

State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Engineering Division
Honolulu, Hawaii 96813

April 28, 2023

Board of Land and Natural Resources
State of Hawaii
Honolulu, Hawaii

Authorization for the Chairperson to Extend the Notice of Deficiency
Deadlines and Make a Finding of Violations Sufficient to Support
Specified Fines on Kalihiwai Ridge Community Association,
Common Ground Utilities, and Porter Irrigation Company if
Extended Deadlines are Missed for Kalihiwai Dam Removal Project
(KA-0024), Kilauea, Kauai, Tax Map Key (4) 5-1-005: 25

Background

Kalihiwai Reservoir was constructed in the 1920s as an irrigation reservoir for downstream sugar cane fields. Currently, it is used for irrigation by the easement holders, and for recreation by the Kalihiwai Ridge Community Association (KRCA). Kalihiwai Reservoir is classified as a high hazard potential dam, as failure could result in loss of human life. The overall condition of the dam is currently rated as poor, meaning a dam safety deficiency is recognized for normal operating conditions which may realistically occur. Remedial action is necessary. The dam is currently under a water level restriction of 10.2 feet on the staff gage, but it is generally operated just below 7 feet. The reservoir spillway elevation and top of dam are 14.2 feet and 18.6 feet on the staff gage.

The dam and reservoir is owned by KRCA, and two easement holders (Common Ground Utilities and Porter Irrigation Company) who also have water rights and operate and manage the water level in the reservoir.

Hazard Potential: High Hazard Potential Dam
Population at Risk: 4 (see Figure 1 for current evacuation area)
Overall Condition: Poor
Dept. Restriction: 10.2 feet
Embankment: Earthen
Dam Height: 20 feet
Maximum Storage: Approximately 250 acre-feet

