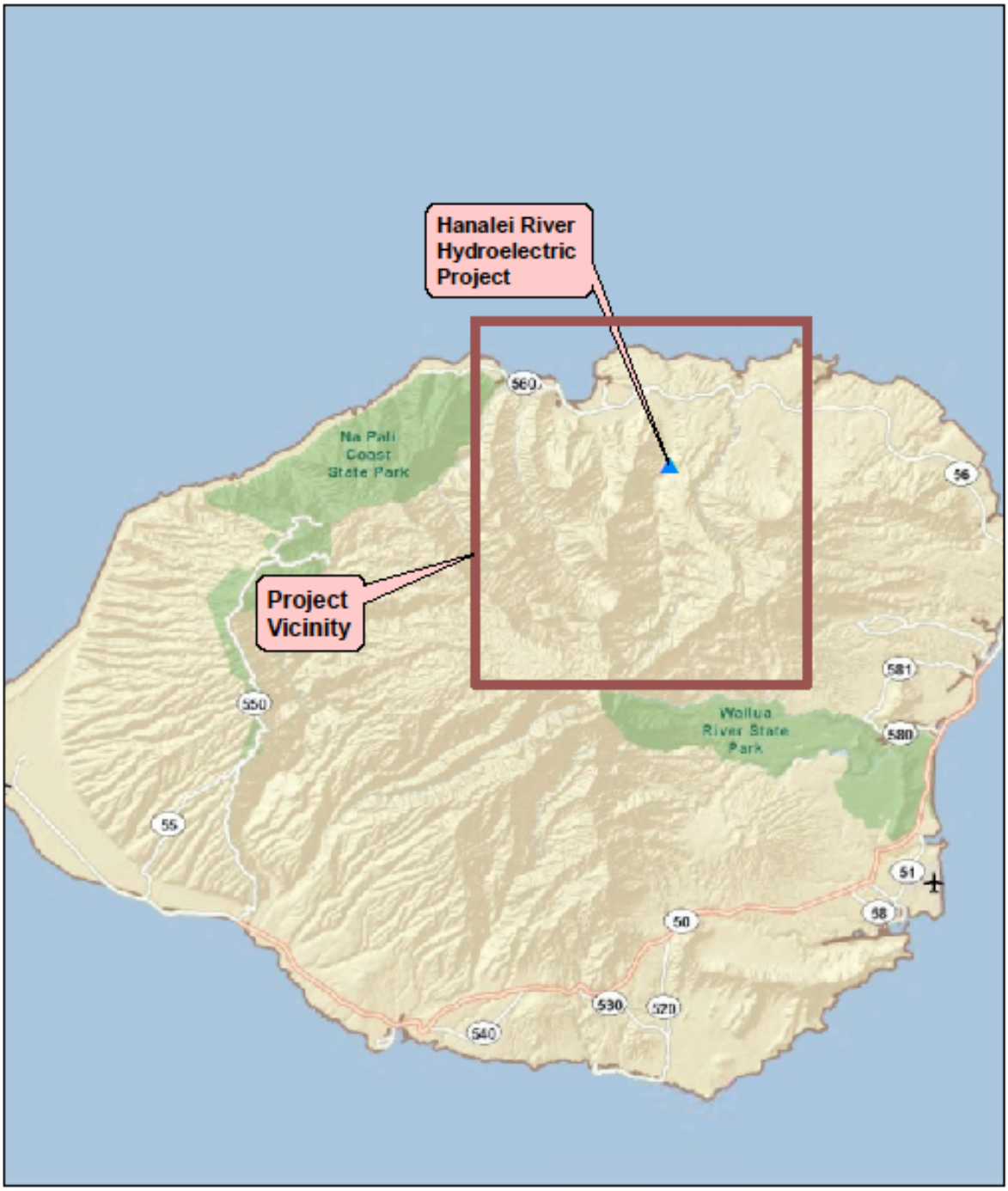
4. National Wild and Scenic Rivers Systems

No areas in the project vicinity are included (or are known to have been designated for study for inclusion) in the National Wild and Scenic Rivers System.

