

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

September 14, 2012

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

**APPLICATION FOR A DLNR DAM SAFETY CONSTRUCTION/ALTERATION  
PERMIT PERMIT NO. 53 – WAIMEA 60 MG RESERVOIR (HA-0042)  
DAM SAFETY IMPROVEMENT, WAIMEA, HAWAII**

The Engineering Division (Division) hereby submits an application for your approval and authorization for the Chairperson and Department to stipulate conditions and issue a Dam Safety Construction/Alteration Permit for the subject application, "State Irrigation System Reservoir Safety Improvements – Puukapu Reservoir (HI00042)", pursuant to Chapter 179D Hawaii Revised Statutes and current Administrative Rules.

**APPLICANT:**

Mr. Brian Kau  
Administrator and Chief Engineer  
State of Hawaii  
Department of Agriculture (DOA)  
Agricultural Resource Management Division  
1428 South King Street  
Honolulu, HI 96814

**LANDOWNER**

Same as applicant

**SUMMARY OF REQUEST:**

Application for a Dam Safety Construction/Alteration Permit for the repair and improvement of Waimea 60 MG Reservoir, Waimea, Hawaii. (See Exhibit 1)

**LOCATION:** Waimea, Hawaii, Hawaii, TMK: (3) 6-4-002:125. (See Exhibit 2)

**BACKGROUND:**

Waimea 60 MG Reservoir aka Puu Kapu 60 MG Reservoir was constructed 1957. It is one of two reservoirs in the Waimea Irrigation System the Department of Agriculture operates. The Waimea 60 MG Reservoir is located upstream of Puu Pulehu Reservoir and is used to send water to farmers.

A Phase I inspection conducted in 2007 identified a number of deficiencies including some believed to be caused by the October, 2006 earthquakes. An application for the repair of the Waimea 60 MG Reservoir was filed on December 27, 2010 by the State of Hawaii, Department of Agriculture, Agricultural Resource Management Division.

**PROJECT DESCRIPTION:**

The Waimea 60 MG Reservoir aka Puu Kapu 60 MG Reservoir Dam is approximately 41 ft. high, and 1,070 ft. long. The surface area of the reservoir at the dam crest is approximately 5.1 acres. The reservoir impounds a maximum of 189 acre-feet at the top of the embankment. The existing outlet works consist of a 24-inch ductile iron pipe with a control valve downstream of the embankment. There is a concrete lined spillway with a base width of approximately 6 feet.

The proposed work includes the removal of the existing interior drop rock buttress and replace with a soil fill buttress embankment. The interior of the reservoir will be lined with a high density polyethylene geotextile liner. The outlet works piping work will be rehabilitated via slip lining and the upstream and downstream control valves will be replaced. Monitoring wells and embankment survey monuments will be installed. (See Exhibit 3)

**CHAPTER 343-HRS – ENVIRONMENTAL ASSESSMENT:**

This is a repair and maintenance of an existing structure and the proposed work will be within the current footprint of the structure and there is no change to the topography or use. Therefore this project is exempt from the preparation of an environmental assessment. (See Exhibit 4)

**REMARKS:**

The applicant (DOA), and the applicant's consultant, Oceanit Laboratories, Inc., have completed a basis of design, plans and specifications and requests for the approval of a dam safety construction/alteration permit. The Division and its engineering consultant, Gannett Fleming, have reviewed the documents and the Division concluded that it is sufficient for its intended purposes. The proposed work will improve the safety conditions of the dam. (See Exhibit 5)

However, there are remaining deficiencies of the dam that this repair project will not address. The deficiencies not being addressed are as follows:

1. Cracks observed on the dam embankment after the 2006 Kiholo Bay earthquake.
2. Questionable stability of the southeast embankment where currently there is no concrete upstream face.
3. Leakage at the southeast embankment where currently there is no concrete upstream face.

Staff recommends approval of this permit application with the Dam Safety Permit General Conditions (See Exhibit 6) and Special Conditions noted below.

**SPECIAL CONDITIONS:**

Requirement after the completion of the project:

1. For the first year of operation of the reservoir, the owner shall monitor the piezometer and take readings of the level of water in the piezometer three (3) times a week. These readings shall be submitted to the Division on a weekly basis.
2. Provide an analysis of the piezometer readings to the Division within one (1) year to determine the significance of the leakage so that a plan of action may be implemented to

assure the integrity of the embankment of preserved. When a plan of action is needed the Division shall stipulate the length of time the applicant has to complete.

Within a period of one (1) year from the issuance of a construction permit, the owner shall:

1. Submit a site specific seismic analysis and a stability analysis to assess the stability, deformation, and safety of the dam embankment. If the analysis of the embankment is found to be unstable under the earthquake design requirement of Hawaii dam safety regulations, the owner shall submit a plan of action, to be completed in a period of 3 years, to assure the dam is safe for the Controlling Maximum Credible Earthquake (CMCE).
2. Submit a design to address the stability and leakage of the embankment at the southeast side where currently there is no concrete upstream face.

Within a period of three (3) years from the issuance of a construction permit, the owner shall:

1. Repair the leakage and stabilize the embankment at the southeast side where currently there is no concrete upstream face.

RECOMMENDATION:

That the Board:

1. Authorize the approval and issuance of the Dam Safety Construction/Alteration Permit for this project; and
2. Direct the Chairperson to issue a dam safety permit for the repair of the Waimea 60 MG Reservoir (DLNR Dam Safety Construction/Alteration Permit No. 53) subject to such other terms and conditions as may be prescribed by the Chairperson to best serve the interests of the State.
3. Authorize the Division to oversee performance of the permitted work and take appropriate action including but not limited to selecting and procuring testing or professional services to verify the integrity of the construction work, approval of minor revisions and changes, issuance of fines and/or revocation of the permit, if necessary.

Respectfully submitted,

  
CARTY S. CHANG  
Chief Engineer

APPROVED FOR SUBMITTAL:

  
WILLIAM J. AILA, JR.  
Chairperson

- Exhibit(s):
- 1 Owner Permit Application
  - 2 Location map
  - 3 Construction Drawing pages
  - 4 Chapter 343 Environmental Assessment evaluation
  - 5 Gannett Fleming, Inc. correspondence on resolution of the comments
  - 6 Dam Safety Permit General Conditions

State of Hawaii  
BOARD OF LAND AND NATURAL RESOURCES  
Department of Land and Natural Resources  
Engineering Division

APPLICATION FOR APPROVAL OF PLANS AND SPECIFICATIONS FOR CONSTRUCTION,  
ENLARGEMENT, REPAIR, ALTERATION, OR REMOVAL OF A DAM

Applicant: \_\_\_\_\_ Date of Application: December 27, 2010  
State of Hawaii  
Contact Name: Brian Kau Firm / Company: Department of Agriculture (DOA)

Mailing Address 1428 South King Street, Honolulu, Hawaii 96814

Telephone: (808) 973-1123 Fax: (808) 973-9467 Email: brian.k.kau@hawaii.gov

The Applicant hereby applies to the Board of Land and Natural Resources for the approval of the attached plans and specification for the Puu Kapu (HI00042) State Irrigation System Reservoir Safety Improvements (construction, etc.) in accordance with Chapter 179D HRS (as amended by Act 262, SLH 2006), and subject to the provisions, conditions, and limitations of the current Hawaii Administrative Rules and various DLNR dam safety guidelines.

