

Water Resource Supply Alternatives in the Lahaina Aquifer Sector Area

Ayron M. Strauch, Ph. D.
Hydrologist
Stream Protection and Management Branch



October 19, 2023



Proposed Alternative Water Sources in West Maui

Option 1: Expand R1 Use

Expansion of Recycled Water Use Distribution
and Reservoir Improvements

Option 2: Repurposing Existing Source

Honokōwai Development Tunnel

Option 1: Expand R1 Use

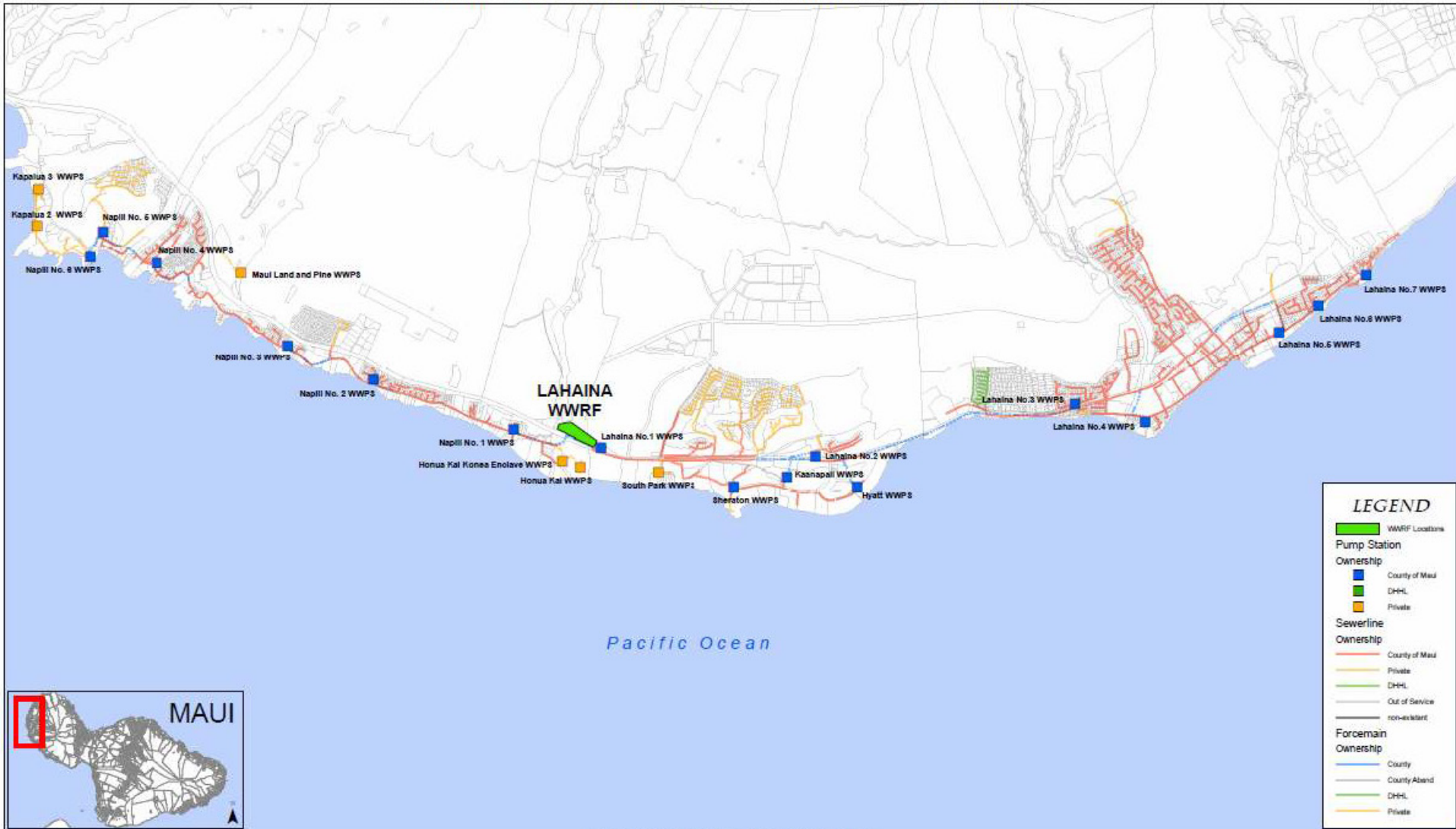
Lahaina Recycled Water Reservoir and Distribution Improvements