5. Designated Wilderness Areas

No areas within the project boundary have been designated as wilderness area. No areas within the project boundary are known to be recommended for designation as wilderness area or designated as wilderness study area.

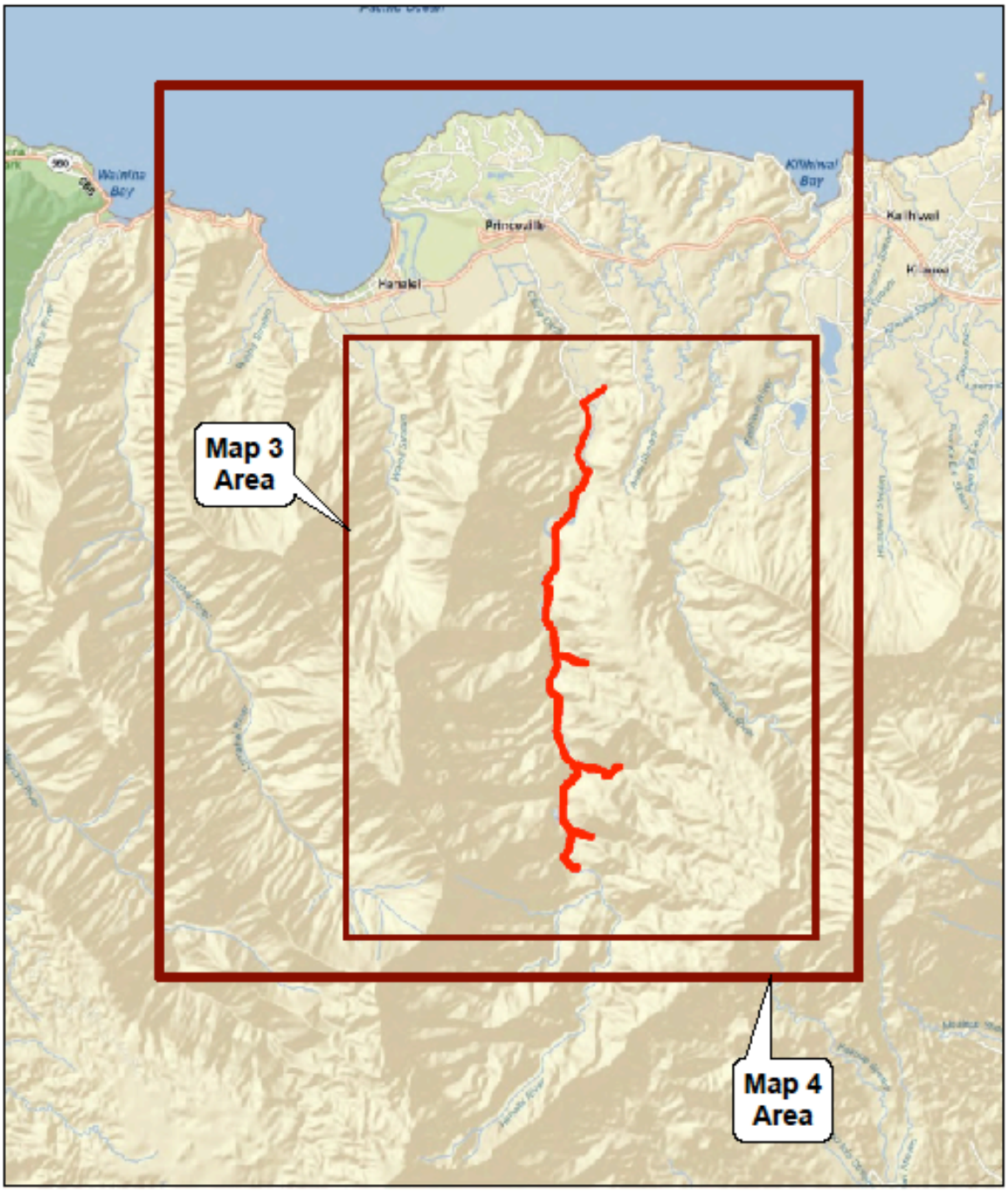
Hanalei River Hydroelectric Project
MAP 1 - VICINITY