Accompanying this application are:

(please check)

- |  |         |
|--|---------|
| 1. Filing fee (\$25.00) (Waived for government agencies) | _____   |
| 2. Three (3) copies of the Detailed Cost Estimate        | _____ X |
| 3. Three (3) copies of the Final Design Report           | _____ X |
| 4. Three (3) copies of the Plans                         | _____ X |
| 5. Three (3) copies of the Specifications                | _____ X |
| 6. Proposed Construction Schedule                        | _____ X |
| 7. Supporting documents:                                 | _____ X |
| <u>USGS Topographic Map</u>                              | _____ X |
| <u>Property Tax Map</u>                                  | _____ X |
| <u>Spillway Adequacy Report</u>                          | _____ X |

NAME OF STRUCTURE: Puu Kapu Reservoir (HI00047)

DAM OR RESERVOIR LOCATION: Adjacent to the Puu Kapu Homesteads In Waimea, Hawaii Island

Island: Hawaii Tax Map Key: (3) 6-4-002:125

Attach USGS topographic map (scale 1" = 2000') and property tax map (showing location access to site, proposed work)

State Land Use District: X Agriculture    \_\_\_ Urban    \_\_\_ Rural    \_\_\_ Conservation

BRIEF DESCRIPTION OF WORK TO BE PERFORMED

The proposed dam improvement work includes removal of the existing interior drop rock buttress and replacement with a soil fill buttress embankment. The interior of the reservoir will be lined with a high density polyethylene geotextile liner. The outlet works piping will be rehabilitated via slip lining and the upstream and downstream control valves will be replaced. Construction at the site will also include the installation of monitoring wells and embankment survey monuments.

EX-100

DEC 27 2010

TECHNICAL INFORMATION:

DLNR-Dam Safety-Sheet 2

1. Drainage Area .009 sq. miles or 5.6 acres
2. Classification of Dam Intermediate-Sized, High Hazard
3. Type of Structure Earth Fill Embankment with concrete interior liner and drop rock buttress
4. Elevation-Area-Capacity Data:
 

(inflow channel elevation)	Elevation	Surface Area (acres)	Total Storage Volume (acre-feet)
<del>Natural Streambed</del>	2,976.22 ft. MSL	4.98	183.6
Primary Spillway	2,974.61 ft. MSL	4.88	176.2
Secondary Spillway	No secondary Spillway	N/A	N/A
Top of Dam	2,978.32 ft. MSL	5.16	194.6
Recent Operating <del>Design</del> Water Level	~2,974 ft. MSL	4.84	173.2
Invert of Drain (2 outlet Structure)	~2,924 ft. MSL	N/A	N/A
5. Spillway Details (Type, Dimensions, Material)
 

Primary:	<u>Rectangular Concrete Channel, 6ft. wide x 5ft. tall</u>
Secondary:	<u>None</u>
6. Purpose of Structure Irrigation water  
 (water supply, irrigation, recreation, real estate development, etc.)
7. Attach rainfall and stream flow records, and flood-flow records and estimates (as accurately as may be readily obtained) See Attachments

ADDITIONAL INFORMATION

1. Primary Owner Contact (if different from applicant) Peter Kahana Albinio  
 Owner Company or Entity: Department of Hawaiian Home Lands  
 Mailing Address 91-5420 Kapolei Parkway, Kapolei, Hawaii 96707  
 Telephone: (808) 620-9454 Fax: (808) Email: peter.k.albinio.jr@hawaii.gov
2. Registered Hawaii Professional Engineer who prepared the plan Oceanit Laboratories, Inc.  
Derrick C. Elfalan  
 Mailing Address 828 Fort Street Mall, Suite 600, Honolulu, HI 96813  
 Registration No. 5448-C  
 Telephone: (808) 531-3017 Fax: (808) 531-3177 Email: delfalan@oceanit.com
3. Registered Professional Engineer to be responsible for inspection during construction Brian Kau  
Administrator & Chief Engineer, DOA Agricultural Resource Management Division (ARM)
4. Contractor (If known) Goodfellow Bros., Inc.  
 Mailing Address 1300 N. Holopono Street, Suite 201. Kikei Maui 96753  
 Telephone: 808.879.5205 Fax: \_\_\_\_\_ Email: \_\_\_\_\_
5. List all other permits applications submitted to other governmental agencies:  
NPDES Permit, Grading Permit
6. Anticipated effect of proposed structure on natural environment: No impacts or changes on the natural environment are anticipated for the result of the proposed dam improvements. Proposed improvements will increase dam operational safety, add mitigative improvements to minimize and control on-site erosion and effectively improve downstream water quality.

DLNR-Dam Safety-Sheet 3

7. List all other parties that have ownership or other interest on the parcels where the dam and reservoir are located and identify their interest in the property. The Owners herein listed below concur with the work proposed within this application by the applicant and by his/her signing hereto, the owner of the land extends to the Board of Land and Natural Resources, and its designated representatives, a right-of-entry onto the project site to conduct any investigations or inspections required in compliance with the provisions of Chapter 13-190, Hawaii Administrative Rules. (Submit additional copies of this sheet should there be more owners)

  
(Signature of Owner)

DHHL / Parcel Owner  
91-5420 Kapolei Parkway, Kapolei, Hawaii 96707   
(Address / Interest in Dam or Reservoir)

  
(Signature of Owner)

State of Hawaii DOA ARM / Lessee  
1428 South King Street, Honolulu, HI 96814  
(Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
(Signature of Owner)

\_\_\_\_\_  
(Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
(Signature of Owner)

\_\_\_\_\_  
(Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
(Signature of Owner)

\_\_\_\_\_  
(Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
(Signature of Owner)

\_\_\_\_\_  
(Address / Interest in Dam or Reservoir)

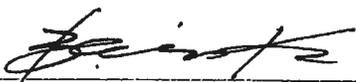
\_\_\_\_\_  
(Signature of Owner)

\_\_\_\_\_  
(Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
(Signature of Owner)

