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DEPARTMENT OF LAND AND NATURAL RESOURCES  
**COMMISSION ON WATER RESOURCE MANAGEMENT**  
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STAFF SUBMITTAL

for the meeting of the  
COMMISSION ON WATER RESOURCE MANAGEMENT

August 16, 2022  
Honolulu, Hawai'i

Natural Energy Laboratory of Hawaii Authority and  
Hawaii Housing Finance and Development Corporation  
APPLICATION FOR A WELL CONSTRUCTION PERMIT  
Ota Well (Well No. 8-3957-006), TMK (3) 7-5-001:165,  
Lanihau 1-2, Moeauo Ahupua'a, Keauhou, Hawai'i

WELL OWNER:

Natural Energy Laboratory of Hawaii  
Authority (NELHA)  
75-5225 Mamalahoa Highway  
Hōlualoa, Hawai'i 96725

Hawaii Housing Finance and  
Development Corporation (HHFDC)  
677 Queen Street  
Honolulu, Hawai'i 96813

DRILLER/APPLICANT:

Water Resources International, Inc.  
P.O. Box 44520  
Kamuela, Hawai'i 96743

LANDOWNER:

FHT Kamakana, LLC  
201 Merchant Street, Suite 2000  
Honolulu, Hawai'i 96813

SUMMARY OF REQUEST

The Natural Energy Laboratory of Hawaii Authority (NELHA), in collaboration with Hawaii Housing Finance and Development Corporation (HHFDC), is proposing a new production well within the high-level area of the Keauhou Aquifer System Area (KASA) at the TMK (3) 7-5-001:165. See Exhibit 1. If this production well is successful, it will be dedicated to the Hawaii Department of Water Supply (HDWS).

LOCATION MAPS: See Exhibit 1

BACKGROUND:

In 2016 NELHA received a CIP appropriation of \$2.5M for an exploratory well for potable water to supply their technology park. NELHA entered into a MOU with HHFDC to jointly develop the water well. Total development costs are estimated at \$15-20M and will be shared equally between NELHA & HHFDC. HHFDC helped to provide the well site and NELHA has agreed to oversee the construction and handle all administrative duties. Water was originally to be shared equally and used at NELHA and the HHFDC's Kamakana Village development with low income housing. If successful, the well will be connected to the County distribution network and all equipment, land and other assets will be transferred to HDWS.

On August 16, 2018, Water Resources International, Inc. submitted an incomplete well construction permit application that lacked landowner permission to drill.

On October 18, 2018, the landowner, FHT Kamakana LLC, submitted written permission to drill that completed the application acceptably for review. As part of this permission, staff learned that the well was a joint venture between well owners the Natural Energy Laboratory of Hawaii Authority (NELHA) and Hawaii Housing Finance and Development Corporation (HHFDC).

On November 23, 2018, the Final Environmental Assessment and Finding of No Significant Impact (FONSI) was accepted and published in the OEQC Bulletin ([http://oeqc2.doh.hawaii.gov/EA\\_EIS\\_Library/2018-11-23-HA-FEA-Ota-Well.pdf](http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2018-11-23-HA-FEA-Ota-Well.pdf)).

Based on comments from the Department of Hawaiian Home Lands (DHHL), U.S. Department of the Interior National Park Service Kaloko-Honokōhau National Historical Park (NPS), Kona Kai Ea Chapter of The Surfrider Foundation, and the Hawaii Department of Water Supply (HDWS), NELHA requested 5 extensions to discuss the comments from January 14, 2019 through September 11, 2020. (see Exhibits 2 through 6)

On April 30, 2020, the Department of Land and Natural Resources Historic Preservation Division (SHPD) completed their review of the project and accepted the archeological monitoring plan allowing the permit process to proceed.

On October 14, 2020, the Memorandum of Understanding (MOU) between HHFDC, NELHA, and DHHL regarding water credits for the well was finalized. (Exhibit 7)

On December 15, 2020, the Aha Moku Advisory Committee (AMAC) provided comments on the application. (Exhibit 8)

On January 26, 2021, NELHA provided comments on AMAC letter (Exhibit 9)

On February 18, 2021 & March 23, 2021, NPS provided further comments. (Exhibit 4)

On April 20, 2021, the Commission deferred action on item B2 that proposed to approve the Well Construction Permit with Special Conditions and directed staff to report back in June on next steps to convene a Symposium-2.

On June 15, 2021, Deputy Manuel reported back to the Commission that the goal was to convene Symposium-2 in fall 2021 to identify mitigation measures and long-term monitoring to attach as special conditions to the permit and that there's current discussions with 'Aha Moku on how best to facilitate the symposium.

On July 14, 2021, Deputy Manuel and staff met with the Kanuha 'Ohana, lineal descendants of the Lanihau (Kailua) ahupua'a, and 'Aha Moku representatives to determine the best way to engage with practitioners and 'ohana in this region. With guidance from these kupa 'āina, they requested that instead of convening a Symposium-2 to instead hold hālāwai – small intimate gatherings with individual 'ohana and practitioners – to share, learn, and collectively develop mitigation measures and identify long-term monitoring conditions.

From July 2021 to present, despite two COVID-19 spikes and the Red Hill crisis, Deputy Manuel and 'Aha Moku held a total of 20 hālāwai, in person and virtually, with lineal descendants and practitioners of Kona. More details and results of this process can be found below in the Ka Pa'akai Analysis section of this submittal.

During that same time, Deputy Manuel continued to provide updates to NELHA, HHFDC, NPS, and other stakeholders about the hālāwai process designed by lineal descendants. Deputy Manuel also coordinated meetings between Department of Land and Natural Resources Division of Forestry and Wildlife and Division of Aquatic Resources for guidance and coordination on technical research needs.

#### WATER AVAILABILITY:

Ota well is located in the high-level portion of the Keauhou Aquifer System Area (KASA) with an estimated sustainable yield (SY) of 38 mgd. Current KASA Pumpage (12-MAV as of June 30, 2022) is 14.452 mgd (38% of SY from 34 of 36 (94%) production wells reporting). Proposed Use: 0.672 mgd (pump capacity of 1.008 mgd) presently for state municipal – MUNST that will be dedicated to the county municipal – MUNCO.

The larger Hualālai Aquifer Sector Area consists of the Kīholo (18 mgd) and the Keauhou (38 mgd) Aquifer System Areas, which totals 56 mgd.

The 12-MAV as of June 30, 2022 for the Hualālai Aquifer Sector Area is 24.332 mgd (43% SY=56 mgd) based on: 1) 76 of 92 (83%) production wells reporting 9.880 mgd (55% SY= 18 mgd) in the Kīholo Aquifer System Area; and 2) 34 of 36 (94%) production wells reporting 14.452 mgd (38% SY=38 mgd) in the Keauhou Aquifer System Area.

#### KEAUHOU DESIGNATION SUMMARY & CONDITIONS

After three and a half (3 ½) years of designation proceedings, the Commission decided to deny the U.S. National Park Service (NPS) petition to designate the *Keauhou Aquifer System Area* (KASA) as a ground water management area. Instead, the Commission directed staff to pursue eight (8) alternative actions to designation (see February 14, 2017 Commission Meeting in Keauhou at <https://files.hawaii.gov/dlnr/cwrm/archive/dir2017.pdf>) to further investigate the science of coastal leakage impacts for consideration in setting or adjusting sustainable yields in the upcoming Water Resource Protection Plan (WRPP) 2018 update. The Commission adopted the WRPP 2019 update with the Keauhou sustainable yield unchanged at 38 mgd, but recognized the need, under section F.2.1, to further pursue the issue based on the best available information, CWRM staff should propose action

triggers and develop a suite of possible management actions for consideration by CWRM. The WRPP 2019 recommended that CWRM build on the work done by NPS to establish an adaptive management approach for the Kaloko-Honokōhau National Historical Park as a priority pilot project. This approach can then be applied to other areas in the State where concerns over the impacts of ground water withdrawals on GDEs have been raised.

Staff's review of this proposed well with respect to those eight (8) actions and the overall goal of assessing impacts on coastal leakage, GDEs, and sustainable yield are as follows:

1. The Commission will refer all well permit applications to the Aha Moku Advisory Committee (AMAC) and the Department of Hawaiian Home Lands (DHHL) for review for recommendations to protect traditional and customary practices that are exercised and may be affected by the proposed application. If traditional and customary practices are found in the proposed permit area that may be affected by the proposed action, special conditions will be suggested to mitigate impacts of the proposed well. If the well operator and landowner do not agree to the special conditions, then staff will present the applications to the Commission for decision making pursuant to Hawaii Revised Statutes (HRS) §174C-84 (f) and Hawaii Administrative Rules (HAR) §13-168-12(h).

*Staff Response: CWRM referred the Ota well permit application to the AMAC and DHHL for review for recommendations to protect traditional and customary practices that are exercised and may be affected by the proposed application. Their original responses are summarized with respect to traditional and customary practices in the REVIEW\COMMENTS FROM OTHER AGENCIES of this submittal. After deferral of the staff submittal in April 2021 to present, Deputy Manuel and 'Aha Moku engaged in hālāwai with 'ohana and practitioners from Kona to develop mitigation measures and long-term monitoring conditions. More details and results of this process can be found below in the Ka Pa 'akai Analysis section of this submittal.*

2. For new private production wells within the Ahupua`a of Kaloko, Honokōhau 1-3, or Kealakehe, as defined in the GIS coverages by State of Hawaii Office of Planning and the Office of Hawaiian Affairs (OHA) Kipuka Database, staff will encourage the applicant to install a deep monitor well beneath the thin basal lens into salt water between the new well and the Kaloko-Honokōhau National Historical Park (Park) if such a monitor well does not already exist.

*Staff Response: Ota well is not located within the Ahupua`a of Kaloko, Honokōhau 1-3, or Kealakehe, but is located in the adjacent Lanihau 1-2, Moeauo ahupua`a. The well is to be owned by HHFDC and NELHA with the intention to turn over the well to HDWS should the well prove to be productive. Also, there are several other monitor wells already in place that can effectively serve as monitor wells between the proposed well and the Park. Specifically, the Kamakana Deep Monitor Well (3959-001), is situated between the OTA well and the Park that can be used as a deep monitoring well. Additionally, there are two (2) new deep monitor wells under construction directly mauka of the Kaloko-Honokōhau National Park at the Hawai'i Department of Water Supply (HDWS) water tanks along Hina Lani St. at the lower tank site (Kaloko Monitor 4161-013) and the Commission's Kaloko Deep Monitor Well 4159-001 at the 610 ft tank site. These wells can be used during and after pump tests to monitor changes in the aquifer due to the Ota Well. Therefore, staff is not recommending a new monitor well be required.*

3. Staff will complete the remediation of Keopu Deep Monitor Well (Well No. 3858-001) and the construction of the new Keopu 2 Deep Monitor Well (Well No. 3858-002) to further explore the deep freshwater aquifer.

*Staff Response: Staff has completed the remediation of Keopu Deep Monitor Well (Well No. 3858-001) and construction of the new Keopu 2 Deep Monitor Well (Well No. 3858-002). Staff continues to collect data from these wells to further understand the deep confined freshwater aquifer and posts graphical results of the data to its webpage at <https://dlnr.hawaii.gov/cwrm/groundwater/monitoring/>.*

4. Staff will provide for the conversion of the Kaloko Irrigation Well 1 (Well No. 4160-001) to a deep monitor well located due east and upgradient of the Kaloko-Honokōhau National Historical Park (Park). This well will be deepened to further explore the existence of the deep freshwater aquifer similar to the deep monitor wells of: 1) Kalaoa Keopu (Well No. 3858-001), and 2) Kamakana (Well No. 3959-001) and monitor changes due to pumpage in the area above the Park.

*Staff Response: Problems were encountered with the private landowner of 4160-001, so as an alternative to the conversion of that well to a deep monitor well, staff pursued the development of a new deep monitor well, Kaloko DMW (Well No. 4159-001) at the nearby HDWS 620-foot elevation tank site in cooperation with HDWS. The goal of this well is to see if the deep confined freshwater aquifer exists directly mauka of the Park. The well drilling is complete and hit a total depth of 1695 feet. DLNR Engineering and CWRM staff are working with the contractor to finish casing the well. Also, HDWS is constructing an additional deep saltwater monitor well at the lower 120-ft makai tank site location on Hina Lani Drive directly makai of 4159-001. The HDWS Kaloko Monitor Well 4161-013 was completed on November 13, 2020 and did not drill into the deep confined freshwater aquifer but does provide a complimentary monitor well to the Commission's Kaloko DMW 4159-001. (See Exhibit 1 – Location Map).*

5. Staff will continue to monitor pumpage, water levels, and chlorides through the monthly reporting program. Reporters who are delinquent in reporting will be brought to the Commission for enforcement and sanctions at the discretion of the Chairperson.