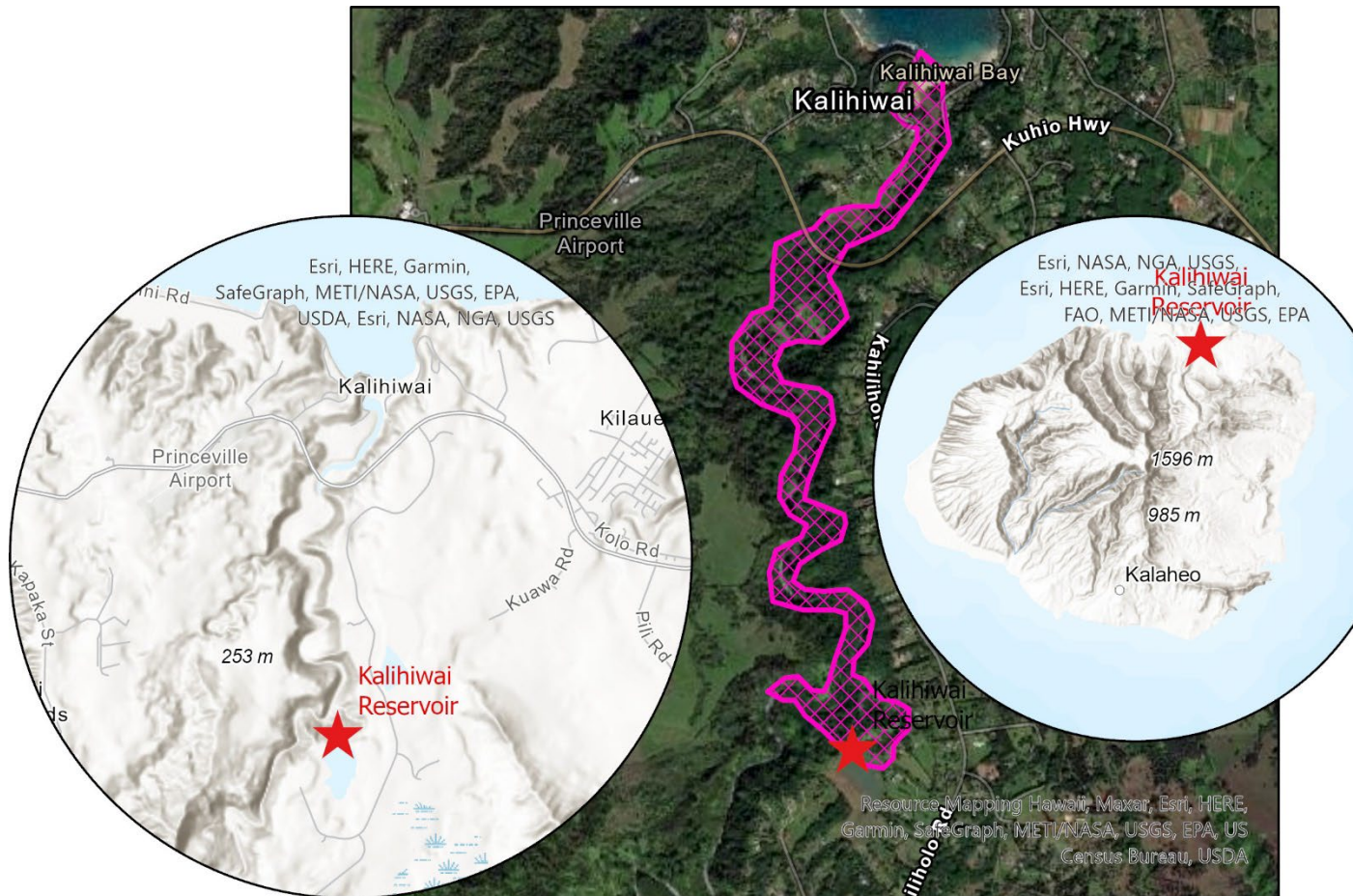


Figure 1. Location Map showing downstream evacuation area

Background and Enforcement Actions

The Department of Land and Natural Resources (Department) has issued four Notice of Deficiencies (NODs) on 5/23/2013, 9/15/2015, 8/24/2017, and 9/19/2021 to the Owners of the Kalihiwai Reservoir. The biggest concern identified in the first three NODs was that the collapsed mid-level outlet structure reduces the ability of the reservoir to discharge water, which could increase the risk of the reservoir overtopping during a flood event. This concern came to fruition during the 2018 flood event. During that emergency, dirt from the upstream slope was used to patch the low spot on the crest where water was overtopping, and the mid-level outlet works was dug out and enlarged, which allowed the water to release at a higher rate. While this emergency fix did address the reservoir's ability to release more water during that flood event, the work was only intended to address the imminent risk posed during that emergency. Broader safety issues, such as stability along the embankment, spillway capacity and known seepage issues, have not been addressed and still pose on-going risks that could contribute to a dam failure. Also, studies to show that the emergency fix fully addressed overtopping issues were still in progress and had not been provided to the Department. As part of this NOD studies were provided that showed that the dam would no longer overtop with

the probable maximum flood, but that it does not yet have sufficient freeboard to handle that event.

When the NOD was issued in 2021, the Owners had already taken the initiative to hire a dam safety engineering consultant who was in the process of developing a plan for rehabilitation of the dam. However, those plans had stalled because the Owners were unable to agree on a path forward. The 2021 NOD superseded previous NODs, and the Owners have diligently met each of the initial milestone in the 2021 NOD (see Table 1). However, the Owners are not going to be able to meet the 5/1/2023 deadline to start construction because a dam safety permit has not been issued yet. Upon seeking review of this proposed project by the State Historic Preservation Division (SHPD), SHPD had determined that they had insufficient information to determine impacts to architectural historic properties. Therefore, SHPD has required the Owners to prepare a Reconnaissance Level Survey Report to be submitted for their review and comment prior to the Board approving the dam safety permit. The Owners have amended their contract with their consultant to include the Reconnaissance Level Survey Report requested by SHPD and anticipate having it completed by June of 2023.

Table 1. Summary of September 19, 2021, NOD Deadlines and owner response

Description	Date Due	Owner Response
Restrict Level to 10.2 ft	Ongoing	Have followed Restriction, and generally kept at 7 ft
Submit Monitoring Reports Monthly	Ongoing	Have submitted reports monthly
Submit interim Monitoring Plan	1/15/2022	Completed
Submit Intent Letter (Remediation or Removal)	2/1/2022	Completed
Submit Permits	5/1/2022	Completed
Start Construction	5/1/2023	Not able to complete since permit has not been issued.

Discussion

In a letter to the Department emailed 3/6/2023 (see Exhibit B), the Owners asked for an extension in the deadline for the start of construction to be set 6 months from the date of issuance of the dam safety permit. The Department believes this request is reasonable given that they will need 6 months to execute a construction contract.

The Department believes a hard deadline should be set for the submittal of the Reconnaissance Level Survey Report, since SHPD's review and comment of that document will be the critical path for the dam safety permit to be issued. Therefore, it is recommended that the deadline for submittal of the Reconnaissance Level Survey Report be set for June 30, 2023.

Recommendations:

1. That the Board of Land and Natural Resources (Board) authorize the Chairperson to revise the Notice of Deficiency deadline for starting construction on Kalihiwai Dam

Removal Project (KA-0010) from May 1, 2023 to 6 months from the date the Board approves the dam safety permit.