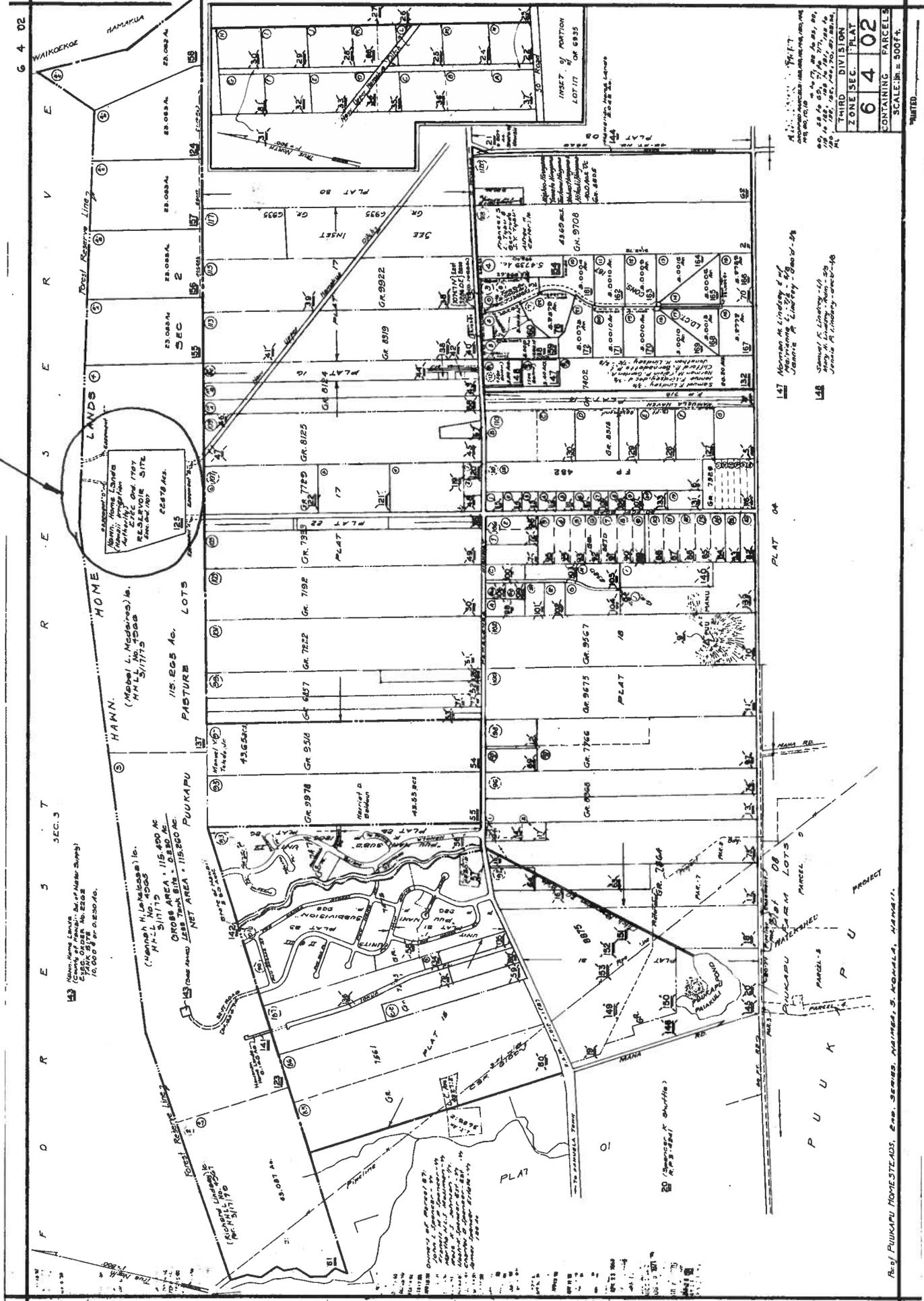
\_\_\_\_\_  
(Address / Interest in Dam or Reservoir)

I, Brian Kau, the applicant, hereby certify that the information herein is true and factual to the best of my knowledge. Signing below indicates that the applicant understands that, if the permit requested is granted by the Board of Land and Natural Resources, the proposed work is to be initiated and completed within two (2) years of the approval date, unless specifically permitted in the approved permit terms and conditions.

  
(Signature of Applicant & Title)  
Brian Kau, Administrator and Chief Engineer

Date: 12/27/2010

PROJECT LOCATION



143 Home Home Loans  
(County of Hawaii, Div. of Motor Vehicle)  
CREDIT ORDER No. 2208  
10,000 \$ or 0.2500 Ac.

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

(Mabel L. Maderna) & Co.  
H.L.L. 1175  
115,225 Ac.  
PASTURE LOTS

THIRD DIVISION	PLAT
ZONE SEC.	6 4 02
CONTAINING PARCELS	143
SCALE: 1" = 500 FT.	

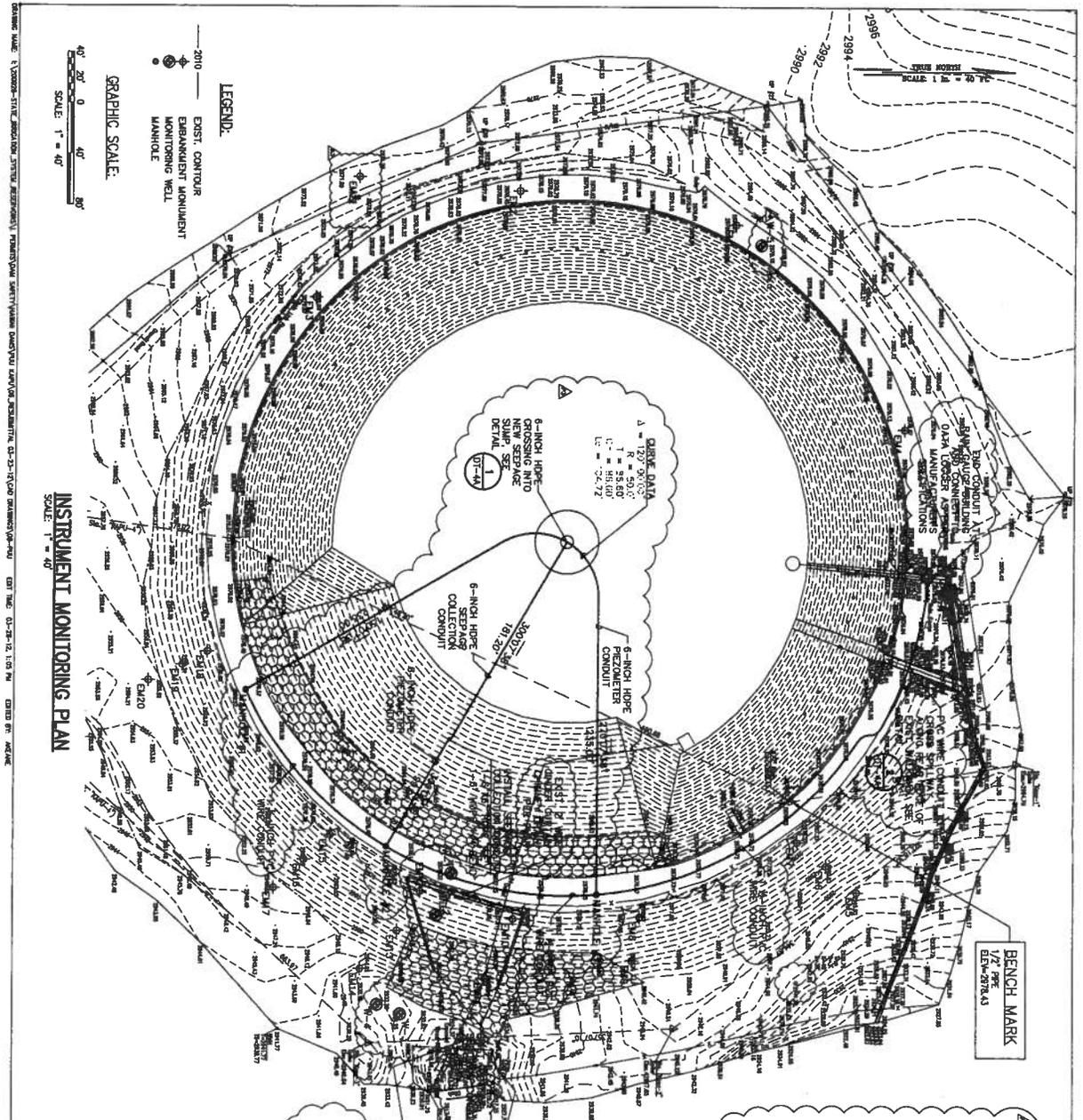
EXHIBIT 2

Source: L.H. - June 1933

By: L.H. - June 1933







LEGEND:  
 — 2010 EXIST. CONTOUR  
 ○ MONITORING WELL  
 ● MANHOLE

GRAPHIC SCALE:  
 40' 20' 0 40' 80'