*Staff Response: Staff continues to monitor pumpage, water levels, and chlorides throughout the KASA through the monthly reporting program. The 12-MAV pumpage is 14.452 mgd as of June 2022 (38% of sustainable yield) and Commission's monitoring network of four (4) high-level monitoring wells have shown stable to slight increases in water level except for the nearby Komo Well (3957-002). The Komo well intercepts, and is screened in perched high level water, frequently, cascading water and makes the water level fluctuate more than in other wells, so water levels probably don't provide much regional context. Six (6) basal monitoring wells have shown steady water-levels and the remediated Keopu 1 DMW has shown a slight thickening of the lens. (see <https://dlnr.hawaii.gov/cwrm/groundwater/monitoring/>).*

*Staff is not recommending any enforcement at this time, but attached as exhibit 11 is a list of those production wells missing 60 or more days of reporting during 2022 and staff will be following up with formal letters to notify them about the lack of reporting and potential violation.*

*Staff will provide annual updates to the Commission on pumpage, water levels, and chlorides in the KASA and share data on the wells that are part of the Commission's monitoring network.*

6. If authorized planned use reaches eighty percent (80%) of the Keauhou Aquifer System Area (KASA) sustainable yield (which equates to 30.4 mgd of 38 mgd), then the Commission will commence public informational meetings in the Keauhou Aquifer System Area (KASA) in

accordance with Hawaii Revised Statutes (HRS) §174C-44 & Hawaii Administrative Rules (HAR) §13-171-7.

*Staff Response: Current Keauhou Aquifer System Area Pumpage (12-MAV as of June 30, 2022) is 14.452 mgd (38% of SY) based on 34 of 36 production wells reporting. If authorized planned use reaches eighty percent (80%) of the Keauhou Aquifer System Area (KASA) sustainable yield, then the Commission will commence public informational meetings in the Keauhou Aquifer System Area (KASA) in accordance with Hawaii Revised Statutes (HRS) §174C-44 & Hawaii Administrative Rules (HAR) §13-171-7.*

7. If alternative water sources or future potable high-level sources in the southern portion of the Keauhou Aquifer System Area (KASA) as defined in the Keauhou Water Use and Development Plan (KWUDP) for the Keauhou Region fail to materialize and actual rate of withdrawal based on a 12-month moving average reaches forty-five percent (45%) of the sustainable yield (which equates to 17.1 mgd of 38 mgd), the Commission will commence public informational meetings. The forty-five percent (45%) figure is one-half ½ of the ninety percent (90%) criteria to be considered in designation proceedings and relates to the current well infrastructure that relies on the northern half of the Keauhou Aquifer System Area (KASA) to meet water demands. It is prudent to spread pumping uniformly throughout an aquifer when data and analysis do not show otherwise. This encourages the implementation of the Keauhou Water Use and Development Plan (KWUDP).

*Staff Response: Current Keauhou Aquifer System Area (KASA) Pumpage (12-MAV as of June 2022) is 14.452 mgd (38% of SY), which is less than the 17.1 mgd figure for each of the northern and southern portions of the aquifer alone. The Ota Well is not a source specifically identified in the Hawaii County Keauhou Water Use and Development Plan Update, Hawaii Water Plan, Keauhou Aquifer System, Final Report, Dated March 2017 (KWUDP) (see [https://www.hawaiidws.org/wp-content/uploads/2018/06/Combined-Ph-1-2-Keauhou-20170510\\_w-Appendix-final.pdf](https://www.hawaiidws.org/wp-content/uploads/2018/06/Combined-Ph-1-2-Keauhou-20170510_w-Appendix-final.pdf)). However, this well is proposed in the high-level area south of the Queen Liliuokalani Trust QLT Well (4057-001), which is consistent with the KWUDP to spread new sources in the southern half of the park and away from the Kaloko-Honokōhau National Historical Park (Park). (See Exhibit 1 – Well Location Map) The Hawai‘i County Council committee meeting on the KWUDP adoption as well as a briefing to the Commission was held on November 16, 2021. Based on those meetings, CWRM staff provided additional comments and recommendations for updates to the KWUDP to Hawai‘i County DWS.*

8. Staff will continue to work with and track the status of the U.S. Geological Survey 3-D solute transport modelling efforts. Staff will organize a briefing to the Commission when results are published.

*Staff Response: The USGS briefed the Commission on April 20, 2021 on the release of Scientific Investigations Report "Numerical simulation of the effects of groundwater withdrawal and injection of high-salinity water on salinity and groundwater discharge, Kaloko-Honokohau National Historical Park, Hawaii", by Delwyn S. Oki (see <https://pubs.er.usgs.gov/publication/sir20215004>). The report describes the development and use of a numerical groundwater model to simulate how human-related modifications to the groundwater system can potentially affect water resources in the Park. In summary, the model predicts that salinity in the anchialine ponds would increase by 120 mg/l from a 0.5 mgd basal and 220 mg/l from a 1 mgd increase in generalized pumpage in the basal portions of the aquifer within the model boundaries near the Park. Unfortunately, the OTA well is a high-level source*

*and (1) the published model was not designed to specifically address withdrawals from the inland high water-level area, and (2) the proposed site of the OTA well is outside the modeled area; it is about 1,600 feet inland of the model's inland boundary.*

REVIEW\COMMENTS FROM OTHER AGENCIES:

Department of Hawaiian Home Lands (DHHL) Reservation/ MOU Request (See Exhibit 2)

DHHL requested special water reservation conditions be placed on the proposed well and pump permits and that approval of these permits be made at a Commission meeting if these special conditions are not made. Specifically, DHHL requests 18,077 gallons per day of the yield of this well to DHHL from its reservation in the KASA.

*Staff Response: A Memorandum of Understanding between NELHA, HHFDC, and DHHL to provided 18,077 gpd of water from this well source to meet the needs of DHHL reservation 998 approved on August 17, 2015 for 3.398 mgd is final (exhibit 7).*

*Staff believes that the MOU further protects and provides for the reservations of DHHL and addresses the concerns of DHHL in its original comment letter in addition to setting aside portions of sustainable yield for DHHL anticipated reserved needs as approved by the parties. However, this MOU is subject to the HDWS development agreements after the well is constructed, accepted, and certified by the Commission.*

U.S. National Park Service at Kaloko-Honokōhau National Historical Park (NPS) (See Exhibit 3)

On December 20, 2018, NPS requested that the Pump Installation Permit for the subject well be referred to the Commission for decision making and reserves the right to request a contested case hearing in this manner, pursuant to Hawaii Revised Statutes (HRS) §174C-10. The letter also points out that the sustainable yield nor Environmental Assessment does not consider impacts to ground water dependent ecosystems (GDEs), the KWUDP has not been adopted by the County, individual monthly pumpages from wells in the Kohanaiki, Kaloko, Honokōhau, and Kealakehe ahupua'a exceed 44% of the recharge within these boundaries. The NPS further requested that the Commission condition the approval of the Pump Installation Permit upon the development of a plan to reallocate groundwater withdrawals from the wells within Kohanaiki, Kaloko, Honokōhau, and Kealakehe ahupua'a in a manner that reduces actual withdrawals in this area to less than 2.85 mgd (or 44% of 6.48 mgd the amount of freshwater NPS estimates discharged into the park in 1978).

There were subsequent conversations between staff and DHHL, HHFDC, HDWS, and NPS regarding these conditions, but those conditions have not been agreed upon. On February 18, 2021, NPS again requested pumpage, this time to be reduced to the 2014 average pumpage of 2.7 mgd from wells within Kohanaiki, Kaloko, Honokōhau, and Kealakehe ahupua'a and that the proposed Symposium 2 also discuss traditional and customary practices along the Kona coastline. The latest NPS letter dated March 23, 2021, NPS requested in lieu of a hearing under HRS 174C-9 and HRS 91-9, which are contested case proceedings, the following conditions be included in the Well Construction and <emphasis added> Pump Installation Permits for the Ota Well:

1. The approval of this permit is contingent upon the permittee, well operator, and well owner's written acceptance of the Special Conditions.

2. If the subject well is accepted by the Hawai'i County Department of Water Supply, the 12-month moving average of total combined groundwater withdrawals in the ahupua'a of Kohanaiki, Kaloko, Honokōhau, and Kealakehe shall not exceed 2.7 million gallons per day<sup>1</sup>.

Non-compliance with the Special Conditions may be grounds for revocation of the permit, removal of the pump, cessation of pumpage, sanctions, penalties [per HAR § 13-168-3], initiation of Ground Water Management Area designation proceedings for the Keauhou Aquifer System Area by the Chairperson [per HRS §174C-41(b)], or any combination thereof.

<sup>1</sup> The rate of 2.7 million gallons per day was estimated by NPS to be the 2014 total combined average pumpage from wells within the four *ahupua'a* based upon reported pumpage data provided by CWRM staff to NPS via email on 7/10/2018.

Further, the NPS March 23, 2021 letter requests that the parties shall meet quarterly to update each other on progress implementing the following proposed "Mitigative Measures":

- Evaluate impacts to other adjacent high-level wells from pumping the Ota Well
- Identify what reduction in water levels is considered unacceptable in adjacent wells
- Quantify the connection between the high-level and basal aquifers near the Ota Well
- Determine if the current USGS groundwater model can be utilized or modified to determine the effects of operating the Ota Well beyond the time period of the pump test
- Conduct a tracer/isotope study to assist in determining groundwater flow paths and travel times
- Review and present data collected through the NELHA Comprehensive Water Quality Monitoring Program (CEMP)
- Expand the CEMP if necessary, based on the results of this analysis

*Staff Response: Request 1 is normally the routine process for all well & pump approvals though the responsibilities are different amongst the contractor (permittee), the well operator/owner, and the landowner of the well. Whereas the permits are only good for a period of 2 years and concern the contractor's construction and completion reporting responsibilities in meeting the HWCPIS, the continued use and responsibilities of an acceptably constructed well (i.e. meets the HWCPIS) is clarified through the issuance of certificates to the landowner of the well, which is sometimes different than the well owner/operator of the well. Such standard items as monthly reporting, securing the well when not in use, and sealing the well when abandoned is primarily the landowner responsibility who must cause the well owner/operator, if different, to meet these and any special conditions set by the Commission. Therefore, this request seems unnecessary and is confusing as it makes all parties responsible for all special conditions.*

*Request 2 is challenging for the following reasons:*

- 1) *In denying the NPS petition to designate the KASA as a Ground Water Management Area, the Commission's did not authorize itself to limit pumpage under Part IV of 174C, HRS beyond that approved via normal pump testing protocols in the HWCPIS through the requirement of ground water use permits.*
- 2) *On August 17, 2015, and prior to the February 14, 2017 denial of the NPS petition, the Commission also rejected a similar petition for declaratory order to create a sub area consisting of the Kohanaiki, Kaloko, Honokōhau, and Kealakehe ahupua'a around the Park within the KASA for purposes of managing it as a smaller designated area within*



- the KASA (see August 17, 2015 agenda, Item A.3 and minutes within <https://files.hawaii.gov/dlnr/cwrp/archive/dir2015.pdf>).*
- 3) The request does not follow the fundamental management strategies as set forth in the 2019 Water Resource Protection Plan (WRPP) approved by the Commission nor legal requirements specified under Part IV under 174C, HRS.*
  - 4) Limiting pumpage from the three (3) HDWS high-level wells, will reduce high-level pumpage for existing needs under the present HDWS infrastructure. However, the Commission's February 14, 2017 designation decision is based, in part, on the draft KWDUP plan to move future demands from high-level pumpage south of the Keahuolu QLT Well (4057-001) while reducing basal pumpage that more directly affects basal discharge at the coast..*
  - 5) The Ota well is consistent with the draft KWUDP as considered by the Commission during the designation proceedings towards meeting the goals of 1)reducing basal pumpage and 2) moving high-level pumpage south of the Keahuolu QLT Well (4057-001).*
  - 6) The highest 12-month moving average (12-MAV) for the 3 high-level HDWS wells (Honokohau Deepwell 4158-002, Palani Ranch Deepwell 4158-003, and Hualalai Deepwell 4258-003) above the Park was 3.227 mgd in October of 2007. The total pump capacity of these three (3) wells is 3,600 gpm (5.184 mgd). The latest 12-MAV for these wells as of June 30, 2022 is 3.413 mgd with all three wells operational. Limiting pumpage to 2014 was during a period when the HDWS were experiencing pump failures due to mechanical and electrical problems in these wells. HDWS had to increase basal pumpage to make up demand and send out restriction notices (on car washing & irrigation). Therefore, limiting pumpage to a 12-MAV of 2.7 mgd represents a potential 0.713 mgd reduction of actual pumpage from the high-level portion of present HDWS system and may increase basal makeup pumpage, which actually more directly affects nearshore basal discharge. It is unclear if the makeup pumpage could be shifted to high-level wells and if operationally those existing needs could be met within the current water distribution system. HDWS has consistently represented that request 2 is unacceptable to them and their present municipal operations.*
  - 7) Staff has requested that the HDWS and the County look into future alternatives, such as wastewater reuse for non-potable irrigation needs from the Kealakehe Wastewater Treatment plant to help reduce existing pumpage above the Park.*