2. Set a deadline of June 30, 2023 for the Owners to submit the Reconnaissance Level Survey Report to the Department. In the event that the owners miss the **6/30/2023 deadline to submit Reconnaissance Level Survey Report**, pursuant to HRS chapter 179D and HAR chapter 13-190.1, the Board find that Kalihiwai Ridge Community Association, Common Ground Utilities, and Porter Irrigation Company, the “Owners” of the Kalihiwai Dam (KA-0024) are in violation of HRS §179D-30(5), and HAR §13-190.1-23(a) for failing to provide sufficient information for permit application approval.
 - a. The Owners will be fined \$5,000 if they fail to submit the Reconnaissance Level Survey Report by June 30, 2023, pursuant to HRS §179D-8(b).
 - b. The Owners will pay all fines within 60 days of June 30, 2023 deadline, if Reconnaissance Level Survey Report is not submitted by 5 pm HST on June 30, 2023.
 - c. In the event that the Owners fail to comply with the Board order to pay fines within the time allotted, the Owners shall be fined an additional \$500 per day until the ordered fine amount is paid.
3. In the event that the Owners have not started construction on **the permitted work within six (6) months** from the date the Board approves the dam safety permit, pursuant to HRS §179D and HAR §13-190.1, the staff recommends the Board find that Kalihiwai Ridge Community Association, Common Ground Utilities, and Porter Irrigation Company, the “Owners” of the Kalihiwai Dam (KA-0024) are in violation of HRS §179D-6(b)(17) and HAR §13-190.1-4 for failure to address minimum design requirements.
 - a. The Owners will be fined \$20,000 if they fail to start construction within six (6) months of permit approval, pursuant to HRS §179D-8(b).
 - b. The Owners will pay all fines within 60 days of missing the deadline to start construction within six (6) months of permit approval.
 - c. In the event that the Owners fail to comply with the Board order to pay fines within the time allotted, the owner shall be fined an additional \$5,000 per day until the ordered fine amount is paid.
4. In the event that any of the above fines should go into effect, the Owners of the Kalihiwai Reservoir (KA-0024) will be jointly and severally liable for payment of those fines.

Respectfully submitted,



CARTY S. CHANG
Chief Engineer

APPROVED FOR SUBMITTAL:

A handwritten signature in black ink, appearing to be 'Dawn N.S. Chang', written over a horizontal line.

DAWN N.S. CHANG, Chairperson
Board of Land and Natural Resources

Exhibit A - Enforcement Letters

NOD Letter Dated 9/19/2021

NOD Letter Dated 8/24/2017 (Superseded by 9/19/2021 NOD)

NOD Letter Dated 9/18/2015 (Superseded by 9/19/2021 NOD)

NOD Letter Dated 5/23/2013 (Superseded by 9/19/2021 NOD)

Exhibit B – Extension Letter Request from owners

DAVID Y. IGE
GOVERNOR OF
HAWAII

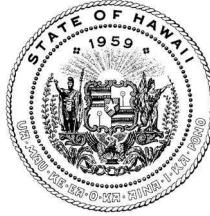


EXHIBIT A

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

M. KALEO MANUEL
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

Sep 19, 2021

VIA CERTIFIED MAIL

Mr. Robert Wilson
Hawaiiana Management Co.
4370 Kukui Grove Street, #208
Lihue, HI 96766
robertw@hmcmtg.com

Mr. Oliver Niedermaier
CG Utilities LLC
4900 Kuawa Road
Lihue, HI 96766
oliver@commongroundkauai.com

Ms. Kelly & Mr. Matt Porter
Porter Irrigation Company
3770 Punahale Road
Princeville, HI 96722
Kelly.porter@woodsidecap.com

Mr. Tripp MaCallister
Porter Irrigation Company
3770 Punahale Road
Princeville, HI 96722
tripp@waikoaplantation.com

Kalihiwai Ridge Community Association
c/o Bert Lyon
4370 Kukui Grove Street, #208
Lihue, HI 96766
lyon3@hawaii.rr.com

Dear Mr. Wilson, Mr. Niedermaier, Ms. & Mr. Porter, Mr. MaCallister, and Kalihiwai Ridge Community Association:

KALIHIWAI RESERVOIR (KA-0024), KAUAI DAM SAFETY - NOTICE OF DEFICIENCY

The subject regulated dam/reservoir has been classified to be in a poor overall condition and a threat to public safety due to one or more physical / operational conditions and deficiencies identified by the Department of Land and Natural Resources (Department). This Notice of Dam Safety Deficiency supersedes the conditions stipulated in previously issued notice of deficiencies. The subject facility is also classified as a High Hazard Potential dam, as failure could jeopardize the lives of the downstream public.

Pursuant to Hawaii Revised Statutes (HRS) 179D-6, you are required to take the following remediation, and maintenance and monitoring actions, by the deadlines indicated:

1. Remediation Schedule:

A written schedule for a dam remediation plan was requested in a letter from the Department on August 24, 2017. The Department acknowledges that the owner has done some of the studies previously requested by the department, such as a stability study and an H&H study. The results of the studies showed that the stability of the

reservoir needs to be addressed and that the spillway is not adequately sized to pass the Probable Maximum Flood (PMF) as required by Hawaii Administrative Rules (HAR) Chapter 13-190.1. We understand that you have engaged the services of an engineer to assist in the evaluation and design of improvements to your facility.