SCALE: 1" = 40'

**INSTRUMENT MONITORING PLAN**  
 SCALE: 1" = 40'

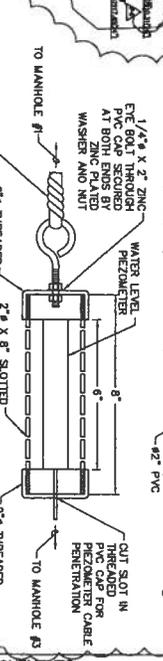
STATE IRRIGATION SYSTEM RESERVOIR SAFETY IMPROVEMENTS PROJECT NO. DOASW01-A

**RECOMMENDED WELL DEPTHS**

WELL ID	PERFORATED 1/2" PVE LENGTH (FT)	TOTAL DEPTH (FT)
W-1	20	53
W-2	10	30
W-3	10	15
W-4	20	60
W-5	20	60

**CONSTRUCTION NOTE:**

- CONTRACTOR SHALL INSTALL ALL MONITORING WELLS PRIOR TO COMMENCEMENT OF DAM IMPROVEMENT CONSTRUCTION ACTIVITIES.
- THE LOCATIONS OF AN EXISTING CHIMNEY DRAIN AND SUBDRAIN CONDUITS ARE BASED UPON DESIGNER AS BUILT DOCUMENTS DATED APRIL 1995. THE CONTRACTOR SHALL BE ADVISED BY THE CONTRACTOR DURING THE INSTALLATION OF THE MONITORING WELLS.
- IN THE EVENT THE CHIMNEY DRAIN OR SUBDRAIN CONDUITS ARE ENCOUNTERED THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER.



**LINE TABLE FROM B.M.**

ITEM	AZIMUTH	LENGTH
BM1	84°11'05"	429.71
BM2	84°11'05"	527.08
BM3	46°21'17"	548.17
BM4	106°59'14"	306.98
BM5	224°21'19"	89.09
BM6	241°32'06"	94.49
BM7	261°30'01"	333.39
BM8	322°32'52"	151.38
BM9	314°53'14"	278.88
BM10	325°53'55"	279.48
BM11	344°01'22"	301.54
BM12	344°01'22"	327.65
BM13	338°26'19"	365.73
BM14	338°26'19"	385.71
BM15	333°01'16"	388.40
BM16	359°27'4"	415.28
BM17	18°14'00"	484.45
BM18	18°14'00"	484.45
BM19	101°31'58"	518.07
BM20	51°42'42"	274.15
BM21	51°42'42"	294.17
W-1	331°12'08"	351.72
W-2	331°12'08"	351.72
W-3	333°37'19"	384.80
W-4	333°37'19"	384.80
W-5	333°37'19"	384.80
MANHOLE #1	113°33'24"	440.99
MANHOLE #2	353°33'24"	371.97
MANHOLE #3	353°33'24"	371.97

PIEZOMETER HOUSING  
 2" X 8" SLOTTED PVC PIPE  
 2" X 8" SLOTTED PVC CAP  
 2" X 8" SLOTTED PVC CAP FOR PROTECTION  
 TO MANHOLE #3

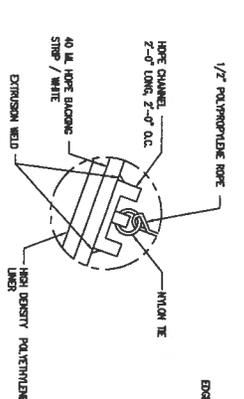
MANHOLE 4-INCH HOPE CONDUIT  
 1 1/2-INCH PVC CONDUIT  
 SEE SHEET DT-4A

**STATE OF HAWAII**  
**DEPARTMENT OF LAND AND NATURAL RESOURCES**  
**AGRICULTURAL RESOURCE MANAGEMENT CENTER**

PROJECT NO. DOASW01-A  
 PUA KAPU RESERVOIR  
 INSTRUMENT MONITORING PLAN

DESIGNED BY: [Signature]  
 DRAWN BY: [Signature]  
 CHECKED BY: [Signature]  
 DATE: APRIL 2011  
 SCALE: 1" = 40'

SHEET NO. 9 OF 38 SHEETS



**1** ENLARGEMENT B  
NOT TO SCALE

4" DIA. 4" DIAMETER POST PER DIMS STD. DET. 33

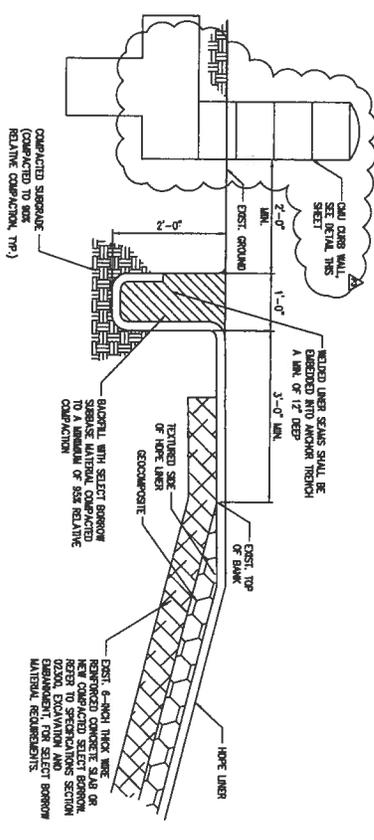
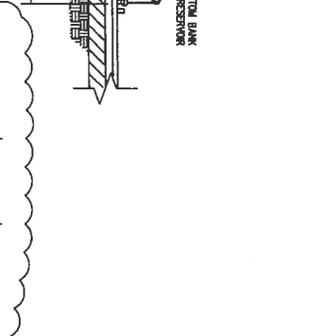
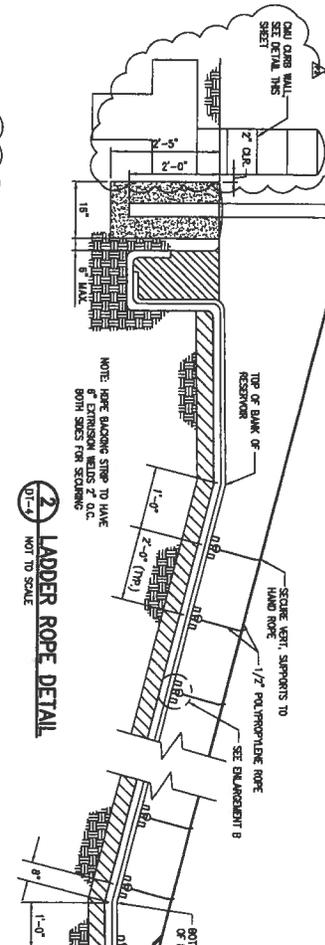
NOTE: HOPE BAKING STRIP TO HAVE 6" EXTENSION BEYOND 7" O.C. BOTH SIDES FOR SCORING