*Staff are currently working with NPS on developing a pilot adaptive management plan for protecting GDEs and believes this may be a more appropriate process and opportunity to develop triggers and management actions to address NPS's concerns in Request 2 above.*

*Request 3 is routine enforcement of permit conditions under the Commission except for the triggering an initiation of designation proceedings if special conditions of the Ota well construction permit are not followed. Designation proceedings are already defined under Part IV 174C, HRS and the February 14, 2017 Commission decision has clarified under what conditions designation proceedings would be reinstated for the KASA within its legal authority. Therefore, staff does not recommend adopting this request as a special condition of the well construction permit.*

*Staff supports continued coordination and collaboration of meetings of parties on the bulleted proposed mitigation measures by NPS and special conditions identified in staff recommendations below that include those developed through hālāwai with 'ohana and practitioners.*

Hawaii Department of Water Supply – HDWS (See Exhibit 4)

As stated in the March 8, 2019 HDWS review letter, the subject well, if tested successfully for quality and quantity, will be dedicated to the HDWS. However, HDWS will not be able to provide assurances to meet the MOU water needs until NELHA\HDDFC can successfully test the subject well and determine the available quantity and quality from the well. It is the intent that a portion of the well's capacity would be an integral part of reducing HDWS's dependency on basal sources as outlined in the Hawaii County Keauhou Water Use and Development Plan Update, Hawaii Water Plan, Keauhou Aquifer System, Final Report, Dated March 2017 (KWUDP) (see [https://www.hawaiidws.org/wp-content/uploads/2018/06/Combined-Ph-1-2-Keauhou-20170510\\_w-Appendix-final.pdf](https://www.hawaiidws.org/wp-content/uploads/2018/06/Combined-Ph-1-2-Keauhou-20170510_w-Appendix-final.pdf)). The KWUDP is still pending formal adoption by the Hawai'i County Council and Commission.

*Staff Response: The proposed Ota Well (Well Number 8-3957-006) was not specifically identified in the KWUDP. However, it is located 1/3 of a mile south of the QLT well (4057-001) in the high-level area south of that well as specified in the KWUDP. Despite no formal adoption to date, the KWUDP in its present draft form was considered by the Commission in its February 14, 2017 non-designation action. The well is consistent with the intent of the KWUDP to spread pumpage to the southern high-level portion of the KASA to optimize pumpage patterns and avoids directly developing the basal aquifer in the effort to avoid directly affecting nearshore coastal leakage from the basal aquifer. CWRM staff are planning to participate in the upcoming 2021 County Council committee meeting(s) to assist with the KWUDP adoption by the council.*

Megan Lampson September 2018 email (See Exhibit 5)

The proposed Ota Wells at NELHA will likely threaten some of the native habitats and potentially even access to cultural resources along this historic coastline. She would like to state for the record that an EA is not the proper choice for this large-scale proposal and that an EIS should have been conducted.

*Staff Response: The Final Environmental Assessment for the Ota Well project has determined that an Environmental Impact Statement is not required. A Finding of No Significant Impact (FONSI) was published in the Office of Environmental Quality Control Notice on November 23, 2018. Per the Commission's decision to deny the designation of the Keauhou ASA as a Water Management Area (February 14, 2017), the Commission recognized the need to protect the public trust needs and resource of both the Park and the larger community and identified and approved eight (8) actions as alternatives to designation issues.*

Janice Palma-Glennie December 2018 email (See Exhibit 6)

Janice Palma-Glennie for the Kona Kai Ea Chapter of the Surfrider Foundation writing to ask that more purview be given to the proposed Ota Well permit (Well No. 8-3957-006). Her group has followed the Keauhou Aquifer System Area proposal and hearings closely, and we testified in support of designation on several occasions. The proposal to drill the Ota Well would potentially skirt designation-like protections as well as others necessary to protect the cultural and natural resources of Kaloko-Honokōhau Park and beyond. Group strongly supports the National Park Service in its request that this proposal be referred to the State of Hawai'i Commission on Water Resource Management (Commission) for further discussion and decision making.

*Staff Response: Per the Commission's decision to deny the designation of the Keauhou ASA as a Water Management Area (February 14, 2017), the Commission recognized the need to protect*

*the public trust needs and resource of both the Park and the larger community and identified and approved eight (8) actions as alternatives to designation issues.*

Aha Moku Advisory Council (AMAC) Comments (See Exhibit 8)

On December 15, 2020, Aha Moku Advisory Council (AMAC) provided testimony and responses prepared by Ms. Leimana DaMate, Executive Director Hawaii State Aha Moku. Ms. DaMate vetted this project with Mr. Frank Kawaikapuokalani Hewett, Ka Mea Ho'okumu, Founder of Hawaii State Aha Moku and Rocky Leialoha Kaluhiwa, Chair Aha Moku Advisory Committee Hawaii State Aha Moku. Testimony includes responses and recommendations for mitigation from the practitioners of Lanihau Ahupua'a, generational families, and practitioners along the coast of the Keauhou Aquifer boundaries. The 'ohana (as identified in the Aha Moku comments) recommended the applicant and stakeholders to hold another symposium (Groundwater Dependent Ecosystems Symposium #2) like the one held in 2018 for the Kaloko-Honokohau National Park to further discuss traditional and customary practices along the Kona coastline (south of National Park) and might include other issues to be determined.

On April 10, 2021 CWRM staff, Roy Hardy and Leimana DaMate met in person with the Kupuna of the Kanuha 'Ohana who own 80-acres in the ahupua'a and are native Hawaiian generational and traditional practitioners, on land, coastal areas and ocean fronting the OTA Well. Each of the eight who participated in this meeting are the Kupuna of their now extended families who continue their customary practices handed down for generations. They described customs in the ocean that are dependent on the fresh water that sustains the ecosystem on which these practices are dependent upon.

As stated in the Aha Moku response to the Water Commission on December 15, 2020, Kupuna reiterated their belief that the sustainable yield for the Keauhou Aquifer System Area is intended to account for 44% of natural recharge so that 56% of recharge continues to discharge along the coast. That should mean the amount of fresh water that naturally discharges along the Kona coast should continue to be sustainable for the present and near future. It was also stated that it is noticeably colder in Kona now with more rain in the watershed. This water continues to empty into the ocean from a higher elevation through lava tubes and other means into the deeper ocean. Kupuna believe this is a cycle that has happened before in Kona and will happen again in the future. The identification of traditional and customary practices off-shore in Kailua-Kona have never been publicly examined. Kupuna believe that the Symposium 2 is needed to begin discussions on how to protect customary and traditional practices that could be impacted by the OTA Well. They request the Symposium 2 be enacted in person as soon as it can be safely done in deference to the COVID-19 situation, as a condition of the permit.

*Staff Response: Staff originally recommended that the applicants HHFDC and NELHA to organize and fund Symposium 2 as described by AMAC. Symposium 2 would be an update of Symposium 1 with more concrete adaptive management plan strategies and mitigative actions. Staff and AMAC members held an informational zoom meeting on March 15, 2021 and met in person on April 10, 2021 in Kona (staff – Roy Hardy, Leimana DeMate, with practitioners Jerome Kanuha, Zachary Kanuha, Joseph Kanuha, Louella Braco, Monica Enos, Jolenta Stephens, and Caroline Kamaka Smith. Based on these meetings AMAC supported the Symposium 2 approach to provide a forum for the practitioners to provide mana'o, learn from what the hydrologists and biologists know regarding GDEs, and collaborate to form an adaptive management plan with mitigative actions for their Lanihau 1-2, Moeauo ahupua'a that may be impacted by the OTA well.*

*Per direction from Commission, and in consultation with the same families mentioned above and additional 'ohana and practitioners, more details and results from multiple hālāwai can be found below in the Ka Pa'akai Analysis section of this submittal.*

Natural Energy Laboratory of Hawaii Authority (NELHA) Comments (See Exhibit 9)

On January 26, 2021, NELHA provided responses to address comments in the December 15, 2020 Aha Moku letter. The two main issues discussed were the potential impact of shoreline brackish water Makai of the well site and the proposed Symposium 2 on traditional and customary practices associated with the coastline and near-shore practices in Kona. NELHA's position is that the Environmental Assessment (EA) is not required to include the Lanihau shoreline and analysis of fishing practices in the region is beyond the scope of the EA. However, NELHA would agree to organize and host a Symposium 2 proposed by Aha Moku. NELHA has established and continue the Comprehensive Water Quality Monitoring Program (CEMP) that monitors groundwater and offshore water quality monitoring program off Keahole Point.

*Staff Response: Staff concurred with the applicants to organize and host Symposium 2, but hālāwai replaced that process. The CEMP could be expanded to monitor offshore water quality in the Lanihau shoreline area. Discussions have identified there may be available funding to expand the CEMP work to include the ocean portion of the Lanihau 1-2, Moeauo Ahupua'a through the U.S Department of Commerce National Oceanic and Atmospheric Administration Place-based conservation program (see <https://oceanservice.noaa.gov/ecosystems/placebased-conservation/>)*

WELL CONSTRUCTION INSTALLATION PERMIT APPLICATION (WCP) ANALYSIS

A recap of the normal processing details are as follows:

Agency Review:

In addition to the agencies stated above, copies of the applications were sent to the Department of Health's Safe Drinking Water and Wastewater Branches, DLNR Land Division and State Historic Preservation Division (SHPD). Except for SHPD, agencies provided routine or standard comments, and there were no recommended special concerns, objections, or no responses. Exhibit 12 is the compilation of agency reviews. The well is not located in a conservation district nor special management area and thus comments for these were not sought.

SHPD accepted the Archeological Monitoring Plan and Data Recovery Plan in April 2020.

Hawaii Well Construction and Pump Installation Standards:

Staff review of the proposed well design concludes well meets the HWCPIS, subject to the assumptions of encountering water levels of around +140 ft. above mean sea level in the KASA high-level aquifer. Standard conditions for all well construction permits are attached in Exhibit 10.

Under the HWCPIS, wells with proposed pump capacities greater than 50 gpm are required to perform pump tests to assess the localized well performance and aquifer behavior, which may help to assess potential impacts to other nearby wells and hydrologic features such as streams. As the proposed Ota Well is for a public water system the HWCPIS requires a constant rate 96-hour pump test at the proposed pump capacity and a standard step-drawdown test at rates below and above the proposed capacity.

Additionally, the HWCPIIS states, if possible, observation wells shall be used during the constant rate test. Water-level data collected during the pump test at these sites would allow better assessment of impacts to adjacent production wells located in high-level aquifer portion of the KASA and the degree of connection between Ota Well and the basal lens of the KASA. Discussions between staff HHFDC, NELHA, DHHL, HDWS, and NPS to date have identified several observation well sites that could be monitored more closely during the pump test, including the high-level Komo Monitoring Well (3957-002); basal monitoring wells of Kamakana Deep Monitor Well (3959-001), Keopu Basal Monitor (3858-001), and three (3) existing NPS KAHO monitor wells (4061-001, and 4161-001 & 002) ; and deep confined freshwater Keopu 2 Deep Monitoring Well (3959-002).

Other high-level aquifer production wells to the south could also be considered for monitoring during the pump test to determine if there's any impact to those existing wells. These are HDWS Keopu Deep (3957-001), Douter Coffee #1 (3957-004), and HHFDC Keopu #4 (3957-005).

Chapter 343 – Environmental Assessment (EA) Compliance:

The Final Environmental Assessment for the Ota Well (FEA) can be found in this link [http://oeqc2.doh.hawaii.gov/EA\\_EIS\\_Library/2018-11-23-HA-FEA-Ota-Well.pdf](http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2018-11-23-HA-FEA-Ota-Well.pdf). The FEA has determined that an Environmental Impact Statement is not required. A Finding of No Significant Impact (FONSI) was published in the Office of Environmental Quality Control Notice on November 23, 2018.

Ka Pa'akai Analysis

In *Ka Pa'akai O Ka'aina v. Land Use Commission*, the Hawai'i Supreme Court recognized that the State has an obligation to protect Hawaiian traditional and customary practices to the extent feasible, and that the proponent of an action must show sufficient evidence that these types of practices are protected, if they exist in the location in question. This "Ka Pa'akai framework" was created by the Court "to help ensure the enforcement of traditional and customary native Hawaiian rights while reasonably accommodating competing private development interests." The Commission is obligated to conduct a "Ka Pa'akai analysis" of a proposed action requiring CWRM approval independent of the entity proposing the action. This analysis should be used to inform any decision on the impact of the proposed action on traditional and customary practices.