By 12/1/2021:

- a. **Submit Intent Letter for Dam Remediation, Reduction or Removal:** Submit to the Department the owners' plan to address the safety issues posed by the dam.

By 5/1/2022:

- b. **Submit complete permit application package:** Submit a complete dam safety permit application package to the Department (HAR §13-190.1-20).

By 5/1/2023:

- c. **Start construction:** Start construction of the approved Dam Safety Permit.

2. Submit Interim Operating Plan:

By 1/15/2022:

- a. **Submit an interim operating plan to be followed until remediation is complete. The plan should outline the steps in operation being taken to prevent failure during (at minimum) a 100-year event and mitigate life loss downstream for larger events. Plan should include, but not be limited to, the following:**
 - i. Reservoir water level restrictions-based engineering studies
 - ii. Monitoring requirements
 - iii. Operation requirements
 - iv. Reviewing and updating downstream inundation area and updating EAP for more effective notification of downstream residents in case of evacuation.

3. Immediate Operations and Monitoring Requirements:

From 10/1/2021 until acceptance of Interim Operating Plan:

- a. Once per month (on the first business day of the month), submit daily readings of water level, and seepage measurement (noting flow and water clarity) to DLNR.EN.FCDS@hawaii.gov. This is a continuation of the requirements already set forth in the letter date August 24, 2017.

Starting one week from the send date of this letter until remediation is complete:

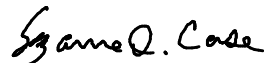
- a. Continue to maintain the operating water level in the reservoir to below 10.2-ft on the electronic gage, as required in the deficiency letter from the

Mr. Wilson, Mr. Niedermaier, Ms. & Mr. Porter, Mr. MaCallister, and Kalihiwai Ridge Community Association
Kalihiwai Reservoir (KA-0024)
Notice of Deficiency
Page 3 of 3
Sep 19, 2021

Department on August 24, 2017, or at an alternate level as determined by the accepted Interim Operating Plan. The water level is being electronically monitored at <https://uhslc.soest.hawaii.edu/reservoir/?stn=EDD067F2>. While fluctuations during large storm events are unavoidable, level should always be dropped as quickly as possible following events. If upcoming events are predicted, the water level should be lowered in anticipation. If the water level is above the 10.2' threshold (or level designated in Accepted Interim Operating Plan) for more than 72 hours, you will be subject to a Civil Resource Violation System (CRVS) penalty of up to \$1000.

Failure to comply with the Remediation and Maintenance and Monitoring actions by the indicated deadlines may result in penalties and other actions by the Board of Land and Natural Resources pursuant to HRS § 179D-6 and 8 and HAR § 13-190.1-5. Please contact Edwin Matsuda of my Engineering Division staff at Edwin.Y.Matsuda@hawaii.gov should you have any questions regarding this matter.

Sincerely,



SUZANNE D. CASE
Chairperson

DAVID Y. IGE
GOVERNOR OF HAWAII



SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
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KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

ENGINEERING DIVISION
POST OFFICE BOX 373
HONOLULU, HAWAII 96809
AUG 24 2017

Mr. Larry Lau
KRCA President
Kalihiwai Ridge Community Association
c/o Hawaiiiana Management Co., Ltd
4370 Kukui Grove St., #208
Lihue, HI 96766

Board of Directors
Kalihiwai Ridge Community Association
c/o Hawaiiiana Management Co., Ltd
4370 Kukui Grove St., #208
Lihue, HI 96766

Dear Mr. Lau and Board of Directors – KRCA:

**KALIHIWAI RESERVOIR (KA-0024), KAUAI
NOTICE OF DAM SAFETY DEFICIENCY
2017 FOLLOW UP**

The Department of Land and Natural Resources (Department) issued a Notice of Deficiency for the Kalihiwai Reservoir (KA-0024) on May 23, 2013, for concerns about the condition of the mid-level outlet to the right of the spillway, and a September 18, 2015 follow up notice. The Department received a formal letter of response from the Kalihiwai Ridge Community Association dated March 31, 2016

A Dam Safety Inspection was conducted on **June 28, 2017** and although work has been undertaken to address the collapse of the mid-level outlet and the water level lowered, the facility continues to remain in a poor condition and a threat to public safety due to one or more physical / operational conditions and deficiencies.


Your immediate and continued action is required:

1. Continue to keep the reservoir at a restricted water level:
 - a. At a minimum, maintain the operating water level in the reservoir to the invert of Outlet No. 2 – currently understood to be 10.2-ft on gage.
 - b. Continue to take actions to maintain the water level at/or below this maximum operational level.
 - c. Failure to maintain the water level below this restricted level would be subject to civil resource violation penalties in the amount of \$ 1,000 for the first violation.
2. Update and submit a Remediation Schedule (Dam Remediation Plan):
 - a. **UPDATE and submit a written schedule** to the Department detailing when deficient conditions (identified in the latest inspection report) will be corrected, within twenty (20) days of this notice. (A sample Dam Remediation Plan format is attached which outlines some of the various deficiencies to be addressed).