**2** LADDER ROPE DETAIL  
NOT TO SCALE

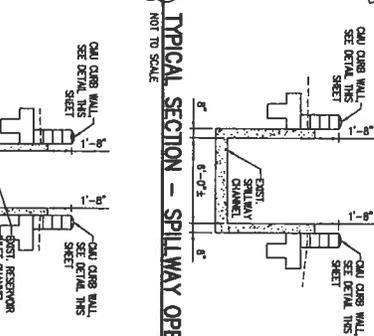
NOTE: HOPE BAKING STRIP TO HAVE 6" EXTENSION BEYOND 7" O.C. BOTH SIDES FOR SCORING

**3** WEEP HOLE SHEET DRAIN DETAIL  
NOT TO SCALE

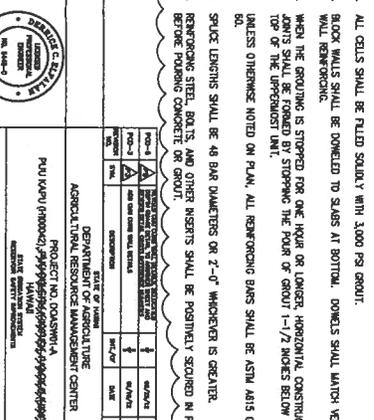
NOTE: HOPE BAKING STRIP TO HAVE 6" EXTENSION BEYOND 7" O.C. BOTH SIDES FOR SCORING



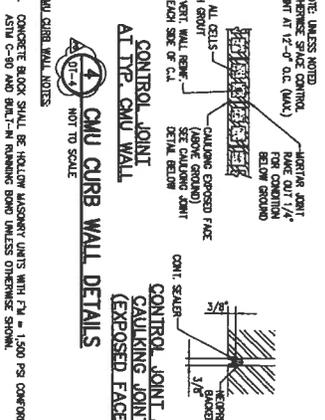
**4** HOPE LINER ANCHOR TRENCH DETAIL  
NOT TO SCALE



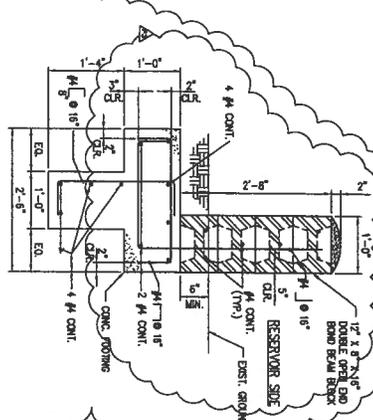
**5** TYPICAL SECTION - SPILLWAY OPENING  
NOT TO SCALE



**6** TYPICAL SECTION - RESERVOIR INLET OPENING  
NOT TO SCALE



**7** CHU CURB WALL DETAILS  
NOT TO SCALE



**8** PLAN  
NOT TO SCALE

STATE IRRIGATION SYSTEM RESERVOIR SAFETY IMPROVEMENTS PROJECT NO. DOASW01-A

PROJECT NO. DOASW01-A  
RESERVOIR SAFETY IMPROVEMENTS  
AGRICULTURAL RESOURCES MANAGEMENT CENTER  
PUIU KAPU (PUNOHU) RESERVOIR  
DETAIL - HOPE LINER

STATE IRRIGATION SYSTEM RESERVOIR SAFETY IMPROVEMENTS PROJECT NO. DOASW01-A

NO.	REVISION	DATE	BY	APP'D
1	ISSUED FOR CONSTRUCTION	APRIL 2011	AS	AS

NO.	REVISION	DATE	BY	APP'D
1	ISSUED FOR CONSTRUCTION	APRIL 2011	AS	AS

DESIGNED BY: [Signature]  
CHECKED BY: [Signature]  
DATE: APRIL 2011  
SCALE: AS SHOWN

PROJECT NO. DOASW01-A  
RESERVOIR SAFETY IMPROVEMENTS  
AGRICULTURAL RESOURCES MANAGEMENT CENTER  
PUIU KAPU (PUNOHU) RESERVOIR  
DETAIL - HOPE LINER