Consequently, the Court required an assessment of the following:

- (1) "the identity and scope of 'valued cultural, historical, or natural resources' in the petition area, including the extent to which traditional and customary native Hawaiian rights are exercised in the petition area;"
- (2) "the extent to which those resources -- including traditional and customary native Hawaiian rights -- will be affected or impaired by the proposed action;"
- (3) "the feasible action, if any, to be taken ... to reasonably protect native Hawaiian rights if they are found to exist"

Below is staff's assessment and Ka Pa'akai Analysis with mauka to makai mitigation measures:

After hālāwai, consultation meetings, with 'ohana and practitioners from Kona, especially those with familial connections to the ahupua'a of Lanihau 1-2, Moeauo (Kailua), there were a myriad of cultural practices, mauka to makai, that historically existed and some that continue today. Many of those practices require the use of resources that rely on water for their existence and abundance. These

practices and resources connected to Kona’s groundwater include but are not limited to mauka and kula gathering and resources, coastal fishing and gathering, limu, fishponds, anchialine ponds, ulu niu and springs for drinking, bathing, and heiau rituals and ceremony. In addition to mana’o shared in these hālāwai, these and other practices in ahupua’a of North Kona can be found in detailed ethnographic studies conducted by Kumu Pono Associates (<https://www.kumupono.com/ethnographic-studies/>).

One of the kupuna reminded us of an ‘Ōlelo No‘eau (#1316) that highlights the extent of Kāne, god of fresh water and life, in the world around us.

“Ka honua nui a Kāne i hō‘inana a ‘ahu kīnohinohi” – The great earth animated and adorned by Kāne.

This world view and cultural perspective of water implies that water resource management is holistic and cumulative and that we collectively cannot just approach water by piecemeal; it truly calls to mind the precautionary principle and the Commission’s duty to protect wai proactively.

Unfortunately, because of change in land uses and the urbanization of the kula and coastal lands of this region, there has been a negative impact and a diminishing of resources, and therefore a displacement of cultural practices. However, these families have identified feasible actions and mitigation measures in which well development, and the extraction of water, can be mitigated to ensure the values, resources, and practices within the ahupua’a can be protected and ensured. These actions and measures will be conditions of the Well Construction Permit, Pump Installation Permit, and Well Certificate that will run with the life of the well and its use.

**Mauka Mitigation - Water-Neutral Well Development and Monitoring**

Water that’s developed by wells are withdrawing water from aquifers that are recharged by native forests that capture rain on the slopes of Hualālai. If there’s no investment or reciprocity, then that well development is purely extractive. Families expect water-neutral well development to mitigate impacts and ensure that there are sustainable resources into the future. More specifically, any proposed well development should directly contribute to watershed protection efforts and the collection/creation of water. For example, if a well is proposing to use 1 million gallons a day (MGD), then a contribution to watershed protection that will result in the protection of surface water and/or ground water quantity must be made to offset that extraction.

In discussions with families and the Department of Land and Natural Resources (DLNR) Division of Forestry and Wildlife, we propose using the same Watershed Management Cost-Share Formula developed with the Commission on Water Resource Management for the Water Licensing process (HRS 171-58(e)) to contribute to watershed protection, restoration and management.

Water Use (MGD)	X	Annual Management Costs	=	Mauka Mitigation Contribution
Available Water (MGD)				

The Ota Well proposes the installation pump capacity of up to 1.008 MGD. The Sustainable Yield of the Keauhou Aquifer is 38 MGD. The Honua‘ula Forest Reserve Watershed Management Plan has estimated management costs of approximately \$525,500/year for activities that have a direct nexus to water recharge (Exhibit 13).

1.008 (MGD)		X	\$525,500/year	=	\$13,940/year
38.000 (MGD)					

**Mauka Mitigation Measures and Conditions:**

1. Therefore, annual contributions of \$13,940/year shall be paid to Water Resource Management Fund that will assist DOFAW with watershed restoration as part of the Mauka Mitigation Measure for the Ota Well based on current proposed pump capacity. If pump capacity increases or decreases, then the contribution will be adjusted accordingly based on the formula above. Management costs increase overtime, so it is expected that the management contribution will be revisited every five (5) years, for the life of the well’s use.
2. There shall be real-time monitoring of rainfall and water levels at the well site by the well owner/operator. This information shall be shared with and reported to the Commission and community that will inform long-term adaptive use and management.

**Makai Mitigation – Proper Disposal/Reuse, Annual Inventory Survey and Community Meeting**

As discussed above, there’s been a degradation of resources in the coastal and nearshore areas of the Lanihau 1-2, Moeauoa ahupua‘a. While wells and wastewater near the coastline have an impact on nearshore ecosystems and resources in this ahupua‘a, there are other pressures like changes in land uses and shifts in human behavior that has exacerbated this degradation. In discussions with families, they have seen a reduction in water flow to the coast, including a diminishing or ceasing of spring sources. As was part of the traditional ahupua‘a value set, management of water through the ahupua‘a was integral in maintaining and sustaining the resources that everyone relied on and having a baseline inventory of resources to monitor overtime was critical. How water was used and then disposed of in the ahupua‘a is also important in mitigating immediate and long-term impacts to coastal and nearshore resources.

**Makai Mitigation Measures and Conditions:**

1. Practitioners want to ensure that projects that receive water from the Ota Well (NELHA, HHFDC, DHHL, and DWS) are good stewards of that resource and therefore request that:
  - a. Water is not wasted and is used as efficiently as possible. Water distribution systems should be managed, operated, and maintained to prevent waste.
  - b. Water should be reused as much as possible. Projects should be designed to take advantage of on-site water reuse instead of immediate disposal into the Wastewater Treatment Plant.
  - c. Kealakehe Wastewater Treatment Plant should be upgraded to R-1 capability, so water does not have to be injected or released into outfalls.\*
2. Working with practitioners and ‘ohana to determine what resources to inventory and in coordination with the DLNR Division of Aquatic Resources to avoid duplicative efforts, the applicant shall fund, design and implement an annual inventory of resources along the shoreline and nearshore waters of Lanihau 1-2, Moeauoa ahupua‘a. At minimum this should include the coastline from the Old Kona Airport State Recreation Area to Royal Kona resort and the coastal waters of Kailua Bay Fisheries Management Area. This annual inventory and data shall be

shared with and reported to the Commission and community that will inform long-term adaptive use and management. This data collection could be modeled after the annual NELHA Benthic and Biota Monitoring Program that performs annual characterizations of the anchialine habitats, benthic substrate, and nearshore fish assemblages. [https://nelha.hawaii.gov/wp-content/uploads/2022/01/NELHA\\_Biota\\_Report\\_2021.pdf](https://nelha.hawaii.gov/wp-content/uploads/2022/01/NELHA_Biota_Report_2021.pdf)

3. To ensure better communication and coordination in the region with community, the agencies benefitting from the use of water from Ota Well, including but not limited to NELHA, HHFDC, DHHL, and DWS, shall hold an annual community meeting in Lanihau 1-2, Moeauoa ahupua‘a to share updates on these mitigation measures and their respective projects.

### **Conclusion**

As well development is proposed to shift from basal to high-level water sources and further south, to meet the needs of the North Kona community, it will place a burden on those water resources and ahupua‘a. While these Mauka and Makai Mitigation Measures were developed specific to the proposed Ota Well development, practitioners and ‘ohana understand the impacts and pressures that will stretch up and down the Kona coast. Therefore, future well developments should take into consideration these basic values of being good stewards in the ahupua‘a and how they will contribute to that community and place; how will they develop a genuine reciprocal relationship with people, their practices, and the places and resources that they will be a part of. To keep the relationships and collective sharing established through these hālāwai, staff strongly recommends that ‘Aha Moku continue to consult with these and other ‘ohana and practitioners in this region.

This group of ‘ohana and practitioners offer the following collective vision and goals of how water should be managed in the Keauhou Aquifer that should be incorporated into the County’s Keauhou Water Use and Development Plan:

- Reestablish balance between water use and protection, by eliminating wells that use water from the basal aquifer to protect ground water dependent ecosystems and traditional and customary practices and shifting our water use by developing small to moderate wells (1 mgd or less) spaced out in the high-level aquifer.
- Protect water resources holistically from mauka to makai by investing in watershed protection, being efficient in our water use by not wasting and increasing and mandating reuse and ensure continued water flow and discharge to the coast to support our nearshore environment and communities.



RECOMMENDATION:

That the Commission approve the well construction permit to Water Resources International, Inc. subject to the standards conditions in Exhibit 10 and the following special conditions:

1. The following mauka to makai mitigation measures shall be special conditions of the Well Construction Permit, Pump Installation Permit, and Well Certificate that will run with the life of the well and its use:
  - a. Annual contributions of \$13,940/year shall be paid by the Well Owner to the Water Resource Management Fund that will assist DLNR DOFAW with watershed restoration based on the current proposed pump capacity. If pump capacity increases or decreases, then the contribution will be adjusted accordingly based on the Watershed Management Cost-Share Formula. Management costs increase overtime, so it is expected that the management contribution will be revisited every five (5) years.
  - b. There shall be real-time monitoring of rainfall and water levels at the well site by the well owner/operator. This information shall be shared with and reported to the Commission and community that will inform long-term adaptive use and management.
  - c. Practitioners want to ensure that projects that receive water from the Ota Well (NELHA, HHFDC, DHHL, and DWS) are good stewards of that resource and therefore request that:
    - i. Water is not wasted and is used as efficiently as possible. Water distribution systems should be managed, operated, and maintained to prevent waste.
    - ii. Water should be reused as much as possible. Projects should be designed to take advantage of on-site water reuse instead of immediate disposal into the Wastewater Treatment Plant.
    - iii. Kealakehe Wastewater Treatment Plant should be upgraded to R-1 capability, so water does not have to be injected or released into outfalls.
  - d. Working with practitioners and 'ohana to determine what resources to inventory and in coordination with the DLNR Division of Aquatic Resources to avoid duplicative efforts, the applicant shall fund, design and implement an annual inventory of resources along the shoreline and nearshore waters of Lanihau 1-2, Moeauoa ahupua'a. At minimum this should include the coastline from the Old Kona Airport State Recreation Area to Royal Kona resort and the coastal waters of Kailua Bay Fisheries Management Area. This annual inventory and data shall be shared with and reported to the Commission and community that will inform long-term adaptive use and management. This data collection could be modeled after the annual NELHA Benthic and Biota Monitoring Program that performs annual characterizations of the anchialine habitats, benthic substrate, and nearshore fish assemblages.  
[https://nelha.hawaii.gov/wp-content/uploads/2022/01/NELHA\\_Biota\\_Report\\_2021.pdf](https://nelha.hawaii.gov/wp-content/uploads/2022/01/NELHA_Biota_Report_2021.pdf)
  - e. To ensure better communication and coordination in the region with community, the agencies benefitting from the use of water from Ota Well, including but not limited to NELHA, HHFDC, DHHL, and DWS, shall hold an annual community meeting in Lanihau 1-2, Moeauoa ahupua'a to share updates on these mitigation measures and their respective projects.

2. During the standard 96-hour constant rate aquifer and step-drawdown pump tests, applicant to provide additional monitoring well data collection during pump tests. Specifically, the wells to be monitored and coordinated for water-level data collection during the constant rate pump test shall be:
  - a. The high-level Komo Monitoring Well (3957-002); basal monitoring wells of Kamakana Deep Monitor Well (3959-001), Keopu Basal Monitor (3858-001), and three (3) existing NPS KAHO monitor wells (4061-001, and 4161-001 & 002) ; and deep confined freshwater monitoring well of Keopu 2 Deep Monitoring Well (3959-002).
  - b. Other production wells to be considered for water-level monitoring during the constant rate test would be HDWS Keauhou QLT Well (4057-001), HDWS Keopu Deep (3957-001), Douter Coffee #1 (3957-004), and HHFDC Keopu #4 (3957-005).
  - c. The monitoring shall be subject to well owner and chairperson agreement prior to the pump test.
3. Pump tests will be used to evaluate the following impacts based on the pump test coordinated with HDWS, USGS, NPS and CWRM, subject to the approval of the chairperson:
  - a. Impacts to high-level production wells of HDWS Keauhou QLT Well (4057-001), HDWS Keopu Deep (3957-001), Douter Coffee #1 (3957-004), HHFDC Keopu #4 (3957-005), by identifying and determining what reduction in water levels would be considered unacceptable in these nearby production wells.
  - b. Impacts and connection between the Ota Well pump test and the basal portions of the KASA by monitoring water-levels at basal observation wells Kamakana Deep Monitor Well (3959-001), Keopu Basal Monitor Well (3858-001), and three (3) existing NPS monitor wells Kaho 1-3 (4061-001, 4161-003 & 002, respectively). and other adjacent high-level production wells (monitor wells (USGS Komo Well (3957-002) and CWRM Keopu 2 Deep Monitor Well (3858-001).
4. Require a tracer/isotope study to gather data and assess differences between the summer/winter seasons to assist in determining flow direction of high-level water from OTA well and possible quantification of the connection between the high-level and basal water in the proximity to the well.
  - a. This study shall be funded by HHFDC and NELHA under the guidance and subject to the approval of the chairperson.
  - b. A draft scope of work for this study shall be submitted to the chairperson for approval no later than August 1, 2021.
5. CWRM staff, 'Aha Moku, HHFDC, NELHA, DHHL, NPS, and HDWS shall meet at least once a year to continue collaboration on bulleted proposed "mitigation measures" recommended by NPS and these special conditions above.