Benefits

- Increased storage of recycled water for distribution
- Reduced reliance on surface water for non-potable needs
- Reduced groundwater injection of recycled water
- Increased storage of non-potable water for agriculture and fire fighting

FIGURE 1-1: LAHAINA WWRF LOCATION AND SERVICE AREA
LAHAINA WASTEWATER RECLAMATION FACILITY



Facility Location and Service Area

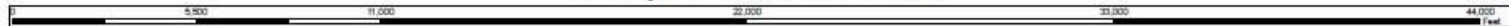
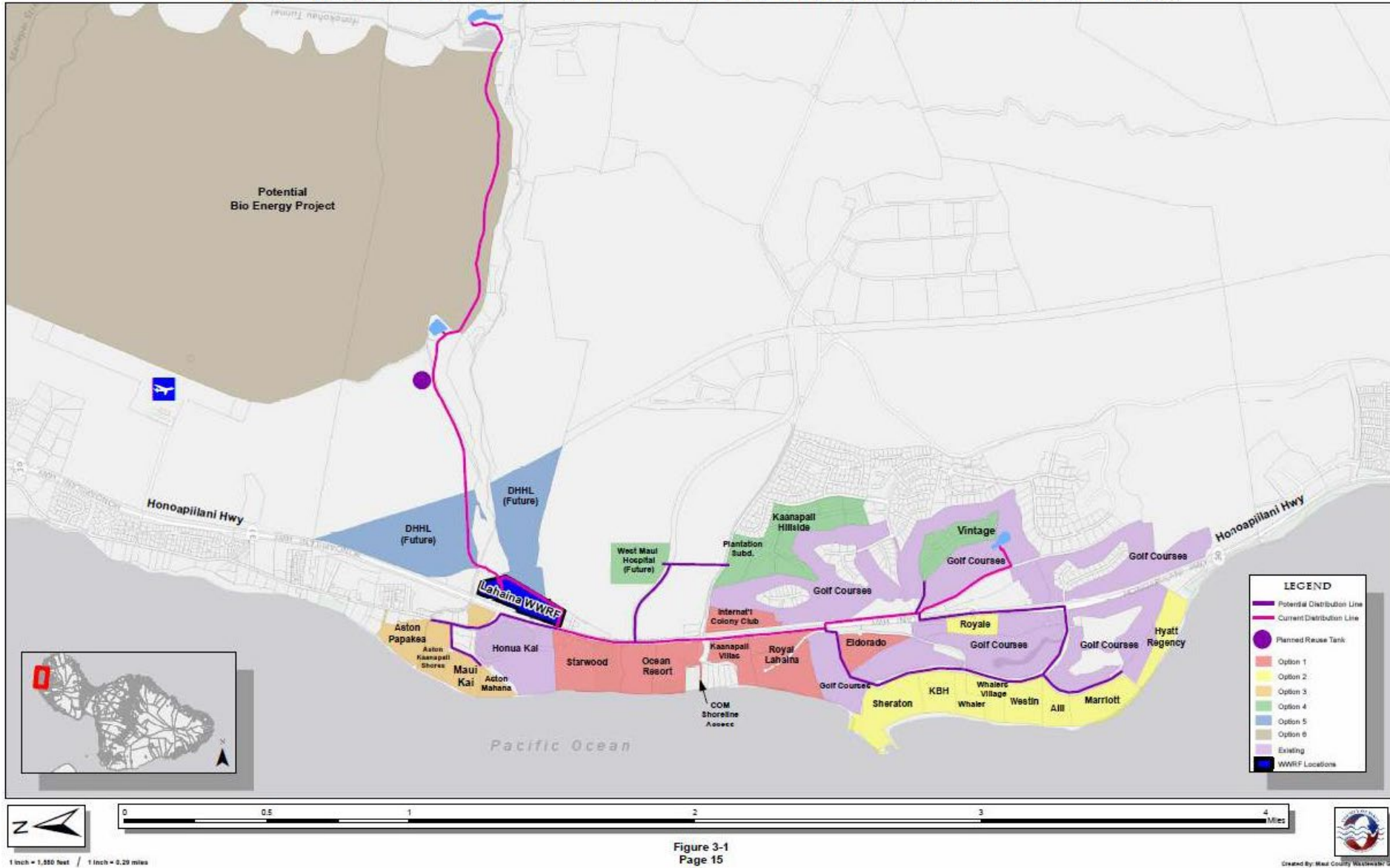