3. Update the Emergency Action Plan:
 - a. If your **EAP** has not been updated in the last 12-months, **update and distribute** updated copies within thirty (30) days of this notice. The Online EZ-EAP tool is available to update the EAP. Please contact the Department if you need assistance.
4. Continue to submit monthly monitoring reports:
 - a. Take daily/weekly readings of applicable water level, seepage rates, etc., and relevant photos. **Submit the monitoring reports** at the beginning of each month for the previous month to the Department assigned engineer's email: denise.m.manuel@hawaii.gov.
 - b. A sample log sheet is attached. The log sheet shall be tailored to the site specific needs for the facility. Please contact the Department for a soft copy to customize.
 - c. The initial report is due the first month following receipt of this notice.

The above listed restricted operation and maintenance of the facility is required until all previously noted deficiencies are addressed or until notified otherwise by the Department. Failure or delinquency to comply with the above-stated actions may result in additional penalties and/or Board of Land and Natural Resources actions. Please contact Ms. Denise Manuel of my staff at (808) 587-0246 should you have any questions regarding this matter.

Sincerely,



CARTY S. CHANG
Chief Engineer

Attachment

Dam Remediation Plan

Dam Inv. No.: _____

Owner: _____ Date: _____

Dam Name: _____

Contact Person: _____

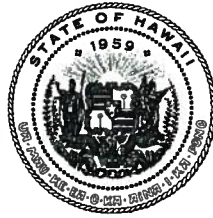
Type of Deficiency	Item No.	Item	Previously Completed	Anticipated Date (as applicable)					Comments
				Start Investigation	Complete Investigation	Start Design	Complete Design	Start Construction	
Hydraulic Deficiency									
H&H	H1	H&H Analysis, IDF, Spillway Adequacy (required for all dams)							
	H2	Spillway Construction Modification							
	H3	Spillway Maintenance							
	H4	Ability to maintain reservoir empty							
Stability / Geotechnical Deficiency									
Stability	G1	Stability Analysis (Req'd for High & Significant dams)							
	G2	Seismic Evaluation							
	G3	Embankment Modifications							
Seepage	S1	Seepage Evaluation							
	S2	Seepage Remediation							
Operational / Other Deficiency									
Access	A1	Develop access to Dam Features							
Embankment	E1	Excessive Vegetation							
	E2	Embankment Irregularities/Erosion							
Outlet Works	O1	Outlet works remediation (functional outlet req'd for all dams)							
	O2	Outlet works investigation (ie. Assessment, video)							
	O3	Upstream outlet control							
Documentation	D1	Emergency Action Plan (Req'd for High & Significant dams)							
	D2	O&M Manual (Req'd for all dams)							
	D3	O&M Log / Records (Req'd for all dams)							
	D4	Improvement Records (Copies submitted to State)							
Other	Z1	Instrumentation							
	Z2	Real time Reservoir Water Level Gage							

_____ Reservoir Daily Log

Month/Year: _____

Date	Rainfall	Reservoir	Intake	Outlet	Maintenance	Seepage	Remarks
		Water Level Height (gage)	flow rate:	flow rate:		flow rate:	
							Top of Dam gage reading = __ Spillway gage reading = __
1							
2							
3							
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28							
29							
30							
31							
Totals							

DAVID Y. IGE
GOVERNOR OF HAWAII



**STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES**

ENGINEERING DIVISION
POST OFFICE BOX 373
HONOLULU, HAWAII 96809

SEP 18 2015

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA
FIRST DEPUTY

JEFFREY T. PEARSON
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
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HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

Mr. Bob Butler
KRCA President
Kalihiwai Ridge Community Association
c/o Associa Hawaii
4-1579 Kuhio Highway, Suite 102A
Kapaa, Hawaii 96746

Mr. Cameron Jaeb
President
Bridgewater Irrigation, LLC
2727 Kauapea Road
Kilauea, Hawaii 96754

Board of Directors
Kalihiwai Ridge Community Association-
Board of Directors
c/o Associa Hawaii
4-1579 Kuhio Highway, Suite 102A
Kapaa, Hawaii 96746

Ms. Sarah Wright
Porter Irrigation Company
3770 Punahale Road
Princeville, Hawaii 96722

Dear Madams and Gentlemen:

**KALIHIWAI RESERVOIR (KA-0024), KAUAI
FOLLOW UP TO NOTICE OF DEFICIENCY**

The Department of Land and Natural Resources (DLNR) issued a Notice of Deficiency on May 23, 2013 for concerns about the condition of the mid-level outlet to the right of the spillway at the Kalihiwai Reservoir (KA-0024). DLNR received a formal letter of response from the Kalihiwai Ridge Community Association on July 30, 2015.