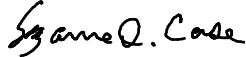
Ola i ka wai,



M. KALEO MANUEL  
Deputy Director

- Exhibits:
1. Location Maps
  2. DHHL December 2018 and August 2020 Letters
  3. NPS Letters - Dec 2018 Feb 2021 Mar 2021
  4. Hawaii DWS March 2019 Letter
  5. Megan Lamson September 2018 email on draft EA FONSI
  6. Janice Palma-Glennie December 2018 email
  7. HHFDC, NELHA, DHHL October 14, 2020 MOU
  8. AMAC December 2020 Letter
  9. NELHA January 2021 letter
  10. Well Construction Permit
  11. List of Wells missing water use reporting
  12. Agency review comments received
  13. Honua'ula Forest Reserve Watershed Protection Costs

APPROVED FOR SUBMITTAL:



SUZANNE D. CASE  
Chairperson

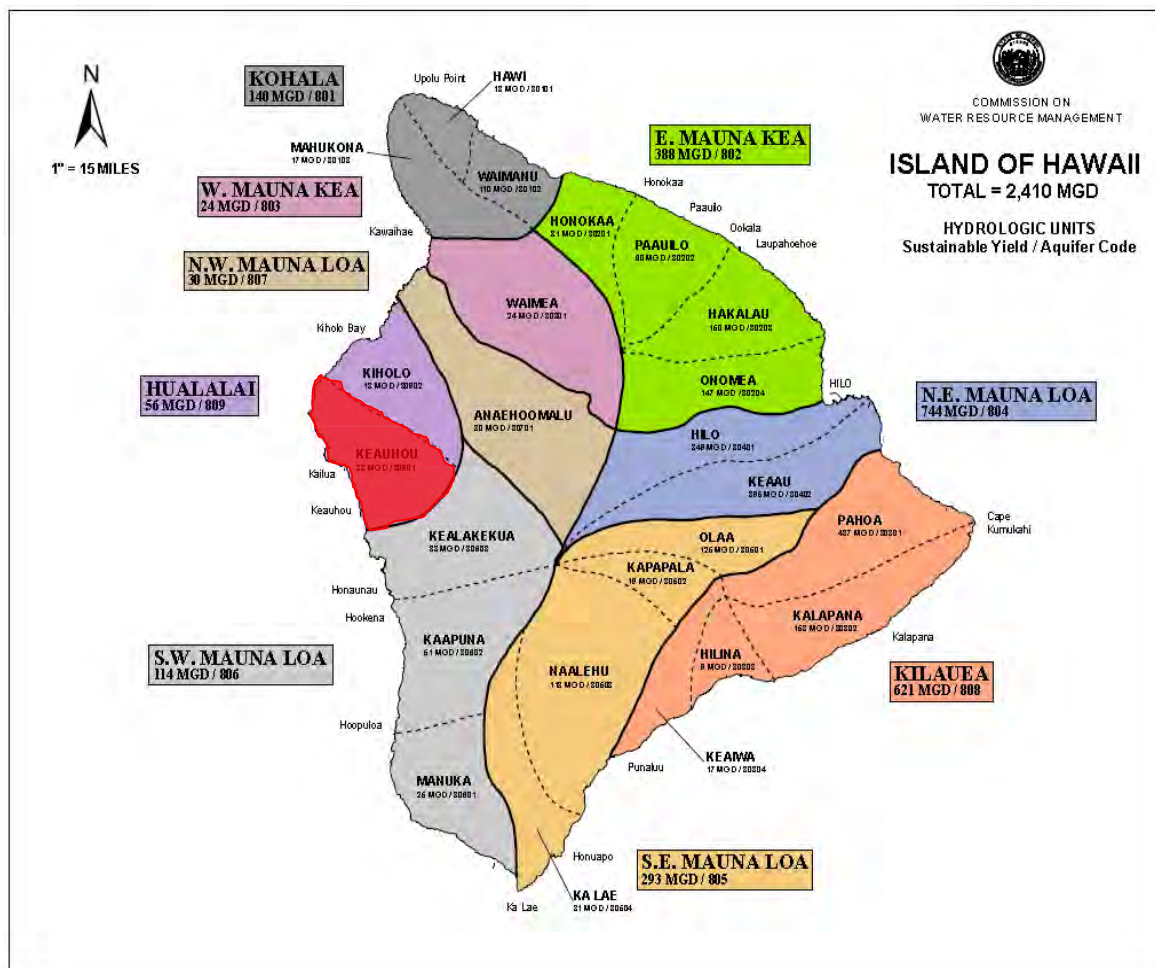
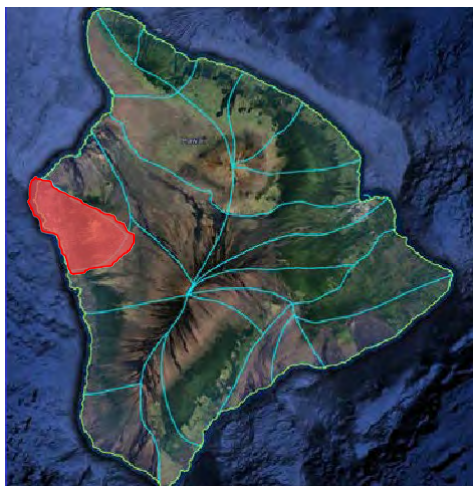


Exhibit 1 Well Location Maps



Ota Well ▶

Exhibit 1 Well Location Maps

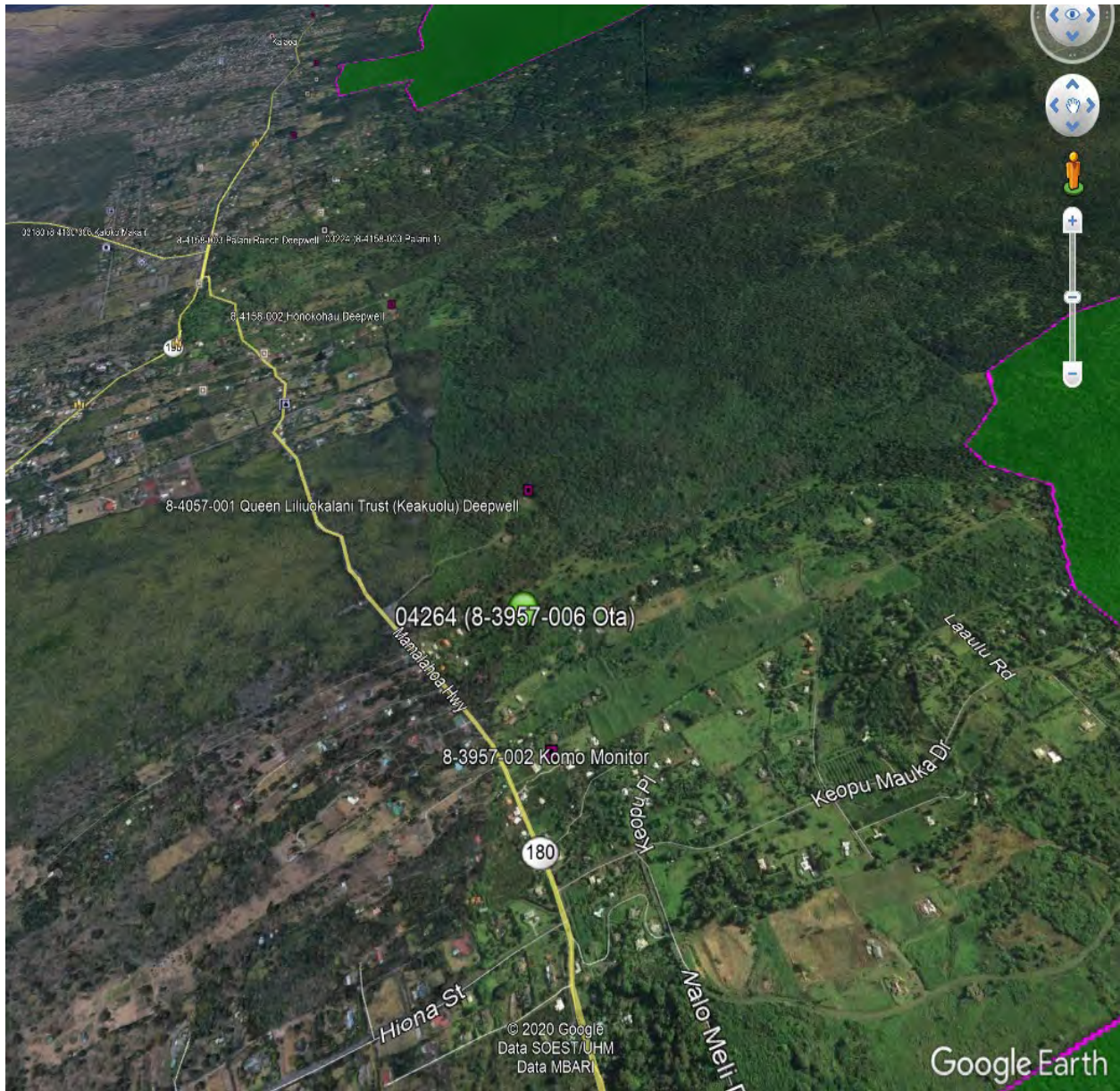


Exhibit 1 Well Location Maps

## Map



Google

Map data ©2

# 1-Mile Radius Tool

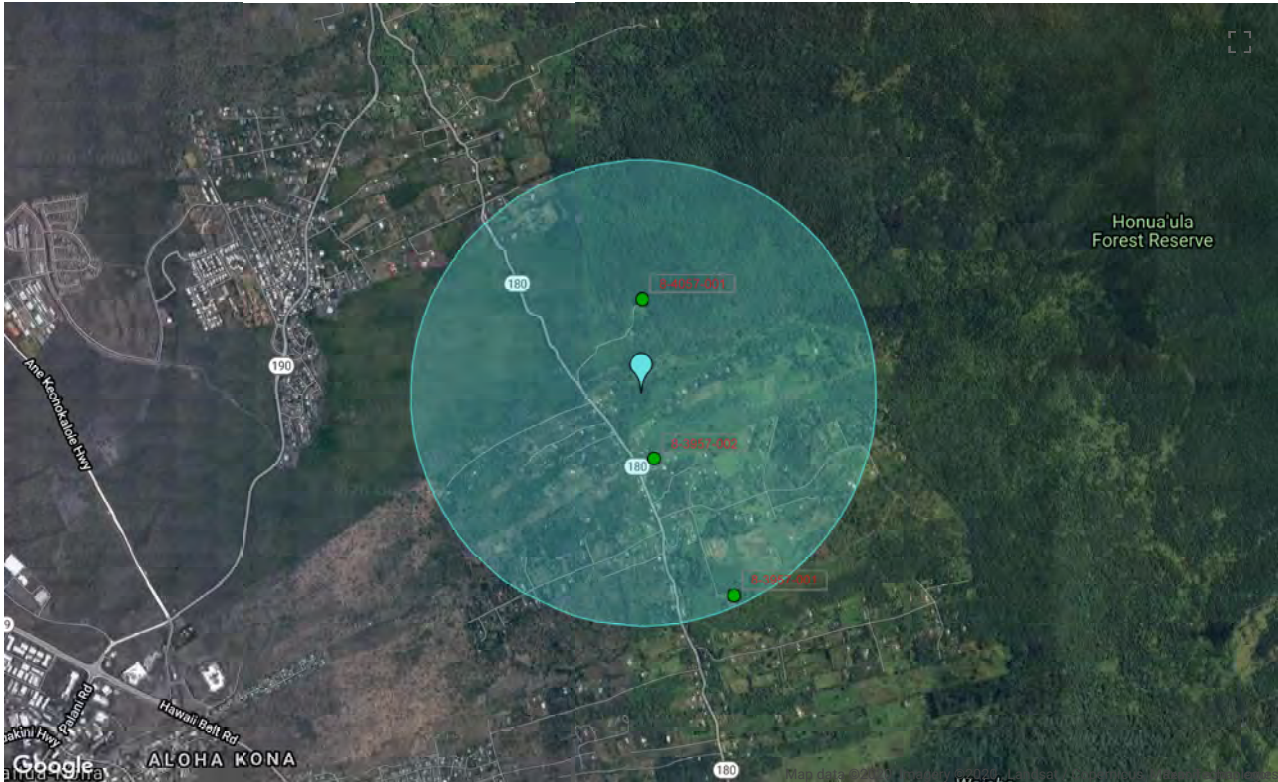
[Main Menu](#) | 
 [Contacts](#) | 
 [Well Index](#) | 
 [Well Application](#) | 
 [Water Use Permit](#) | 
 [SWIM System](#) | 
 [General Files](#) | 
 [Reports](#) | 
 [Converter](#) | 
 [Links](#) ▶

## 1-Mile Radius Tool

1. Move the blue pin or right click on the map to select a center position.
2. Click on "Go" button to find a well within the specified radius from the center position.