Figure 1-1
 Page - 4



FIGURE 3-1: WEST MAUI POTENTIAL R-1 RECYCLED WATER EXPANSION OPTIONS

WEST MAUI POTENTIAL R-1 RECYCLED WATER EXPANSION OPTIONS



Existing Infrastructure

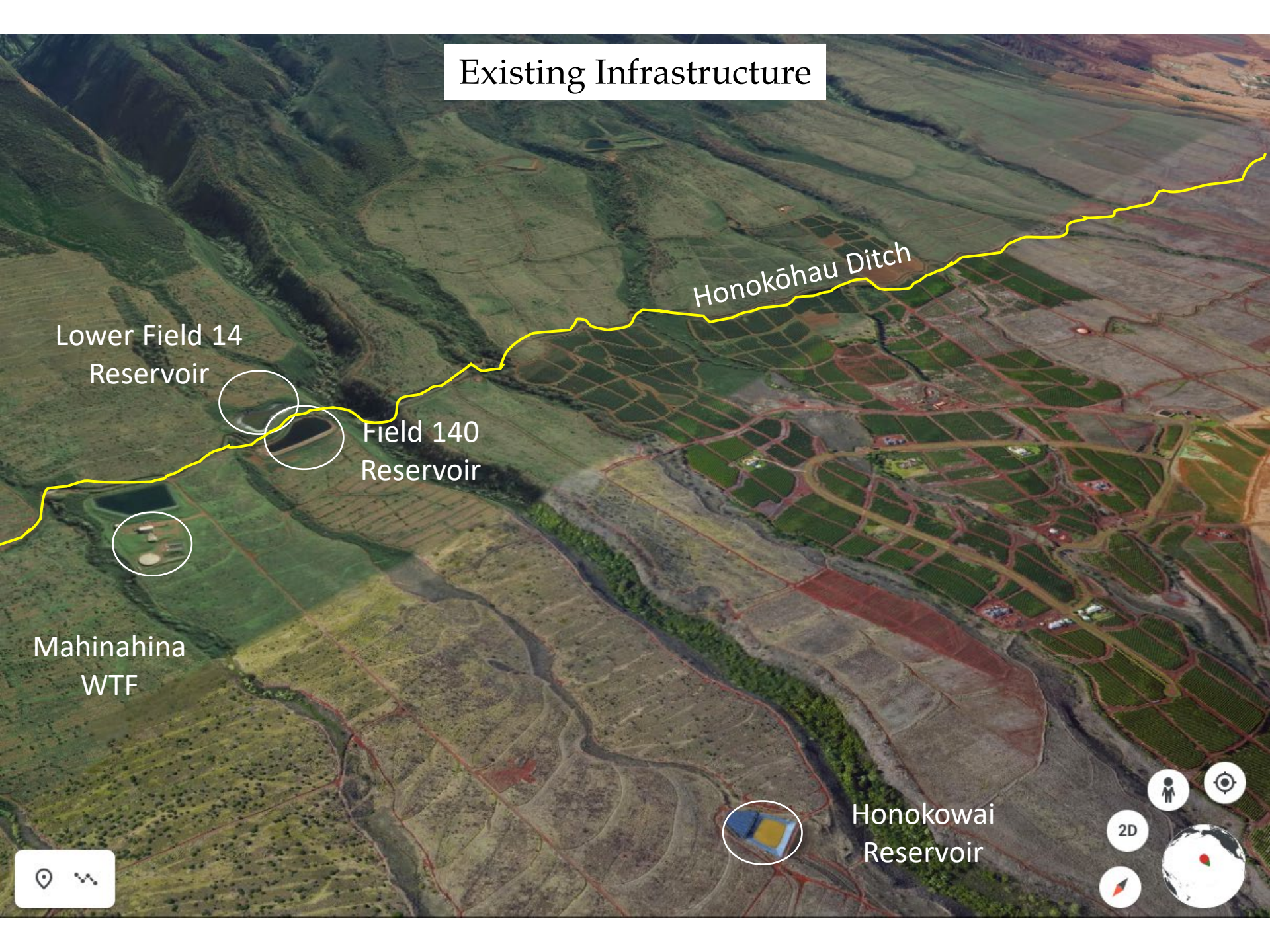
Lower Field 14
Reservoir

Field 140
Reservoir

Honokōhau Ditch

Mahinahina
WTF

Honokowai