STATE IRRIGATION SYSTEM RESERVOIR SAFETY IMPROVEMENTS PROJECT NO. DOASW01-A

STATE IRRIGATION SYSTEM RESERVOIR SAFETY IMPROVEMENTS PROJECT NO. DOASW01-A

STATE IRRIGATION SYSTEM RESERVOIR SAFETY IMPROVEMENTS PROJECT NO. DOASW01-A

STATE IRRIGATION SYSTEM RESERVOIR SAFETY IMPROVEMENTS PROJECT NO. DOASW01-A

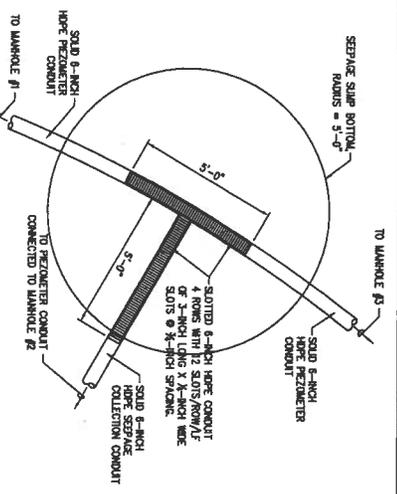
STATE IRRIGATION SYSTEM RESERVOIR SAFETY IMPROVEMENTS PROJECT NO. DOASW01-A

STATE IRRIGATION SYSTEM RESERVOIR SAFETY IMPROVEMENTS PROJECT NO. DOASW01-A

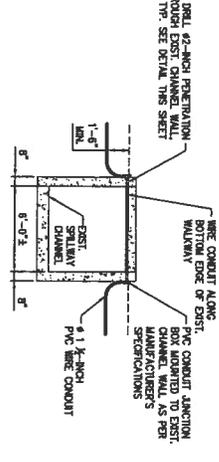
STATE IRRIGATION SYSTEM RESERVOIR SAFETY IMPROVEMENTS PROJECT NO. DOASW01-A

STATE IRRIGATION SYSTEM RESERVOIR SAFETY IMPROVEMENTS PROJECT NO. DOASW01-A

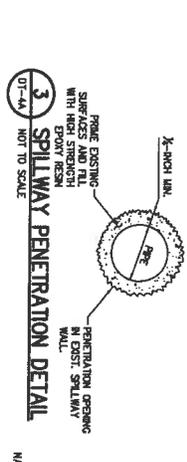
STATE IRRIGATION SYSTEM RESERVOIR SAFETY IMPROVEMENTS PROJECT NO. DOASW01-A



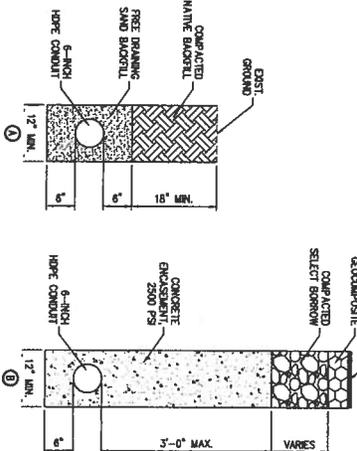
1 SEEPAGE SUMP HDPE CONDUIT DETAIL  
01-4A NOT TO SCALE



2 PVC CONDUIT SPILLWAY CROSSING DETAIL  
01-4A NOT TO SCALE

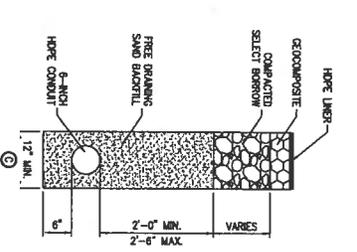


3 SPILLWAY PENETRATION DETAIL  
01-4A NOT TO SCALE



4 MANHOLE & HDPE CONDUIT DETAIL  
01-4A NOT TO SCALE

5 HDPE PIEZOMETER CONDUIT DETAIL  
01-4A NOT TO SCALE

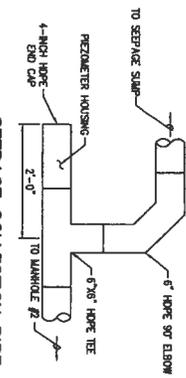


6 TYPICAL HDPE CONDUIT TRENCH DETAILS  
01-4A NOT TO SCALE

7 TYPICAL PVC CONDUIT TRENCH  
01-4A NOT TO SCALE



8 SEEPAGE COLLECTION PIPE CONNECTION DETAIL  
01-4A NOT TO SCALE



NOTE:  
THE MANHOLE FRAME SHALL BE INSTALLED USING A HIGH STRENGTH GROUT MORTAR SQUARE 31 HEAD-02. OR APPROXIMATELY EQUAL.

DATE: 11/20/2011 11:23 AM  
PROJECT: STATE IRRIGATION SYSTEM IMPROVEMENTS - RESERVOIR SAFETY IMPROVEMENTS  
SHEET NO. 12A OF 38 SHEETS

PROJECT NO. DOASW01-4 AGRICULTURAL RESOURCE MANAGEMENT CENTER STATE OF HAWAII HONOLULU, HAWAII	
PUU KAPU RESERVOIR DETAIL - PIEZOMETER CONDUIT	
DRAWING NO. 01-4A	DRAWING DATE APRIL 2011
CHECKED BY JAC	SCALE AS NOTED
SHEET NO. 12A OF 38 SHEETS	

CHAPTER 343 ANALYSIS

Project Name: Waimea 60 MG (aka Puu Kapu) Reservoir  
Reviewer: Jimmy Leung Date of Review: 3 August, 2012

TRIGGERS (HRS §343-5(a))

Is there an "action" that triggers the need for an EA?

Action

An "action" is a program or project:

Initiated by an agency

Initiated by an "applicant"

Any person who, pursuant to statute, ordinance, or rule, officially requests "approval" for a proposed action (discretionary consent required from an agency prior to actual implementation of an action, distinguished from a ministerial consent)

\_\_\_\_\_ Statute  
\_\_\_\_\_ Ordinance  
\_\_\_\_\_ Rule

Triggers

Yes No

Use of state or county lands or funds

Use of conservation district lands

Use within shoreline setback area

Use of historic site designated on the National or Hawaii registers

Use of land in the Waikiki Special District

Amendment to county general plan which would result in designations other than agriculture, conservation, or preservation unless initiated by a county

Reclassification of conservation lands by the Land Use Commission

Construction or modification of helicopter facilities that may affect conservation district lands, a shoreline setback area, or a historic site

Wastewater facilities, waste-to-energy facility, landfill, oil refinery, or power-generating facility

Triggers summary:

Is there a trigger?

If Yes, Go to Exemptions

If No, No Environmental Assessment required

EXEMPTIONS

Two sources of exemptions: exemption lists or exemptions contained in HAR §11-200-8(a)

1. Exemption Lists

Division exemption lists

Department-wide exemption list

EXHIBIT 4

## CHAPTER 343 ANALYSIS

Explain (which exemption list, which exemption, how it applies):

See attached

---

---

---

---

### 2. HAR §11-200-8(a) exemptions

Operations, repairs, or maintenance of existing structures, facilities, equipment, or topographical features, involving *negligible or no expansion or change of use* beyond that previously existing

Replacement or reconstruction of existing structures and facilities where the new structure will be located generally on the same site and will have *substantially the same purpose, capacity, density, height, and dimensions* as the structure replaced

Construction and location of a single, *new, small facilities* or structures and the alteration and modification of the same and installation of new, small, equipment and facilities and the alteration and modification of same, including, but not limited to:

- (a) *Single family residences less than 3,500 square feet* not in conjunction with the building of two or more such units;
- (b) Multi-unit structures designed for *not more than four dwelling units* if not in conjunction with the building of two or more such structures;
- (c) Stores, offices, and restaurants designed for total occupant load of *twenty persons or less* per structure, if not in conjunction with the building of two or more such structures; and
- (d) Water, sewage, electrical, gas, telephone, and other essential public utility services extensions *to serve such structures* or facilities; accessory or appurtenant structures including garages, carports, patios, swimming pools, and fences; and acquisition of utility easements

*Minor alterations* in the conditions of land, water, or vegetation

Basic data collection, research, experimental management, and resource evaluation activities that *do not result in a serious or major disturbance* to an environmental resource

Construction or placement of *minor structures accessory* to existing facilities

**CHAPTER 343 ANALYSIS**

- \_\_\_ *Interior alterations* involving things such as partitions, plumbing, and electrical conveyances
- \_\_\_ Demolition of structures, *except* those structures located on any *historic site* as designated on the National or Hawaii registers
- \_\_\_ Zoning variances *except shoreline* set-back variances
- \_\_\_ Continuing administrative activities including, but not limited to purchase of supplies and personnel related actions; and
- \_\_\_ Acquisition of land and existing structures, including single or multi-unit dwelling units, for the provision of *affordable housing*, involving *no material change of use* beyond that previously existing, and for which the *legislature has appropriated* or otherwise authorized *funding*

Explain (how the exemption indicated above applies):

See attached

---

---

---

---

---

Exemptions summary:

Does the Project qualify for an exemption? Yes X No \_\_\_

If Yes, Exemption noted above

If No, Project requires Environmental Assessment

**CUMULATIVE IMPACT**

Exemptions are inapplicable when the cumulative impact of planned successive actions in the same place, over time, is significant, or when an action that is normally insignificant in its impact on the environment may be significant in a particularly sensitive environment.