There has not been a comprehensive response to addressing the hazardous conditions at the mid-level outlet. The July 30, 2015 letter did not address all the items that were originally requested in the May 23, 2013. Please see the attached spreadsheet which attempts to clarify specific action items that warrant response.

DLNR acknowledges that a lot of maintenance work has been done at the Kalihiwai Reservoir (KA-0024) over the past years. There is a history of overtopping of the dam. DLNR informally received the Kalihiwai Dam – Seepage and Stability Evaluation of Northeast Embankment, March 2, 2015 by ARCADIS. The report states that the factor of safety (FS) indicated by the stability analyses do not meet typical criteria for larger dam projects and makes a recommendation for improvements to the dam. A remediation project should be initiated and a dam safety permit application would be required for this type of improvement.

In the current state, the embankment continues to fail due to instability. There are known concerns with heavy rain events and the mid-level outlet was a means to help manage and mitigate those heavy rain events when known.

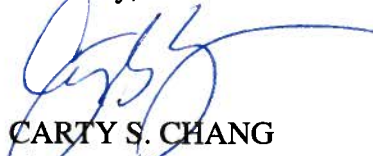
The compromised mid-level outlet area can also be a failure mode if not maintained and monitored appropriately. The mid-level outlet channel can be fixed. A dam safety permit would be required. With the knowledge that the embankment is not stable, a water level restriction may be imposed. If any greater threat is determined - the pond may be required to be drained.

Please note that the deficiencies listed as attached to this letter are in addition to the deficiencies that are identified in the Phase I Inspection reports and Visual Dam Safety Inspection reports under separate cover (last one was from January 13, 2015). The facility is still responsible for addressing those noted deficiencies.

Provide a written response to the original Notice of Deficiency items from the May 23, 2013 correspondence, and as listed on the attached spreadsheet, by September 30, 2015.

Should you have any questions, please feel free to contact Denise Manuel of my staff at (808) 587-0246.

Sincerely,



CARTY S. CHANG
Chief Engineer

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



**STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES**

ENGINEERING DIVISION
POST OFFICE BOX 373
HONOLULU, HAWAII 96809

MAY 23 2013

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ESTHER KIA'AINA
FIRST DEPUTY DIRECTOR

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING

FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAIKOOLAWA ISLAND RESERVE COMMISSION
LAND
STATE PARKS

Mr. Parker Croft
KRCA President
Kalihiwai Ridge Community Association
c/o Certified Management
4-1579 Kuhio Highway, Suite 102A
Kapaa, HI 96746

Dear Mr. Croft:

**KALIHUWAI RESERVOIR (KA-0024), KAUAI
NOTICE OF DAM SAFETY DEFICIENCY**

On May 8, 2013 the Department of Land and Natural Resources, Engineering Division conducted a site visit at the Kalihiwai Reservoir (KA-0024) and our observations and findings are noted below.

During the inspection, the following urgent concerns were noted at the reservoir:

1. The outlet gate and tunnel located right of the spillway is in disrepair;
 - a. The gate guides are missing, rendering the gate to be difficult to operate and unable to stop the flow of water when closed;
 - b. The corrugated metal pipe lining the culvert is substantially collapsed on the upstream and downstream sides of the tunnel in which a full collapse would block the ability to drain the reservoir through this tunnel. Without this mid-level outlet, there is a reduced capacity to drain the reservoir in an adverse weather event.

Based on the above observations and urgent concerns, the following orders are issued for your immediate action:

Within 3 days of the date of this letter:

1. Activate the Emergency Action Plan at a Level 1 and notify the appropriate parties of the unusual condition;
2. Provide DLNR with a current cross section with numeric elevations for the low level drain, mid-level drain, spillway and top of dam; Indicate what water level elevation would trigger an upgrade to a Level 2 emergency response and ensure the staff gage is clearly marked with numbers; and

Mr. Parker Croft
Page 2

3. Provide DLNR with a description of the low level outlet configuration and if there is a capability for a free drain on this line, where the free drain is located, and capacity of that drain line.

Within 20 days of the date of this letter submit to DLNR:

1. A proposal for immediate action to ensure that unexpected flows into the reservoir are able to be drained;
 - a. If the option is taken to remove the overburden section on top of the collapsed tunnel, erosion control measures need to be installed to ensure that flow through the channel will not further erode the embankment.
 - b. If the embankment on top of the collapsed tunnel will be left in place, an appropriately sized excavator shall be reserved and able to be mobilized to the site within two hours to clear the channel if the section were to collapse;
2. An explanation of how the water system will be operated to mitigate unexpected flows into the reservoir;
3. The long term solution for addressing the gate and outlet tunnel in disrepair, which includes a schedule/timeline. A dam safety permit would be required for work on this appurtenant feature;
4. On a weekly basis submit via email to denise.m.manuel@hawaii.gov and mmarshall@kauai.gov, daily water levels, condition of the tunnel/channel, and if the channel has flowed.
5. The flow capacity of the current spillway;
6. The expected timeline for completing a flood routing study for the 100-year event and Probable Maximum Flood (PMF) event using the current configuration of the dam.