Reservoir



Existing Infrastructure

Lower Field 14
Reservoir

Field 140
Reservoir

Mahinahina
WTF

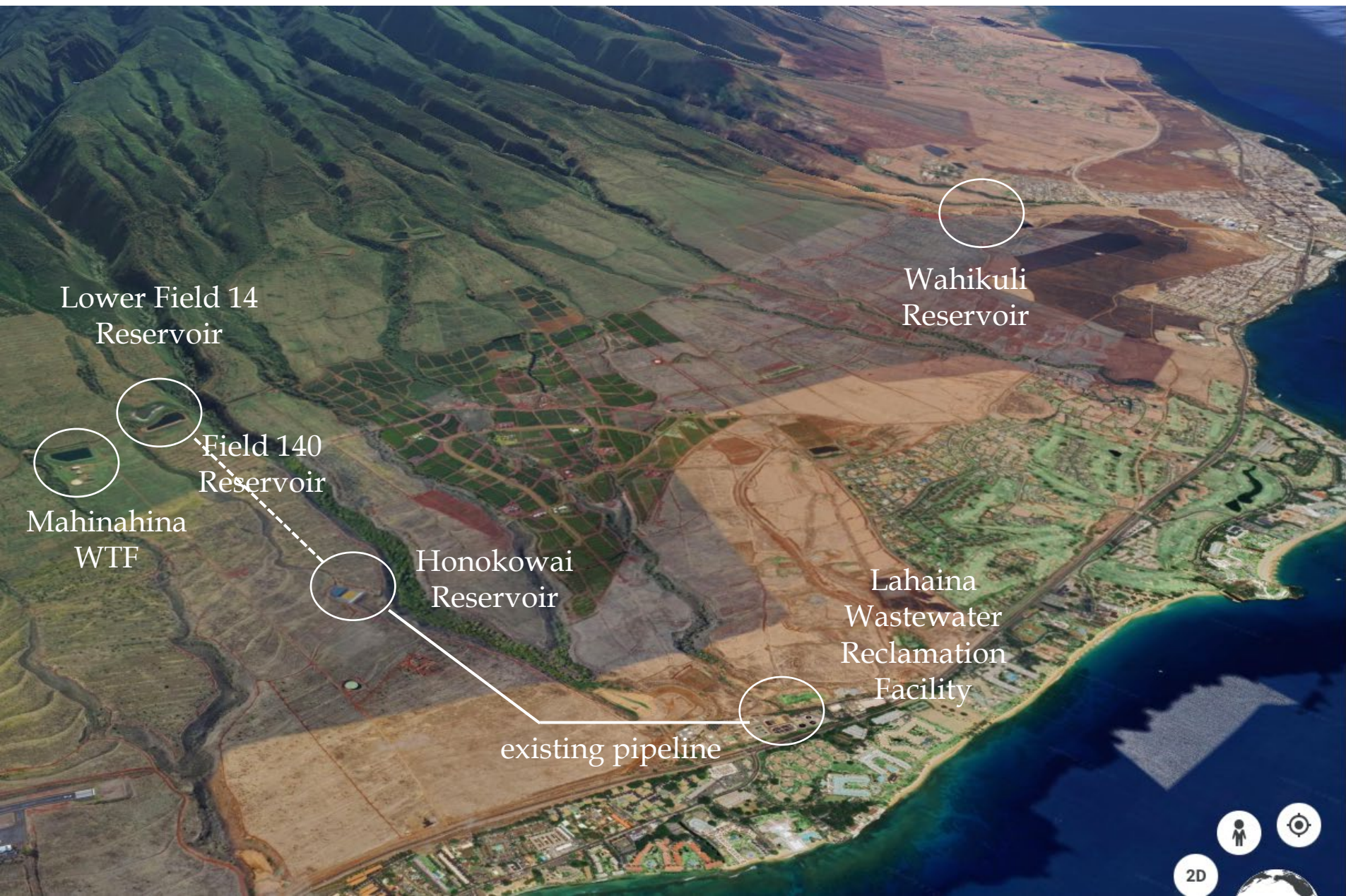
Honokowai
Reservoir

Wahikuli
Reservoir

Lahaina
Wastewater
Reclamation
Facility

2D





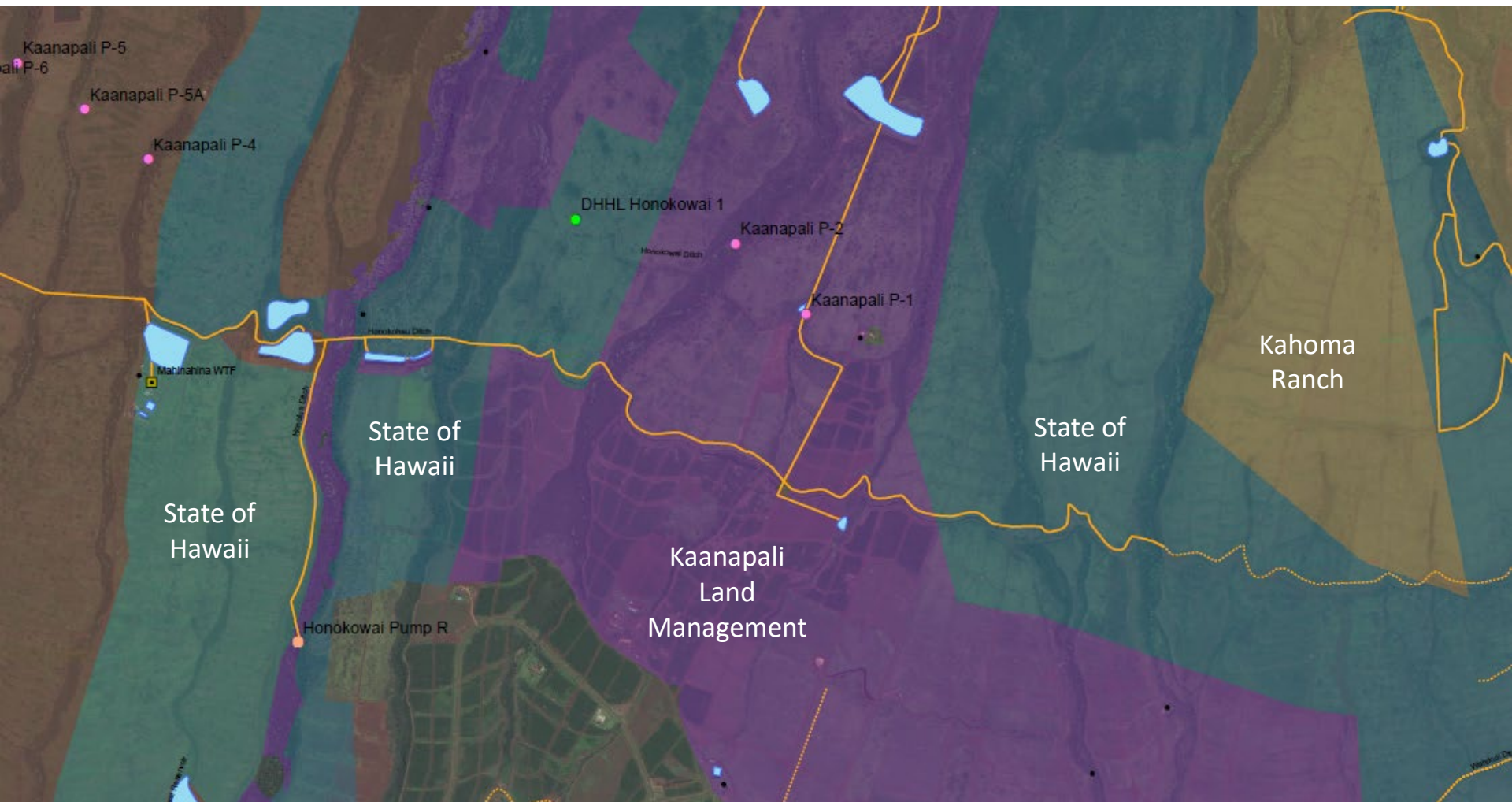
Potential Challenges

Honokōwai
Gulch