Additional Notes

---

---

---

---

NEIL ABERCROMBIE  
Governor



RUSSELL S. KOKUBUN  
Chairperson, Board of Agriculture

JAMES J. NAKATANI  
Deputy to the Chairperson

State of Hawaii  
DEPARTMENT OF AGRICULTURE  
1428 South King Street  
Honolulu, Hawaii 96814-2512

June 6, 2011

TO: Edwin Matsuda  
Flood Control/Dam Safety  
Engineering Division, DLNR

FROM:  Brian Kau, Administrator  
Agricultural Resource Management Division

SUBJECT: Comprehensive Exemption List for the Division of Agricultural Resource Management

I am sending you this letter in clarification of the exemption to CH 343 (Environmental Assessment) as it applies to the proposed improvements projects at Pu'u Kapu (HI-00042), Pu'u Pulehu (HI-00123) and Pa'auilo (HI-00131) reservoirs which are part of the greater State Irrigation System Reservoir Safety Improvements Project (SIRSIP). The work will be performed under exemption of CH 343 (Environmental Assessment) based on exemptions allowed in DOA-ARM's comprehensive exemption list (posted on the OEQC web site).

Exemption Class I allows exemptions for operations, repairs or maintenance of existing structures, facilities involving negligible or no expansion or change of use beyond that previously existing. Each of the reservoirs are considered 'existing' structures as defined in the DOA-ARM's comprehensive exemption list. Each of the reservoirs are intended for irrigation storage and no significant storage increase or expansion or change in use is proposed beyond that which is currently existing based on the proposed scope of work. DOA-ARM has existing lease agreements with the respective landowners.

Exemption Class I (Paragraph 5) allows for Ch 343 exemptions for repairs which are necessary to maintain existing structures and facilities used in the irrigation systems at the Waimea-Lalamilo and Lower Hamakua Ditch Systems. The Puu Kapu and Puu Pulehu Reservoirs are operational structures/facilities that are of the Waimea-Lalamilo Irrigation Systems. Likewise, the Paauilo Reservoir is an operational structure/facility that is part of the Lower Hamakua Ditch System.

Please feel free to contact Mr. Glenn Okamoto at (808) 973-1123 if you need any additional clarification on this subject.

Enclosures



**COMPREHENSIVE EXEMPTION LIST FOR THE  
DIVISION OF AGRICULTURAL RESOURCE MANAGEMENT  
DEPARTMENT OF AGRICULTURE  
STATE OF HAWAII  
MARCH 8, 2000**

Pursuant to Section 11-200-8, Hawaii Administrative Rules, the following types of action, where they fall within the given classes of action, shall generally be exempt from the preparation of an environmental assessment:

**EXEMPTION CLASS 1:** Operations, repairs or maintenance of existing structures, facilities, equipment, or topographic features, involving negligible or no expansion or change of use beyond that previously existing.

The word "existing" means presently in use. The following enumerated actions shall not be undertaken: 1) if the structure, facility, equipment, or topographic feature is not owned, leased, set aside, or under the legal control of the Department of Agriculture and the Agribusiness Development Corporation; or 2) if the structure, facility, equipment or topographic features have been abandoned.

1. Repairs or rehabilitation which are necessary to maintain existing infrastructure improvements and facilities used in the agricultural parks at Pahoa, Panaewa, Hamakua, and Keahole -- all on Hawaii; Waianae, Kahuku, Waimanalo, Kalaeloa, and Royal Kunia - all on Oahu; Lanai Agricultural Park on Lanai; Molokai Agricultural Park on Molokai; and Kekaha on Kauai; also in agricultural product processing and marshalling plants at Kula, Maui; Molokai Cooling Plant on Molokai; Maunawili Experimental Station on Oahu; and Kamuela, Honalo, Hamakua, and Panaewa -- all on Hawaii. Removing of trees, shrubbery, and other foliage which are threatening to damage the existing infrastructures. Performing routine preventive maintenance trimming of brush and branches; and removing sediment and debris to keep access clear.
2. Repairs which are necessary to keep in useful condition existing roads, drainage improvements, street lights and roadway structures or facilities, other subdivision improvements installed in accordance with County subdivision Ordinances.
3. Repairs or rehabilitation to maintain existing buildings, control buildings, warehouses, storage or paint sheds, baseyards, grounds, and other related facilities being used in the administration, operation and maintenance of the agricultural parks and agricultural processing and marshalling facilities.
4. Repair, operate and maintain pumps and controls, pipes and other water control devices in the same location in order to provide service to existing agricultural parks and agricultural processing and marshalling facilities. Repair existing electrical, electronic or telemetering systems used to control or operate facilities, equipment, and appurtenances in the existing infrastructures.

**COMPREHENSIVE EXEMPTION LIST FOR THE  
DIVISION OF AGRICULTURAL RESOURCE MANAGEMENT  
DEPARTMENT OF AGRICULTURE  
STATE OF HAWAII  
MARCH 8, 2000**

Page 2 of 8

5. Repairs which are necessary to maintain existing structures and facilities used in the irrigation systems at Waimanalo, Waiahole, and Kahuku, Oahu; Waimea-Lalamilo and Lower Hamakua Ditch (Honokaa-Paauilo), Hawaii; Upcountry (Kula), Maui; Kekaha, Kauai; and Molokai. Cutting of trees which are threatening to damage existing structures, facilities and waterways in the irrigation systems. Performing maintenance trimming of brush, removing and depositing sediment and debris in order to open the waterways for irrigation systems. Provided that the action of removing and depositing sediment and debris shall be limited respectively to removing from existing waterways and depositing within the right-of-ways of such waterways.

6. Repairs which are necessary to maintain in a useful condition the existing access roads and road structures (such as culverts and bridges) to the minimum width required for the operation of vehicles used in the operation and maintenance of irrigation systems. These actions do not exempt the Division of Agricultural Resource Management from required permits and other regulatory requirements of federal, state, or county agencies.

7. Repairs which are necessary to maintain existing office buildings, control buildings, warehouses, paint sheds, baseyards, grounds, water treatment plants, and other existing facilities used in the existing water systems.

8. Repair, operate and maintain existing pumps and controls, pipes and channels in the same location in order to maintain service in existing water systems. Repair existing electrical and telemetering systems used to operate water facilities, equipment, and appurtenances in existing water systems. Repair existing diversions and intake structures, including valves, gates, and intake boxes. These actions do not exempt the Division of Agricultural Resource Management from required permits and other regulatory requirements of federal, state, or county agencies.

9. Modification required to existing buildings and equipment to meet new codes and regulations, i.e., Occupational Safety & Health Administration, building, fire, security, accessibility for the handicapped, environmental compliance, etc.