Latitude:  Longitude:  Radius:  mile
 Go
 Include 12-MAV

**3 wells found.**
[Download KML](#) | 
 [Download Excel](#)



3 matching results found.

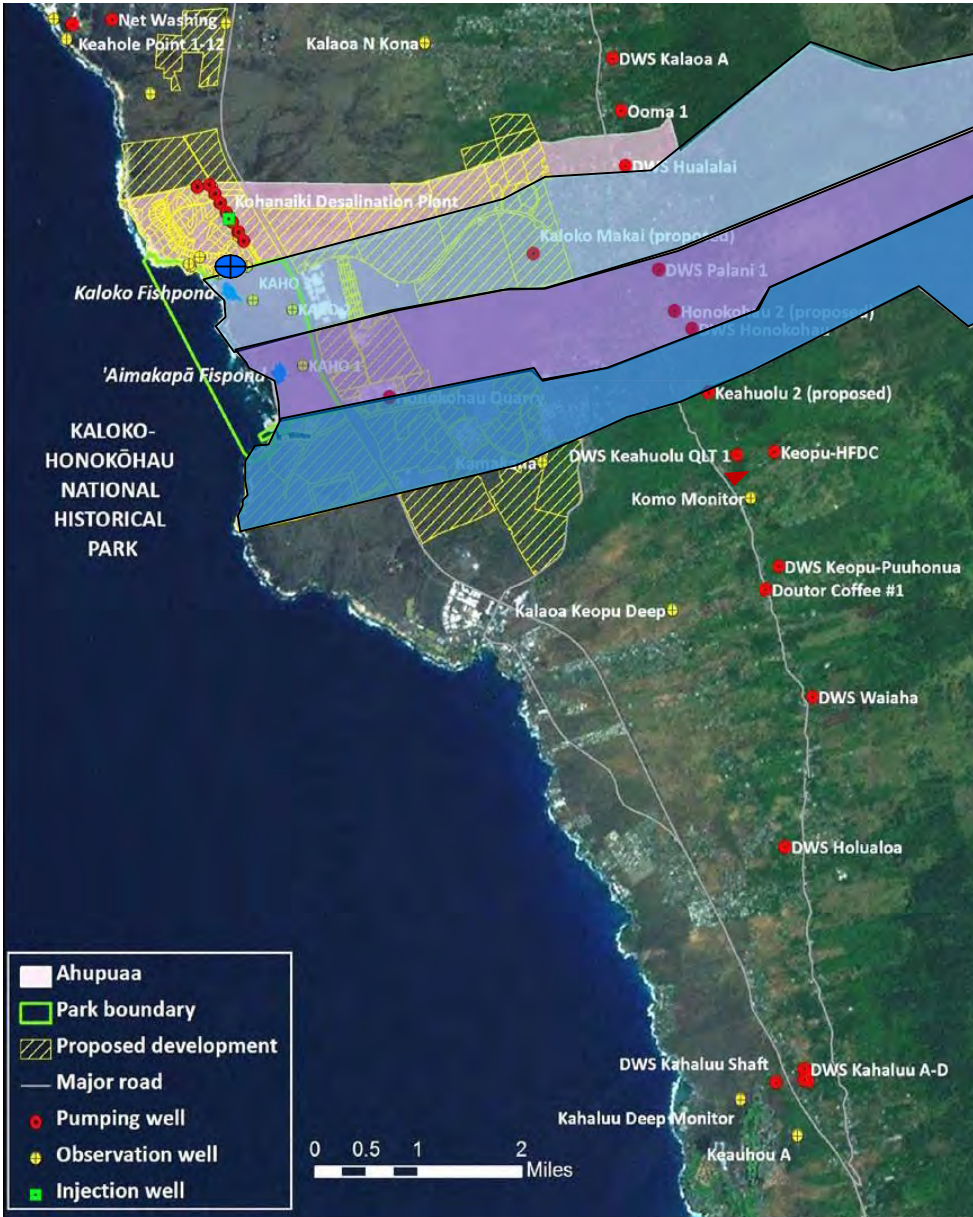
Sort By:  ▼

Well Number	Aquifer System	Well Name	Well Owner/Operator	Water Use Reporter	Land Owner	TMK	Use	Year Drilled	Latest 12-MAV	Last Reported Date	Distance (miles)
8-3957-001	80901 Keauhou	Keopu Deep	Department of Water Supply Hawaii - Hilo, HDWS	Clyde Young (Department of Water Supply Hawaii - Hilo, HDWS)	Department of Water Supply Hawaii - Hilo, HDWS	(3) 7-5-001:115	MUNCO	1993	0.796	12/31/2019	0.98
8-3957-002	80901 Keauhou	Komo Monitor	Pacific Islands Water Science Center, USGS, U.S. Geological Survey	Robert Chenet (Commission on Water Resource Management, CWRM)	State of Hawaii	(3) 7-5-001:055	OBSWL	1991			0.32
8-4057-001	80901 Keauhou	Queen Liliuokalani Trust (Keakuolu) Deepwell	Department of Water Supply Hawaii - Hilo, HDWS	Clyde Young (Department of Water Supply Hawaii - Hilo, HDWS)	Queen Liliuokalani Trust	(3) 7-4-002:006	MUNCO	1994	1.377	12/31/2019	0.37



# Ahupua'a

- Kaloko
- Honokohau 1-3
- Kealakehe



Ota Well ◀

Exhibit 1 – Well Location Maps

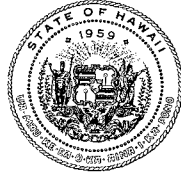


- 1) Kamakana Well (8-3959-001), is a deep saltwater well actually situated between the OTA well and NPS that can be used as a deep monitoring well.
- 2) Two (2) new deep monitor wells being installed directly mauka of the Kaloko-Honokōhau National Park -- Kaloko Monitor 8- 4161-013 and the Commission's Kaloko Deep Monitor Well 8-4159-001

Exhibit 1 – Well Location Maps

DAVID Y. IGE  
GOVERNOR  
STATE OF HAWAII

JOSH GREEN  
LT. GOVERNOR  
STATE OF HAWAII



JOBIE M. K. MASAGATANI  
CHAIRMAN  
HAWAIIAN HOMES COMMISSION

WILLIAM J. AILA, JR.  
DEPUTY TO THE CHAIRMAN

**STATE OF HAWAII  
DEPARTMENT OF HAWAIIAN HOME LANDS**

P. O. BOX 1879  
HONOLULU, HAWAII 96805

December 20, 2018

Ms. Suzanne Case, Chairperson  
Mr. Jeff Pearson, PE, Deputy Director  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, HI 96809

Dear Ms. Case and Mr. Pearson,

**Subject: Well Construction / Pump Installation Permit Review / Well  
Permit Application  
Ota Well (Well No. 8-3557-006)**

This letter is a formal review and request that conditions be placed on the proposed above referenced permits, by and on behalf the Department of Hawaiian Homes Lands. It is submitted to you as a timely response to your October 24, 2018 letter on this matter. We note that while your letter requested a response by November 23, 2018, my staff by email requested the opportunity to respond after that date but before the formal "90 day deadline" for CWRM action, which is listed in your November Water Resource Bulletin as January 16, 2019.

Below we summarize the proposed action and the legal basis for our request for conditions, and then we describe the conditions we wish to see placed on these permits. If it is the staff's recommendation to not have these conditions placed or if the applicant does not wish to have them placed, we request that approval of these permits be made by the full Commission at a regular meeting.

**Proposed action and water use**

According to information in the applicant's Permit Application and an associated Environmental Assessment, these permits are being sought for a well that is funded by, is being proposed by, and will be operated for the benefit of two parts of the state of Hawai'i (the Natural Energy Laboratory of Hawai'i [NELHA] and the Hawai'i Housing Finance and Development Corporation [HHFDC]). It is intended that the well will be dedicated and operated by another subdivision of the state of Hawai'i, the Hawai'i County Department of Water Supply.

The proposed uses of water from the first of two possible wells, expected to produce 0.672 million gallons per day (mgd), includes proposed commercial industrial uses at NELHA and a proposed commercial district and landscape buffers at the HHFDC Kamakana Villages development. In addition, a mixture of market rate and “affordable” housing is to be developed utilizing this water. The proposed well(s) would draw water from the Keauhou Aquifer System Area (KASA).

With the exception of the domestic (in house, and any gardening used for subsistence) needs of the housing component of this plan, none of the proposed uses are protected, public trust uses of water (see Kaua`i Springs, Inc. v. Planning Commission of County of Kauai, 133 Hawai`i 141, 173-75, 324 P.3d 951, 982-85 (2014) (“Kaua`i Springs”). All of the proposed commercial uses of water are, in Hawai`i law, of lower priority than public trust uses of water, which include DHHL reservations and uses.

### **Brief background and legal authority for the request**

The State and its subdivisions (including the Commission on Water Resource Management (Commission)) has a duty to protect the rights of DHHL to water resources, as enumerated in the Hawaiian Homes Commission Act (HHCA) §§ 101(4), 220, 221; Hawai`i Constitution, Article XI, §§ 1 and 7 and Article XII, § 7; and Hawaii Revised Statutes (HRS) Chapter 174C, the State Water Code.

The Water Code makes it abundantly clear that Reservations for DHHL should be made during all allocation decisions whenever legally permissible. Specifically HRS 174C-101(a) notes in part that “Decisions of the commission on water resource management relating to the planning for, regulation, management, and conservation of water resources in the State shall, to the extent applicable and consistent with other legal requirements and authority, incorporate and protect adequate reserves of water for current and foreseeable development and use of Hawaiian home lands as set forth in section 221 of the Hawaiian Homes Commission Act.” The issuance of any of the permits at issue here are clearly decisions related to the “planning for, regulation, management, and conservation of water resources” and hence must “protect” DHHL water reservations.

As you are aware, CWRM formally adopted reservations for DHHL in the KASA for 3.398 mgd on August 17, 2015. While not promulgated into rule, these reservations have equal standing to all other reservations of water for DHHL made by the CWRM. As such, it is the duty of CWRM to protect these reservations when issuing a permit such as this, particularly when they are for proposed commercial uses of water.

### Conditions sought

Considering the above discussion, DHHL seeks to have its reservations of water in the KASA, which are protected public trust uses of water, provided and accommodated in these permits. If the reservations granted by CWRM for DHHL in the KASA are to have any meaning or practical application, they cannot be merely numerically tallied until such time that water demand and development has a) utilized nearly all of the hydrologically possible and economically feasible sites for well development, and b) water use and authorized planned use approaches or exceeds 90% of the Sustainable Yield in the aquifer. Carried to its logical end, such approach would merely allow DHHL a theoretical right to withdraw water miles from its lands and at enormous cost, which would mean that there is likely no actual "wet" water to be provided to fulfill DHHL's mission.

Rather, DHHL thinks that an appropriate application of Public Trust principles to this situation would be to condition issuance of the permit to provide a proportional amount of water to DHHL in relation to the permits overall proposed consumption of the available resource. As the proposed 0.672 mgd use represents 2.69% of the current unallocated portion of the 38 mgd sustainable yield of the aquifer which is approximately 25 mgd, the permits should be conditioned on the applicant providing an equivalent percentage of the proposed yield to DHHL in the form of County water credits, following successful dedication of the well to the County. This would allocate approximately 18,077 gallons per day of the yield of this well to DHHL.

As stated above, if it is the CWRM staff's recommendation to not have these conditions placed or if the applicant does not wish to have them placed, we request that approval of these permits be made by the full Commission at a regular meeting.

If there are any questions, please contact Kaleo Manuel, Acting Planning Program Manager at (808) 620-9481 or by email at [Kaleo.L.Manuel@hawaii.gov](mailto:Kaleo.L.Manuel@hawaii.gov).