Hahakea
Gulch
Wahikuli
Gulch

Kahoma/Kanahā
Gulches

2D



Field 140 Reservoir



Field 140 Reservoir



Field 140 Reservoir



Honokōhau Ditch at Field 140 Reservoir



Honokōhau Ditch at Honokōwai Siphon

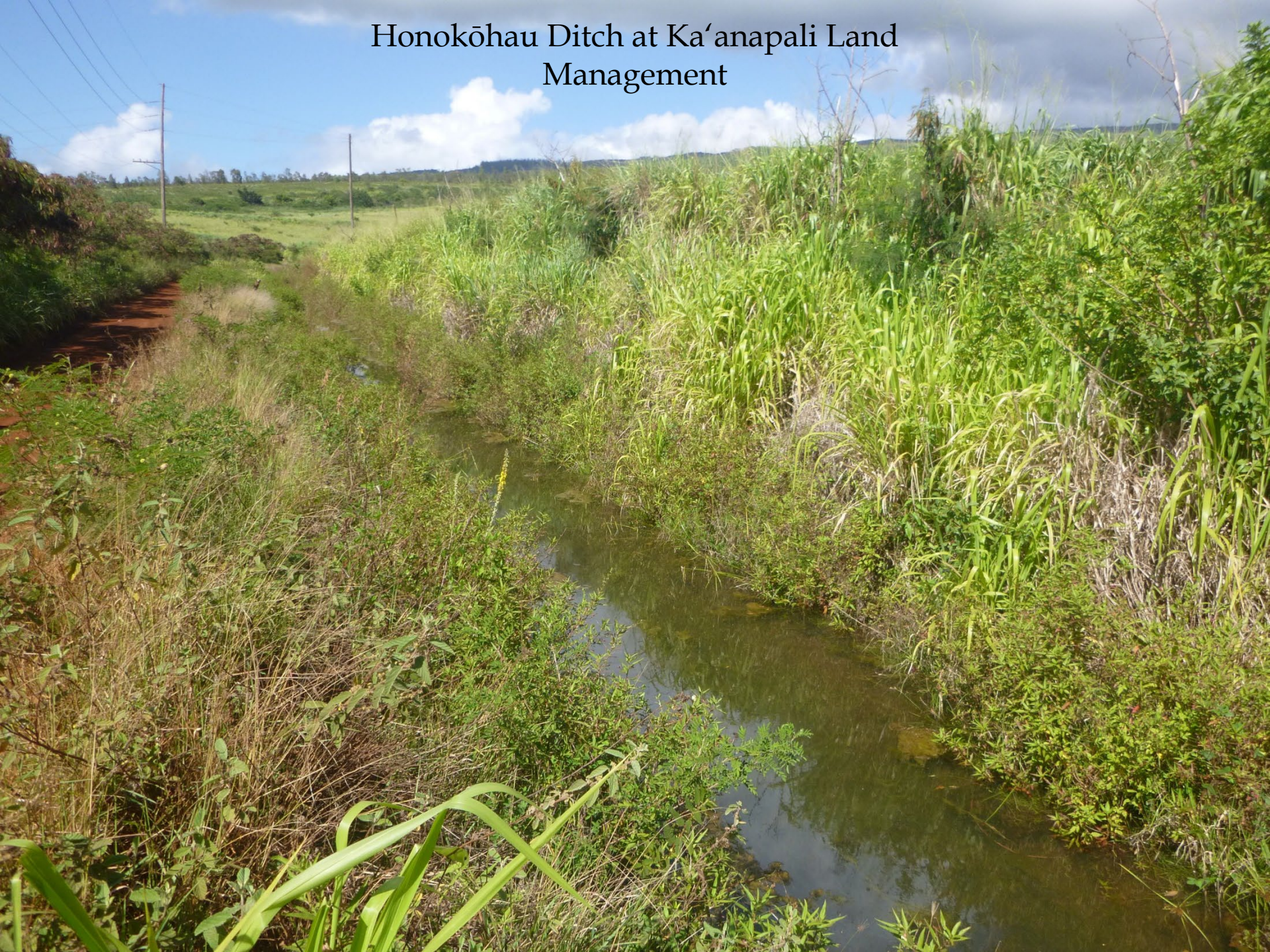




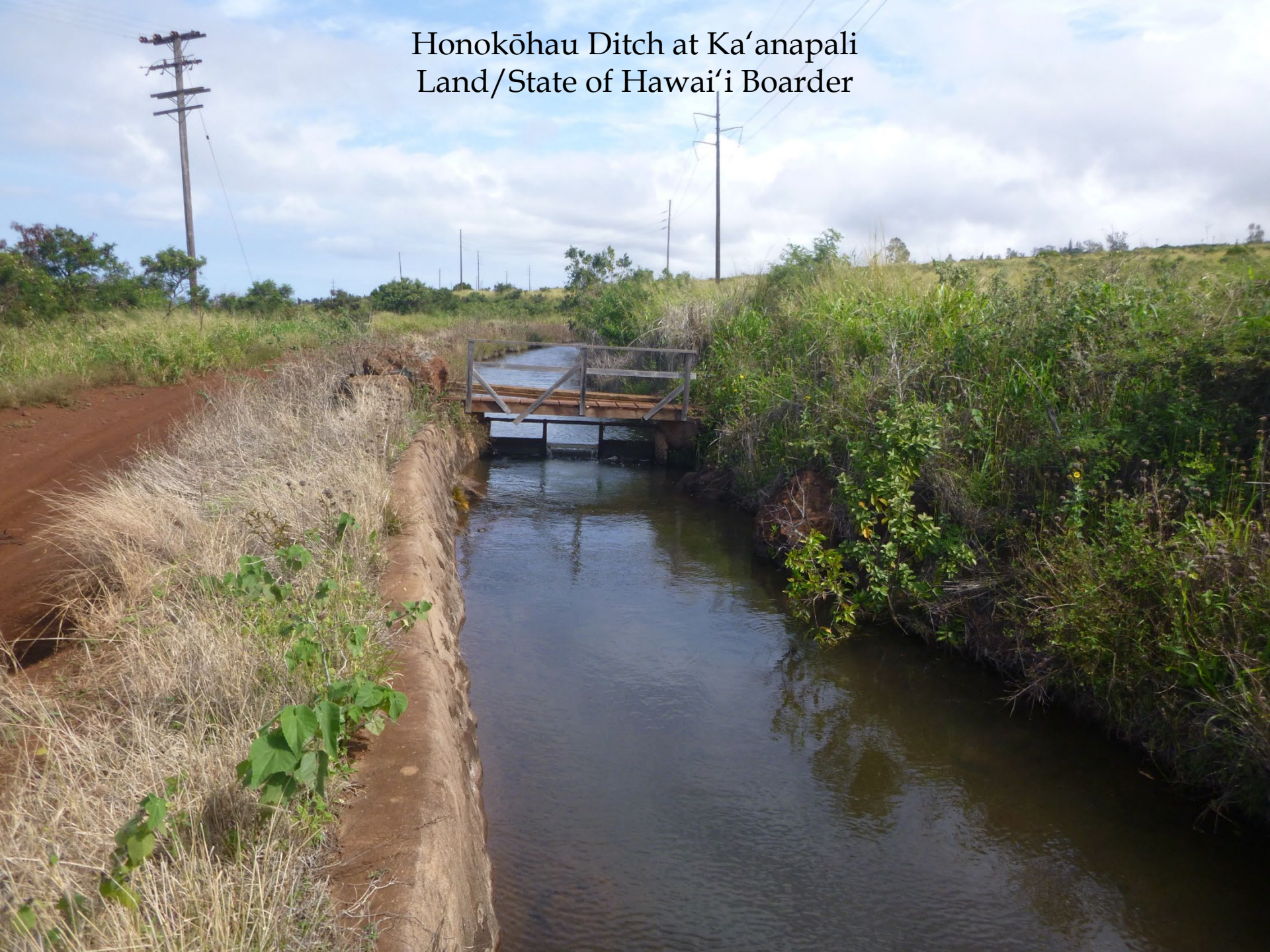
Honokōhau Ditch at Ka'anapali
Land Management



Honokōhau Ditch at Ka'anapali Land Management



Honokōhau Ditch at Ka'anapali Land/State of Hawai'i Border





Honokōhau Ditch at
Wahikuli Flume

Honokōhau Ditch at
Hāhākea Siphon



Honokōhau Ditch at
Hāhākea Siphon



A satellite map showing a landscape with a yellow line tracing a path. The path starts on the left, goes up and over a hill, then down to a reservoir, and then continues to the right. The terrain is a mix of brown, tan, and green. There are some buildings and roads visible. The text labels are in white. The bottom right corner has a small icon of a person and a compass.