10. Request to the Department of Land and Natural Resources for setting aside of State lands by Governor's Executive Order to the Department of Agriculture and for award of land leases and permits. This exemption applies only to:

- a. land designated by the Land Use Commission for agricultural use and not Conservation District land;



GANNETT FLEMING, INC.  
Suite 250  
4722 North 24th Street  
Phoenix, AZ 85016-4852

Office: (602) 553-8817  
Fax: (602) 553-8816  
www.gannettfleming.com

August 14, 2012

Mr. Jimmy M. Leung, P.E.  
State of Hawaii – DLNR  
Engineering Division – Dam Safety Section  
1151 Punchbowl Street  
Honolulu, HI 96813

**RE: Dam Safety Permit Application Review – Puu Kapu (Waimea 60MG), HI**

Dear Mr. Leung:

Gannett Fleming, Inc. (Gannett Fleming) has completed review of Dam Safety Permit Application Pu'u Kapu Reservoir (HI00042), Waimea, Hawaii. The following permit application packages were submitted for review:

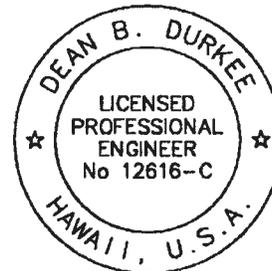
- July 2010 – Permit Application Package for Puu Kapu Reservoir, Puu Pulehu Reservoir, and Paaulo Reservoir:
- April 2011 – Permit Application Package for Puu Kapu Reservoir:
- June 2011 – Permit Application Package for Puu Kapu Reservoir:
- January 2012 – Dam Safety Permit Rev 3 Puu Kapu HI00042:
- April 2012 – Dam Safety Permit Rev 4 Puu Kapu HI00042:
- June 2012 – Dam Safety Permit Rev 5 Puu Kapu HI00042:

Our comments are documented in the attached comment review form and show the progression of comment resolution. In general, the responses to our comments address the issues that were raised. It is our understanding the applicant is completing a Phase II Geotechnical Investigation as a separate project and that the improvements presented in the Permit Application dated 06-04-2012 are not intended to address the safety deficiencies related to seismic stability of the dam and may not completely address the seepage that has been observed on the downstream face of the dam.

Please do not hesitate to call me at 602-553-8817, ext. 8228 if you have any questions or require additional information.

Sincerely,  
GANNETT FLEMING, INC.

Dean B. Durkee, Ph.D., P.E.  
Vice President



This work was prepared by me or under my supervision

Signature

4/30/13  
Expiration Date of License

EXHIBIT 5

## **DAM SAFETY PERMIT GENERAL CONDITIONS**

### **APPROVAL OF PLANS AND SPECIFICATIONS FOR DAM AND RESERVOIR CONSTRUCTION, ENLARGEMENT, REPAIR, ALTERATION OR REMOVAL**

The following General Conditions shall be adhered to for all Dam Safety permits unless otherwise authorized in writing.

1. Actual construction, enlargement, repair, alteration or removal shall be completed within 5 years of issuance of the permit application approval unless an extension authorized in writing by the Board is issued.
2. Prior to the start of work the owner or applicant shall provide a construction engineer to ensure compliance with the approved plans and specifications and who shall have ultimate responsibility for the supervision of all inspection tasks. The construction engineer may assign some inspection tasks to a duly authorized agent under the construction engineer's supervision. The engineer shall be licensed in the State of Hawaii.
3. The construction engineer shall maintain a record of construction that at a minimum, shall include, daily activity, and progress reports, all test results pertaining to construction; photographs sufficient to provide a record of foundation conditions and various stages of the construction through completion, all geologic information obtained; and construction problems and remedies.
4. A construction quality assurance plan shall be prepared and submitted to the Department for approval prior to the start of construction, which details the minimum requirements of the construction engineer's observation of construction.
5. A construction schedule, which includes the notice to proceed date and estimated project duration and a construction emergency action plan shall be submitted prior to the preconstruction meeting.
6. A preconstruction meeting shall be held subsequent to submitting the quality assurance plan, construction schedule and construction emergency action plan, but not later than 14 days prior to the start of construction. All parties actively involved in the construction should be requested to attend, such as the dam owner, the design engineer, the construction engineer, the contractor and the Department.
7. The Department shall be notified 5 calendar days prior to the commencement of construction.
8. Any changes from the approved plans and specifications shall be approved by the design engineer and a change order, including details and supporting calculations, must be provided to the Department. Major changes must be submitted in writing with supporting documentation and approved in writing by the Department. No work shall be initiated until the approval by the Department or Board is received. Minor changes may be transmitted verbally and approved by the Department verbally provided that documentation of the change is provided to the Department within 10 days of the approval.

9. For new dam construction and for dams and reservoirs that have lowered the water level or have been drained to facilitate construction, the construction engineer shall file and obtain approval of a filling plan with the Department. The applicant/owner shall not proceed with the filling of the reservoir until it receives permission from the Department. The construction engineer shall provide documentation of monitoring during the filling operation.
10. Prior to the filling of the reservoir, the construction engineer shall submit one copy each of the approved Operations Manual and the approved Emergency Action Plan for the facility upon completion of the project as applicable.
11. The construction engineer shall give the Department at least ten days advanced notice of initial materials placement of the dam's foundation, in the cutoff trench, outlet backfill, outlet foundation, and any appurtenance requested by the Department in the approval of the plan for construction observation, to allow for observation by the Department.
12. Notice of substantial completion shall be issued by the construction engineer to the Department stating that the permitted improvements are functionally complete such that filling of the reservoir can be initiated with an approved filling plan.
13. The construction engineer shall give the Department fifteen (15) calendar days advance written notice prior to the project's final construction inspection. The construction engineer shall coordinate with the Department to conduct this inspection in the presence of the Department's dam safety personnel.
14. The construction engineer shall provide notice at least ten (10) days prior to initiating filling the reservoir, unless agreed at the final inspection.
15. If conditions are revealed which will not permit the construction, enlargement, repair, alteration, or removal of a safe dam or reservoir, the application for approval for construction, enlargement, repair, alteration, or removal shall be revoked.
16. A topographic survey of completed work including all monuments, inverts, crest alignment, spillways, and significant appurtenant features, when required by the Department shall be completed.
17. The applicant/owner shall utilize appropriate erosion control best management practice measures during construction to minimize turbidity (such as scheduling of work during period of low stream flow) and prevent debris and construction materials, including concrete, petroleum products, and other pollutants from enter the waters of the State. Construction related water and debris should be properly disposed of in a legal and environmentally safe manner and in accordance with the Department of Health and other Federal regulations.
18. The applicant/owner shall submit a copy of the dam safety application and the plans and specifications of the proposed improvements to the County Engineer of the County for which the dam resides for compliance with County codes.
19. Within fifteen (15) calendar days of completing the project, the applicant/owner or its representative shall provide the Department with a confirmation letter of compliance, signed and stamped by the construction engineer, indicating that the construction

6  
EX-101

was completed in accordance to approved plans and specifications including any field changes. The construction engineer shall submit the remaining construction completion documents which may include, but not be limited to, as-constructed drawing, final construction report, topographic survey, record of the location of permanent monuments, log of recorded water levels and other readings from the refilling operation, long-term instrumentation monitoring plan, and affidavit showing the actual cost of construction including engineering costs, within 60 calendar days of the submittal of the final construction inspection.

20. Construction completion documents and the construction engineer's certification shall be provided to the Department within 60 days of the final construction inspection. The Department will review the submitted items and furnish acceptance or denial within 60 days of receipt of satisfactorily completed construction completion documents and close out the dam safety permit.
21. This permit does not relieve the applicant/owner of their obligations to comply with all applicable Federal, State, and County regulations.