Aloha,



Jobie M. K. Masagatani, Chairman  
Hawaiian Homes Commission

DAVID Y. IGE  
GOVERNOR  
STATE OF HAWAII

JOSH GREEN  
L.T. GOVERNOR  
STATE OF HAWAII



WILLIAM J. AILA, JR.  
CHAIRMAN  
HAWAIIAN HOMES COMMISSION

TYLER I. GOMES  
DEPUTY TO THE CHAIRMAN

**STATE OF HAWAII  
DEPARTMENT OF HAWAIIAN HOME LANDS**

P. O. BOX 1879  
HONOLULU, HAWAII 96805

August 14, 2020

Ref.No.:PO-20-198

The Honorable Ms. Suzanne Case, Chairperson  
Mr. Kaleo Manuel, Deputy Director  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, HI 96809

Dear Ms. Case and Mr. Manuel,

**Subject: Well Construction / Pump Installation Permit Review / Well Permit Application  
Ota Well (Well No. 8-3557-006)**

This is a follow-up letter to the previous Department of Hawaiian Home Lands (DHHL) comment letter to CWRM dated December 20, 2018 (Enclosed) regarding the above subject matter. In that letter, DHHL raised the following concerns and subsequent request related to the Ota Well Construction / Pump Installation Permit:

**Concerns**

1. With the exception of the domestic needs of the housing component of this plan (in house, and any gardening used for subsistence), none of the proposed uses of water from the Ota Well under this permit are protected, public trust uses of water (see Kaua'i Springs, Inc. v. Planning Commission of County of Kaua'i, 133 Hawai'i 141, 173-75, 324 P.3d 951, 982-85 (2014) ("Kaua'i Springs"). All of the proposed commercial uses of water are, in Hawai'i law, of lower priority than public trust uses of water, which include DHHL Reservations and uses.
2. The Water Code makes it abundantly clear that Reservations for DHHL should be made during all allocation decisions whenever legally permissible. (HRS 174C-101(a))
3. The issuance of any permits related to the Ota Well are clearly decisions related to the "planning for, regulation, management, and conservation of water resources" and hence must "protect" DHHL water reservations.

The Honorable Ms. Suzanne Case  
Mr. Kaleo Manuel  
August 14, 2020  
Page 2

**Request**

4. The permit application proposes 0.672 mgd use of water from the Ota Well which represents 2.69% of the current unallocated portion of the 38 mgd sustainable yield of the aquifer which is approximately 25 mgd, the permits should be conditioned on the applicant providing an equivalent percentage of the proposed yield to DHHL in the form of County water credits, following successful dedication of the well to the County. *This would allocate approximately 18,077 gallons per day of the yield of this well to DHHL.*

The parties to the Well Installation Permit Application, Natural Energy Lab of Hawai'i (NELHA) and the Hawai'i Housing and Finance and Development Corporation (HHFDC), have been working with DHHL towards a Memorandum of Understanding (MOU). Once fully executed, the terms and conditions outlined in the MOU amongst the parties would address the concerns and request raised by DHHL in its December 20, 2018 comment letter to CWRM.

The MOU recognizes the State's constitutional obligation to faithfully carry out the Hawaiian Homes Commission Act and DHHL's rights to water under the State Water Code. As such, both NELHA and HHFDC have agreed to allocate water credits for 30.13 equivalent units to DHHL, based upon 600 gallons per day of maximum-day demand per equivalent units following successful dedication of the well to DWS. DHHL appreciates the willingness of NELHA and HHFDC to acknowledge DHHL's rights to water and address DHHL's concerns related to the Ota Well Construction / Pump Installation Permit.

As such, DHHL is supportive of CWRM's approval of the Well Construction / Pump Installation Permit for the Ota Well, contingent upon the full execution of the three-party MOU that is described above. If there are any questions, please contact Andrew H. Choy, Acting Planning Program Manager at (808)620-9481 or by email at [andrew.h.choy@hawaii.gov](mailto:andrew.h.choy@hawaii.gov).

Aloha,



William J. Ailā, Jr., Chairman  
Hawaiian Homes Commission

Enclosure (DHHL December 20, 2018 letter to CWRM)



National Park Service  
U.S. Department of the Interior

Kaloko-Honokōhau  
National Historical Park

73-4786 Kanalani Street # 14  
Kailua-Kona, Hawai'i 96740

808 329-6881 Phone  
808 329-2597 Fax

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## Kaloko-Honokōhau

IN REPLY REFER TO:  
L54 (2018-7)

December 20, 2018

Suzanne Case, Chairperson  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, HI 96809

Subject: Well Construction/Pump Installation Permit Review, Ota Well (Well No. 8-3957-006)

Dear Chairperson Case,

Thank you for the opportunity to comment on the above referenced permit application. The applicant is proposing to withdraw 672,000 gallons per day of groundwater at the site of the proposed Ota Well, which is located about four miles from Kaloko-Honokōhau National Historical Park. The National Park Service (NPS) is requesting that the Pump Installation Permit Application for the Ota Well (Well No. 8-3957-006) be referred to the State of Hawai'i Commission on Water Resource Management (Commission) for decision making. The following describes the basis for this request.

### *Water Resources Protection Plan Update*

On February 14, 2017, the Commission approved the Chairperson's recommendation to deny the NPS petition to designate the Keauhou Aquifer System Area as a Water Management Area and directed its staff to further investigate the science of coastal leakage impacts for consideration in setting or adjusting sustainable yields in the upcoming Water Resource Protection Plan Update.

The Water Resource Protection Plan 2019 Update Public Review Draft recognizes that sustainable yield does not explicitly provide water for groundwater-dependent ecosystems and recommends a pilot program to develop an "adaptive management plan" for these resources in Kaloko-Honokōhau National Historical Park. As of the date of this letter, an adaptive management plan for groundwater-dependent ecosystems in the Park has not been developed by Commission staff.

### *Water Use and Development Plan Update*

On February 14, 2017, the Commission also directed its staff to closely monitor the Keauhou Aquifer to protect and ensure the health of the aquifer and all public trust uses therein in

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accordance with eight actions. Action item seven encourages implementation of the Hawai'i County 2017 Water Use and Development Plan Update for the Keauhou Aquifer to guide the location of future production wells.

The Hawai'i County 2017 Water Use and Development Plan Update for the Keauhou Aquifer has not been formally adopted by the Hawaii County Council or the Commission. On September 19, 2017, the Hawaii County Council Committee on Agriculture, Water and Energy Sustainability postponed Bill 65 to adopt the 2017 Water Use and Development Plan Update to allow time to address concerns from the community, including concerns regarding the protection of Native Hawaiian traditional and customary practices that rely upon groundwater.

### *Environmental Assessment for the Ota Well Project*

The Final Environmental Assessment for the Ota Well Project was published on November 23, 2018. This document considers the production of up to 2 million gallons per day (Mgal/d) of groundwater from two proposed wells.

However, the Final Environmental Assessment for the Ota Well Project does not evaluate the effects of the proposed withdrawals on groundwater discharge to groundwater-dependent ecosystems and the Native Hawaiian traditional and customary practices they support because the applicant has speculated that groundwater in the area of the proposed Ota Well Project discharges "far offshore." No changes were made to the Draft Environmental Assessment by the applicant in response to comments from the NPS (letter dated September 17, 2018) and the Commission (memo dated September 19, 2018), which noted that this opinion lacks any basis in evidence and is at the very least subject to debate.

Analysis of the effects of withdrawing an additional 2 Mgal/d of groundwater at this site is essential because the maintenance of waters in their natural state and the exercise of Native Hawaiian traditional and customary rights are considered public trust uses of water under the Hawai'i State Water Code.

The results of groundwater modeling presented by the U.S. Geological Survey to the Commission on April 17, 2018 indicate that additional pumping in the area of the proposed Ota Well could increase salinity and reduce freshwater discharge in the Park.

At the same time, groundwater may already be over-allocated in the area of the Park. According to the Commission, the sustainable yield for the Keauhou Aquifer System Area is intended to account for 44% of natural recharge so that 56% of recharge continues to discharge along the coast (Staff Submittal dated February 14, 2017). Unfortunately, the Commission's monthly pumping data indicates that reported groundwater withdrawals routinely exceeds 44% of natural discharge in the area of the Park (see attached figure).

### *Well Construction/Pump Installation Permit Process*

On February 14, 2017, the Commission stated the following regarding its ability to protect public trust resources through its Well Construction/Pump Installation Permit process:

*“Besides designation, the Commission seeks to protect public trust uses through its well construction and pump installation permitting processes under Hawaii Revised Statute (HRS) §174C-84 and Hawaii Administrative Rules (HAR) §13-168-11 to -16. These permits are to be issued only if the proposed construction complies with all applicable laws, rules, and standards. The assessment and mitigation of impacts, if found, to traditional and customary practices is a matter of law and applies to all permits issued by agencies. Further, well construction and or pump installation application can be referred to the Commission on Water Resource Management (CWRM) for decision making” (Staff Submittal dated February 14, 2017).*

Based upon the circumstances described here, the NPS is requesting that the Pump Installation Permit for the Ota Well (Well No. 8-3957-006) be referred to the Commission for decision making and reserves the right to request a contested case hearing in this manner, pursuant to Hawaii Revised Statutes (HRS) §174C-10.

The NPS is also willing to meet with the applicant and/or Commission staff prior to any public meeting or hearing to discuss the grounds for this request. In addition, the NPS is willing to forgo a hearing on this permit application if the Commission imposes a condition that no withdrawals of groundwater can be made under the approved Pump Installation Permit for the Ota Well until a plan is approved by the Commission to reduce the amount of groundwater that has been permitted for withdrawal in the area of the Park.

More specifically, the NPS is requesting that the Commission condition the approval of the Pump Installation Permit for the Ota Well upon the development of a plan to reallocate groundwater withdrawals from wells within the ahupua‘a of Kohanaiki, Kaloko, Honokohau, and Kealakehe in a manner that reduces actual withdrawals in this area to less than 2.85 Mgal/d (or 44% of 6.48 Mgal/d).

If you have any questions or would like to discuss the matter further, please contact Dr. Paula Cutillo of my staff at 970-225-3537 or paula\_cutillo@nps.gov.

Sincerely,

**WILLIAM THOMPSON**  
Digitally signed by WILLIAM THOMPSON  
Date: 2018.12.20 13:40:30 -10'00'

Bill Thompson, Superintendent

Attachment: Figure 1

cc: (email) Suzanne Case, Chairperson, Commission on Water Resource Management  
(email) Alex Leonard, Natural Energy Laboratory of Hawai‘i Authority

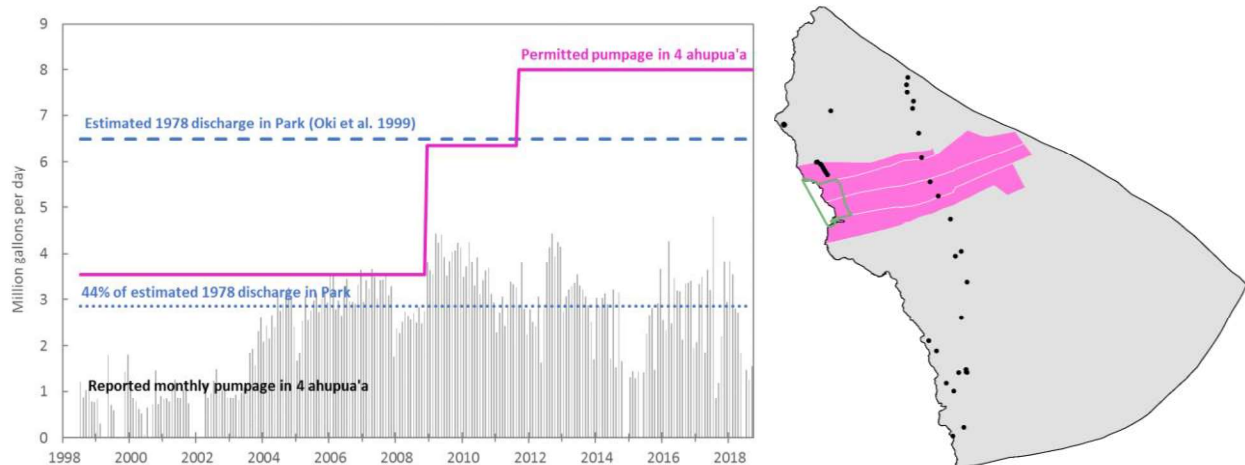


Figure 1. The object on the right shows existing pumping wells (black circles) within the Keauhou Aquifer System Area, and the location of Kaloko-Honokōhau National Historical Park (green line) within the coastal portion of the Kohalaiki, Kaloko, Honokohau, and Kealakehe ahupua'a (pink shaded area). The chart on the left compares permitted and reported groundwater withdrawals over time within these four historic land divisions to the estimated 1978 rate of groundwater discharge in the Park. U.S. Geological Survey Water Resources Investigations Report 99-4070 estimated that about 6.48 Mgal/d of freshwater discharged in the Park in 1978 (Oki et al. 1999). The Commission's methodology for determining the sustainable yield of the Keauhou Aquifer assumes that the rate of groundwater discharge equals the rate of groundwater recharge under pre-development conditions and limits withdrawals to 44% of this rate. Forty-four percent of the pre-development rate of recharge/discharge is about 2.85 Mgal/d. Permitted and reported withdrawals within the four ahupua'a exceed 2.85 Mgal/d when all wells are operational. So, the NPS is requesting that groundwater withdrawals be reallocated from wells within the four ahupua'a to wells outside of this area as a condition for the approval of the Pump Installation Permit for the proposed Ota Well (Well No. 8-3957-006).