Honokōhau
Ditch

Lahaina Pump 3/
Lahainaluna Ditch
To Makila Reservoir

Wahikuli
Reservoir



Ditch



2D







Option 1: Expand R1 Use

Pros

- Old pipelines/ditches/reservoirs already in place
- System is mostly on state-owned land
- Gravity fed distribution system (once water is pumped to Field 140 reservoir)
- Increased storage of R1 water
- Ideal elevation/location to support fire fighting and agriculture
- Instream Flow Standard does not have to be modified
- County can charge for non-potable use to support maintenance
- Repurpose decommissioned Wahikuli Reservoir
- End users ready to use water: Kapalua, Kamehameha Schools, Launiupoko Irrigation

Cons

- Need to purchase Field 140 Reservoir
- Honokōhau Ditch crosses some privately-owned land
- Multiple gulches to cross adds cost/engineering (although accessible)

ADEPT Committee

From: Strauch, Ayrone M <ayron.m.strauch@hawaii.gov>
Sent: Thursday, October 19, 2023 2:28 PM
To: ADEPT Committee
Subject: Fw: Connecting you with the ADEPT team
Attachments: 20231019_Strauch_Presentation.pdf

You don't often get email from ayron.m.strauch@hawaii.gov. [Learn why this is important](#)

From: Strauch, Ayrone M <ayron.m.strauch@hawaii.gov>
Sent: Thursday, October 19, 2023 1:27 PM
To: Kate Griffiths <Kate.Griffiths@mauicounty.us>; Axel I. Beers <Axel.Beers@mauicounty.us>; Travis Liggett <travis@reefpowermaui.com>; Michael Reyes <mreyes@mauienvironmentalconsulting.com>; Terese Masters <ihilanimasters@gmail.com>
Cc: Gabe Johnson <Gabe.Johnson@mauicounty.us>
Subject: Re: Connecting you with the ADEPT team

Aloha,
Here you go.
Ayrone

From: Kate Griffiths <Kate.Griffiths@mauicounty.us>
Sent: Thursday, October 19, 2023 7:29 AM
To: Strauch, Ayrone M <ayron.m.strauch@hawaii.gov>; Axel I. Beers <Axel.Beers@mauicounty.us>; Travis Liggett <travis@reefpowermaui.com>; Michael Reyes <mreyes@mauienvironmentalconsulting.com>; Terese Masters <ihilanimasters@gmail.com>
Cc: Gabe Johnson <Gabe.Johnson@mauicounty.us>
Subject: [EXTERNAL] Re: Connecting you with the ADEPT team

Mahalo Ayrone for this and your help in Lahaina!

Will you be sending over a presentation?

Sent via the Samsung Galaxy S9+, an AT&T 5G Evolution capable smartphone
Get [Outlook for Android](#)

From: Strauch, Ayrone M <ayron.m.strauch@hawaii.gov>
Sent: Thursday, October 19, 2023 7:13:34 AM
To: Kate Griffiths <Kate.Griffiths@mauicounty.us>; Axel I. Beers <Axel.Beers@mauicounty.us>; Travis Liggett <travis@reefpowermaui.com>; Michael Reyes <mreyes@mauienvironmentalconsulting.com>; Terese Masters <ihilanimasters@gmail.com>
Cc: Gabe Johnson <Gabe.Johnson@mauicounty.us>
Subject: Re: Connecting you with the ADEPT team

Aloha Kate,

I will be attending virtually from Oahu. I was in Lahaina all day yesterday and needed to return for fieldwork on Oahu this morning.

Ayron M. Strauch, PhD
Hydrologist, Instream Use Protection Section
Commission on Water Resource Management
State of Hawaii, Department of Land and Natural Resources
1151 Punchbowl Room 227
Honolulu, HI 96813

From: Kate Griffiths <Kate.Griffiths@mauicounty.us>

Sent: Wednesday, October 18, 2023 2:00:25 PM

To: Axel I. Beers <Axel.Beers@mauicounty.us>; Travis Liggett <travis@reefpowermaui.com>; Michael Reyes <mreyes@mauienvironmentalconsulting.com>; Strauch, Ayron M <ayron.m.strauch@hawaii.gov>; Terese Masters <ihilanimasters@gmail.com>

Cc: Gabe Johnson <Gabe.Johnson@mauicounty.us>

Subject: [EXTERNAL] Re: Connecting you with the ADEPT team

Aloha all!

Mahalo nui loa for being willing to present to the ADEPT committee and thank you Axel for getting everyone together.

Please let me know if you will be coming into the chambers and cc me when you send your presentation to the ADEPT committee if you haven't already sent it.

We look forward to a great meeting tomorrow and really appreciate all your hard work and advocacy.

Mahalo, again!

Kate

Kate Griffiths
Senior Policy Analyst
Office of Councilmember Gabe Johnson
Lānaʻi Residency
808.270.8071