0 2.5 5 10 15 20 Miles

N

Hanalei River Hydroelectric Project
MAP 2 - LOCATION



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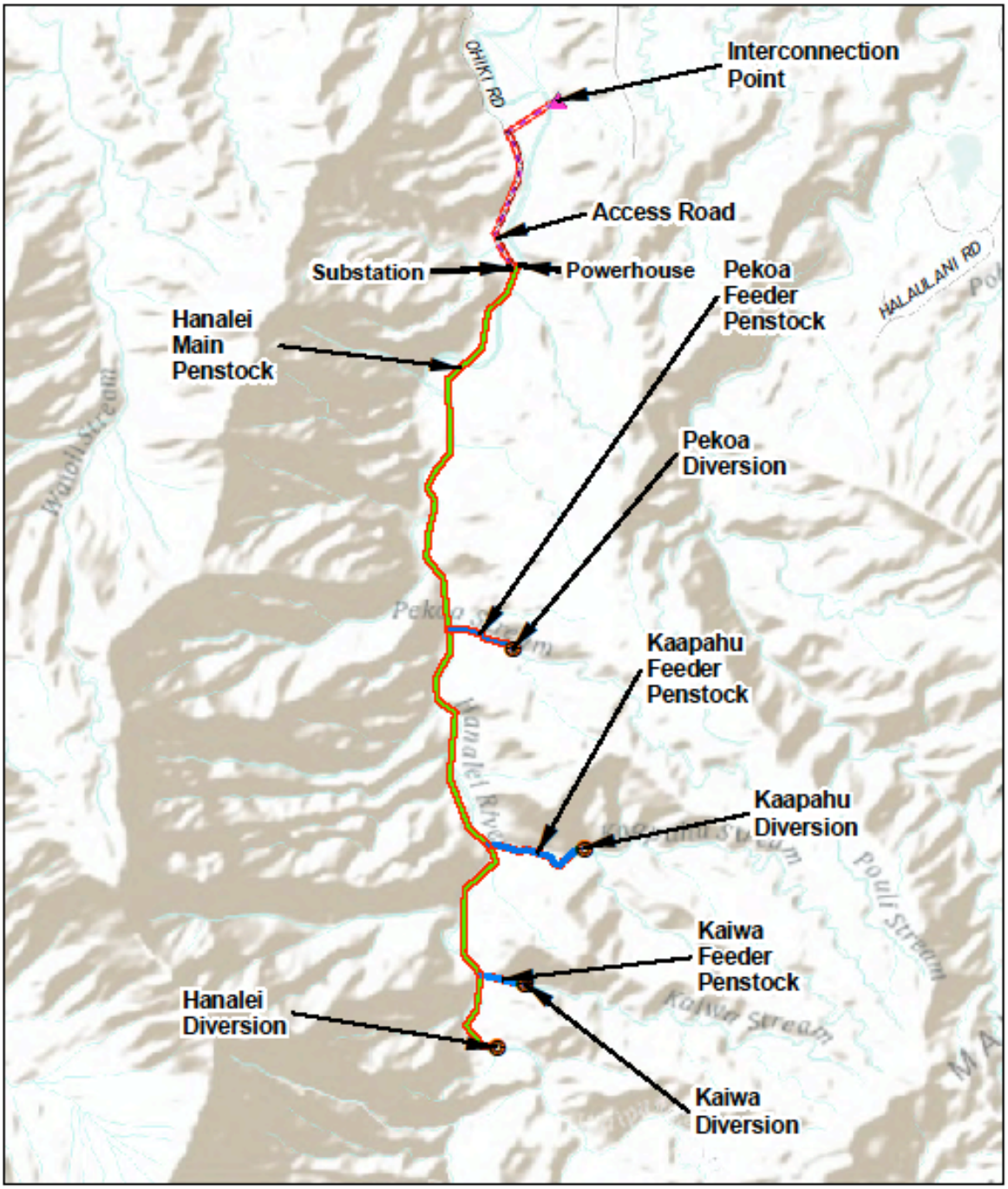
N