Should you have any questions, please feel free to contact Denise Manuel of my staff at Ph. (808) 587-0246.

Sincerely,



CARTY S. CHANG
Chief Engineer

Attachment

c: Mark Marshall, Kauai Civil Defense
Mr. Parker Croft
Mr. Cameron Jaeb
Ms. Samantha Hamilton

	DLNR May 23, 2013 Notice of Deficiency	July 30, 2015 KRCA letter	DLNR August 14, 2015 Comment	KRCA response date:
Within 3 days				
1	Activate the Emergency Action Plan at a Level 1 and notify the appropriate parties of the unusual condition		On July 8, 2013 DLNR and Kauai Civil Defense received an email from Samantha Hamilton initiating reporting for the Kalihiwai Reservoir. CLOSED	
2	Provide DLNR with a current cross section with numeric elevation for the low level drain, mid-level drain, spillway and top of dam; Indicate what water level elevation would trigger an upgrade to a Level 2 emergency response and ensure the staff gage is clearly marked with numbers, and	2. The staff gage numbers have been repaired and are clearly marked	Provide response with appropriate elevation information	
3	Provide DLNR with a description of the low level outlet configuration and if there is a capability for a free drain on this line, where the free drain is located, and capacity of that drain line.	3. The low level outlet drains to the nearby Waikoa plantation where there is a free drain	Provide pipeline diameter and capacity of the drain line (i.e. drain line capacity and how long it would take to drain the reservoir when water at elevation of outlet #2)	
Within 20 dates of the date of this letter submit to DLNR:				
1	A proposal for immediate action to ensure that unexpected flows into the reservoir are able to be drained:			
	a. If the option is taken to remove the overburden section on top of the collapsed tunnel, erosion control measures need to be installed to ensure that flow through the channel will not further erode the embankment	1.b. The partially collapsed metal culvert at out mid level outflow (outlet #2) of the Kalihiwai Reservoir was excavated and removed near the end of June 2015, by our Easement Holders to ensure that there will be no further obstructions of this outlet	Provide documentation (photos) and specification of erosion control material used	
	b. If the embankment on top of the collapsed tunnel will be left in place, an appropriately sized excavator shall be reserved and able to be mobilized to the site within two hours to clear the channel if the section were to collapse			
2	An explanation of how the water system will be operated to mitigate unexpected flows into the reservoir	The reservoir is currently being maintained at the low level of approximately 8' to 10' to mitigate any potential of unexpected flows. The mid level outflow (outlet #2) gate is being kept in the open position which gives the greatest safety margin	Include additional detail on how/when low level drain would be utilized	
3	The long term solution for addressing the gate and outlet tunnel in disrepair, which includes a schedule/time. A dam safety permit would be required for work on this appurtenant feature		Provide response	
4	On a weekly basis submit via email to denise.m.manuel@hawaii.gov and mmarshall@kauai.gov daily water levels, condition of the tunnel/channel, and if the channel has flowed		Reports have been submitted, need to ensure these are being regularly submitted.	
5	The flow capacity of the current spillway		Provide response	
6	The expected timeline for completing a flood routing study for the 100-year event and Probable Maximum Flood (PMF) event using the current configuration of the dam		Provide response	

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

ENGINEERING DIVISION
POST OFFICE BOX 373
HONOLULU, HAWAII 96809

MAY 23 2013

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ESTHER KIA'AINA
FIRST DEPUTY DIRECTOR

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

Mr. Parker Croft
KRCA President
Kalihiwai Ridge Community Association
c/o Certified Management
4-1579 Kuhio Highway, Suite 102A
Kapaa, HI 96746

Dear Mr. Croft:

KALIHAIWAI RESERVOIR (KA-0024), KAUAI
NOTICE OF DAM SAFETY DEFICIENCY

On **May 8, 2013** the Department of Land and Natural Resources, Engineering Division conducted a site visit at the **Kalihiwai Reservoir (KA-0024)** and our observations and findings are noted below.

During the inspection, the following urgent concerns were noted at the reservoir:

1. The outlet gate and tunnel located right of the spillway is in disrepair;
 - a. The gate guides are missing, rendering the gate to be difficult to operate and unable to stop the flow of water when closed;
 - b. The corrugated metal pipe lining the culvert is substantially collapsed on the upstream and downstream sides of the tunnel in which a full collapse would block the ability to drain the reservoir through this tunnel. Without this mid-level outlet, there is a reduced capacity to drain the reservoir in an adverse weather event.