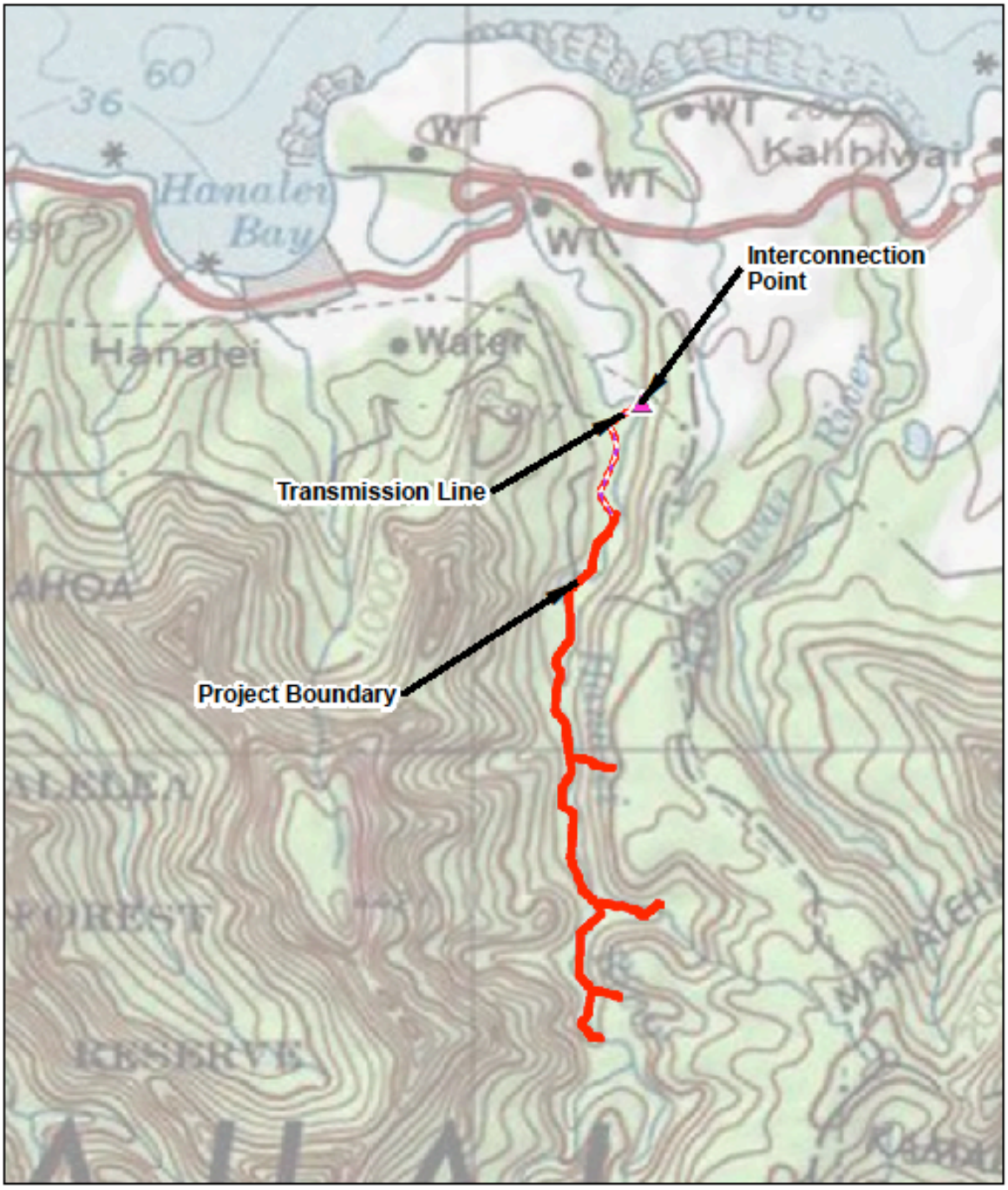
Hanalei River Hydroelectric Project
MAP 3 - LAYOUT



0 1,875 3,750 7,500 11,250 15,000 Feet

N

Hanalei River Hydroelectric Project
MAP 4 - BOUNDARY



0 0.5 1 2 3 4 Miles

N

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