Based on the above observations and urgent concerns, the following orders are issued for your immediate action:

Within 3 days of the date of this letter:

1. Activate the Emergency Action Plan at a Level 1 and notify the appropriate parties of the unusual condition;
2. Provide DLNR with a current cross section with numeric elevations for the low level drain, mid-level drain, spillway and top of dam; Indicate what water level elevation would trigger an upgrade to a Level 2 emergency response and ensure the staff gage is clearly marked with numbers; and

3. Provide DLNR with a description of the low level outlet configuration and if there is a capability for a free drain on this line, where the free drain is located, and capacity of that drain line.

Within 20 days of the date of this letter submit to DLNR:

1. A proposal for immediate action to ensure that unexpected flows into the reservoir are able to be drained;
 - a. If the option is taken to remove the overburden section on top of the collapsed tunnel, erosion control measures need to be installed to ensure that flow through the channel will not further erode the embankment.
 - b. If the embankment on top of the collapsed tunnel will be left in place, an appropriately sized excavator shall be reserved and able to be mobilized to the site within two hours to clear the channel if the section were to collapse;
2. An explanation of how the water system will be operated to mitigate unexpected flows into the reservoir;
3. The long term solution for addressing the gate and outlet tunnel in disrepair, which includes a schedule/timeline. A dam safety permit would be required for work on this appurtenant feature;
4. On a weekly basis submit via email to denise.m.manuel@hawaii.gov and mmarshall@kauai.gov, daily water levels, condition of the tunnel/channel, and if the channel has flowed.
5. The flow capacity of the current spillway;
6. The expected timeline for completing a flood routing study for the 100-year event and Probable Maximum Flood (PMF) event using the current configuration of the dam.

Should you have any questions, please feel free to contact Denise Manuel of my staff at Ph. (808) 587-0246.

Sincerely,



CARTY S. CHANG
Chief Engineer

Attachment

c: Mark Marshall, Kauai Civil Defense
Mr. Parker Croft
Mr. Cameron Jaeb
Ms. Samantha Hamilton



****DATE****

Gina Belleau
Dam Safety Unit Engineer
Department of Land & Natural Resources
Engineering Division

by electronic mail to gina.c.belleau@hawaii.gov

re: Kalihiwai Reservoir

Dear Ms. Belleau,

I write you on behalf of the Kalihiwai Ridge Community Association, Porter Irrigation, LLC, and CG Utilities, LLC, to request an extension of time to start construction on the Kalihiwai Reservoir and dam.

In September of 2020, the Board of Land and Natural Resources issued a Notice of Deficiency requiring us to submit a Dam Safety Permit application by May 1, 2022. We timely submitted the application.

The Notice of Deficiency requires us to begin construction of the approved Dam Safety Permit²⁷ by May 1, 2023. However, as of today, the permit has not yet been approved or issued. The State Historic Preservation Department, in comments dated November 29, 2022, is requiring a Reconnaissance Level Survey of the Kalihiwai Reservoir area.

We have, through our engineering firm Gannett Fleming, engaged a consultant to complete the survey. The survey will take approximately two months, and Gannett Fleming will require a total of four months to complete final permitting work required by relevant [state, local and federal] agencies. (Gannett Fleming's summary of the work it and subcontractors will perform is attached for your reference).

Additionally, we are evaluating a proposal for a project management firm to manage the decommissioning process and the contractor that will perform the work. Our goal is to have a comprehensive plan in place to successfully complete the required decommissioning work on a timely basis.

It will be, therefore, impossible for us to complete this work, be issued a permit, and start construction by the May 1, 2023, deadline.

In the interim, the dam operator is maintaining the reservoir level at a maximum of seven feet, significantly lower than the 10.2 feet required by the DLNR's August 24, 2017 deficiency letter, submitting daily readings, and maintaining the dam appropriately.

***Kalihiwai Ridge Community Association
c/o Hawaiiana Management Company, Ltd.
Kukui Grove Executive Center, Suite 208
4370 Kukui Grove Street | Lihue, HI 96766***

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With this letter, we request that the DLNR request that the Board of Land and Natural Resources grant us additional time. Specifically, we would hope that the Board will set a date to start construction that is **not less than six months after** the final permit required for construction is issued.

Thank you for your assistance with your request. Please feel free to contact us or dam operator Tripp McCallister with any questions.

Sincerely yours,



Tony Semedo, President, Kalihiwai Ridge Community Association

enc: Attachment 1: Gannett Fleming Scope of Services
Attachment 2: Schedule
Attachment 3: RLS Scope of Services

*Kalihiwai Ridge Community Association
c/o Hawaiiana Management Company, Ltd.
Kukui Grove Executive Center, Suite 208
4370 Kukui Grove Street | Lihue, HI 96766*