# United States Department of the Interior



NATIONAL PARK SERVICE  
Kaloko-Honokōhau National Historical Park  
73-4786 Kanalani Street, # 14  
Kailua-Kona, Hawai'i 96740

IN REPLY REFER TO:  
L7621 (2021-2)

ELECTRONIC TRANSMISSION ONLY – NO HARD COPY TO FOLLOW

February 18, 2021

Mr. Kaleo Manuel, Deputy Director  
Commission on Water Resources Management  
Department of Land and Natural Resources  
P.O. Box 621  
Honolulu, Hawai'i 96809

Dear Deputy Director Manuel:

This letter is in reply to the proposed mitigative measures that were shared and discussed at our meeting on January 29, 2021, regarding the proposed Ota Well (Well No. 8-3957-006), which is located about 4 miles from Kaloko-Honokōhau National Historical Park. The National Park Service (NPS) appreciates that the Commission on Water Resource Management (CWRM) is open to discussing the need for measures to protect the groundwater dependent resources along the Kona coast, including the resources within the Park. As set out below, however, the NPS does not believe that the proposed measures will help avoid negative impacts from the proposed well, nor directly mitigate impacts.

Before we share our response to the mitigative measures, we also note that the NPS does not believe the proponents of the Ota Well have met their affirmative duty to show that the project will not have a significant negative impact on the groundwater dependent resources at the coast. Indeed NELHA has recently stated to you in a letter of January 26, 2021, that they do not even believe the impact on the coast needed to be analyzed (“it is our position that the EA is not required to include the Lanihau shoreline in the area of potential effect of the proposed well and as such an analysis of fishing practices in the region is beyond the required scope of the EA.”).

As you and the Commission staff know, the project proponent must supply reliable data so that the Commission can meet its duty to protect public trust resources. The NPS believes that the project proponent has not shown that its project, either directly, or when combined with the cumulative impacts from other water withdrawals, will not harm the resources within the Park or along the coast.

## **NPS Responses to the Proposed Mitigative Measures**

### Measure A. “Symposium 2”

The NPS would be supportive of this symposium, since the collection and discussion of any additional information regarding the impacts of reduced flows of groundwater may be helpful. A symposium, however, does not itself mitigate impacts. We also note this proposed measure mentioned a “CWRM adaptive management plan”, however recent CWRM staff communications responding to a draft from the NPS indicated the CWRM staff no longer believed an adaptive management plan was necessary.

The NPS would suggest that any symposium be also expanded to include discussions on ways to meet the water needs of West Hawai‘i without increasing pumping beyond the proposed conditions presented by the NPS.

### Measure B. “Pump Tests”

Like the symposium, the NPS is supportive of conducting pump tests (which are already required), but we similarly note they would not themselves be mitigative. Even as stated in the proposed measure, the pump tests would generate more data (which is always a positive thing) but would not actually mitigate any impacts. Although current CWRM requirements for pump tests—a minimum of 96-hour (4-day) tests on municipal wells—may help to understand effects on nearby wells, such tests may not be sufficient to quantify connections between the high-level and basal aquifers, and may therefore produce “false negatives” related to hydraulic connection between the two. Moreover, numerical groundwater modeling by the U.S. Geological Survey’s Pacific Islands Water Science Center indicates that a short-term test on the order of days at the Ota Well site would not be sufficient to quantify impacts to water levels or salinity at locations as distant as NPS monitoring wells or other locations on the coast.

### Measure C. “Monitoring Plan”

The NPS supports additional isotopic work, and even an artificial dye trace, assuming the studies could be designed and conducted in a mutually agreed upon manner; more data that is reliable is always better. However, while ongoing research to indicate the level of connection between high-level wells and the basal aquifer, or the impacts to nearby or distant wells, is useful, monitoring is not mitigation. More importantly, if the Commission is basing its decisions on the belief or assumption that there is no connection between the Ota well and the basal aquifer (as suggested by the proponents and which the NPS disagrees with), it raises concerns over the existing scheme of managing the entire aquifer as if it were a basal aquifer. Current Sustainable Yield rates assume a single body of basal groundwater. Approving projects based such an

assumption (or based on the idea of collecting data after the fact) inverts the duty of the project proponent to show that its project will not have significant negative impacts.

#### Measure D. “NPS Recommended Conditions”

The NPS has supported approval of permits for the Ota Well at the requested withdrawal rate, providing that Special Conditions be placed on the well permit limiting withdrawal from the four ahupua`a surrounding the park to current conditions in 2014 (2.7 mgd combined average pumpage as reported by CWRM), if and when the wells are accepted by the Hawai`i County Department of Water Supply.

The year 2014 was the period selected as these were the current conditions at the time CWRM requested an estimated amount the park needed to maintain its freshwater resources<sup>1 2</sup>. This proposed rate is would allow for increased and responsible distribution of withdrawals so that demands are met while resources are protected.

We further share that published studies on groundwater ages, including three basal groundwater monitoring wells in the park (KAHO 1-3), indicate that recharge at these sites is occurring at elevations between approximately 300-1200 meters, and that aquifer residence time between recharge and sampling points for most (77-93 percent) groundwater is approximately 18-22 years<sup>3</sup>. These residence times indicate that the current conditions NPS observed in 2014 were not a result of 2014 pumping levels but rather those from earlier (and lesser) pumping levels, and that current pumping impacts may not have fully manifested at park monitoring locations.

Monitoring salinity for threshold values based on resource requirements, and reducing pumping temporarily until acceptable levels are achieved is an unsatisfying approach for all parties:

- The Park’s groundwater dependent ecosystems are already at their salinity thresholds. Observing these thresholds have been exceeded would be too late, as groundwater flow patterns do not allow for impacts from increased salinity to stop propagating once pumping upgradient is reduced.
- It is our understanding that it is inefficient from a water supply perspective to be continuously varying the production of wells based on downgradient water quality conditions; operators want consistency and reliability; this approach is also likely to increase maintenance and repair times on pumps.

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<sup>1</sup> Response to the Commission on Water Resource Management Request for Information on Traditional and Customary Practices (available at: <https://irma.nps.gov/DataStore/DownloadFile/545799>)

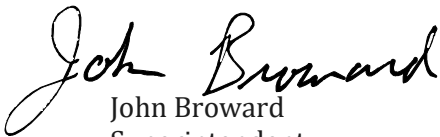
<sup>2</sup> Response to the Commission on Water Resource Management Request for Specific Information on the Quantity of Water Needed to Support Natural and Cultural Resources in Kaloko-Honokōhau National Historical Park (available at: <https://irma.nps.gov/DataStore/DownloadFile/545800>)

<sup>3</sup> Kelly, J.L., and Glenn, C.R., 2015, Chlorofluorocarbon apparent ages of groundwaters from west Hawaii, USA, *Journal of Hydrology*, 527 (2015), p. 355-366.

Finally, we note in response to statements that the Department of Water Supply cannot accept restricted pumping, there was a long period when pumping was reduced in the four ahupua`a and the Palani Ranch Deepwell was not operating. However, the larger water system remained able to provide water with conservation measures in place. Understanding how withdrawals in the area were redistributed during this time would help to evaluate how the proposed conditions from the NPS could be implemented and could be part of the symposium discussion as noted above.

Once again, the NPS deeply appreciates that the Commission is open to discussing the need for measures to protect the groundwater dependent resources along the Kona coast, including the resources within the Park. We look forward to working with you and other parties on this important endeavor. If you have any question about this letter, please contact Dr. Jeff Zimpfer of my staff (808 329 6881 ex 1500, or [jeff\\_zimpfer@nps.gov](mailto:jeff_zimpfer@nps.gov)).

Sincerely,

A handwritten signature in black ink that reads "John Broward". The signature is written in a cursive, flowing style.

John Broward  
Superintendent  
Kaloko-Honokōhau NHP



# United States Department of the Interior



NATIONAL PARK SERVICE  
Kaloko-Honokōhau National Historical Park  
73-4786 Kanalani Street, # 14  
Kailua-Kona, Hawai'i 96740

IN REPLY REFER TO:  
L7621 (2021-3)

March 23, 2021

M. Kaleo Manuel, Deputy Director  
State of Hawai'i Department of Land and Natural Resources  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, Hawai'i 96809

Dear Deputy Director Manuel:

In an email dated February 19, 2021, you proposed an agenda for a March 19, 2021 meeting of parties interested in the Ota Well (Well No. 8-3957-006), and stated that you wished to discuss:

*“A review of a staff draft submittal to Commission to proceed with action on the Well Construction Permit, with mitigation measures/special conditions as proposed. We will wait for language from NPS to incorporate that would provide some assurance of meeting those special conditions prior to any action or issuance of the Pump Installation Permit.”*

This letter is the National Park Service's (NPS) response to the request for language to meet the purpose of the special conditions prior to any action or issuance of a Pump Installation Permit for the Ota Well.

## Background

The NPS has requested (letter dated October 19, 2020) that the following conditions be included in the Well Construction and Pump Installation Permits for the Ota Well:

1. The approval of this permit is contingent upon the permittee, well operator, and well owner's written acceptance of the Special Conditions.
2. If the subject well is accepted by the Hawai'i County Department of Water Supply, the 12-month moving average of total combined groundwater withdrawals in the *ahupua'a* of Kohanaiki, Kaloko, Honokōhau, and Kealakehe shall not exceed 2.7 million gallons per day<sup>1</sup>.
3. Non-compliance with the Special Conditions may be grounds for revocation of the permit, removal of the pump, cessation of pumpage, sanctions, penalties [per HAR § 13-

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<sup>1</sup> The rate of 2.7 million gallons per day was estimated by NPS to be the 2014 total combined average pumpage from wells within the four *ahupua'a* based upon reported pumpage data provided by CWRM staff to NPS via email on 7/10/2018.



168-3], initiation of Ground Water Management Area designation proceedings for the Keauhou Aquifer System Area by the Chairperson [per HRS §174C-41(b)], or any combination thereof.

In response to these three proposed conditions, Commission on Water Resources Management (CWRM) staff responded to Condition 2 only, and suggested in a document titled “Proposed Mitigative Measures” (dated January 29, 2021) “*Because this recommended condition is tied to the potential acceptance of this well by HDWS into their system and is related to pumpage, this would be more appropriately tied to the pump installation permit and well certificate.*” It is with this approach that the CWRM now proposes that a Well Construction Permit be issued to drill, construct, and test the proposed Ota Well, but with assurances that mitigative conditions would be met or imposed prior to issuance of a Pump Installation Permit and Well Certificate.

### NPS concerns

The Special Conditions proposed by the NPS are designed to help protect the resources within Kaloko-Honokōhau National Historical Park (Park). If all three proposed NPS Special Conditions are not part of the Well Construction Permit, it is not clear or certain that the operation of the Ota Well will be subject to these conditions, or other needed conditions. Specifically, it is not unlikely that prior to the Pump Installation Permit and Well Certificate being issued, proponents will object to any conditions, including (perhaps especially) the NPS Special Conditions. The possibility of this outcome will only increase once the well has been constructed and tested and has been shown to be a potentially reliable source of water.

As the NPS has previously suggested (NPS letter to CWRM on February 18, 2021), other proposed “mitigative measures” such as convening a symposium and conducting pump tests, while worthwhile, do not actually mitigate potential negative impacts nor do they demonstrate that the Ota Well will not negatively impact, either directly or as part of the cumulative impacts of water withdrawals, the groundwater-dependent ecosystems within the Park and along the north Kona coast.

### Conditions that would help assure the NPS

The NPS maintains that the proposed NPS Special Conditions 1-3 above should be enforceable terms in both the Well Construction and Pump Installation permits for the Ota Well. Short of this, however, the following conditions in a stand-alone Well Construction Permit would help assure the NPS that the resources within the Park are protected::

- In lieu of a hearing under HRS 174C-9 and HRS 91-9 to determine if the Pump Installation Permit and Well Certificate should be issued, include NPS Special Conditions 1-3 as terms of the Pump Installation Permit and Well Certificate, and that would be applicable to any transfer or other assignment of the Ota Well and its appurtenances to the County DWS,.
- If the CWRM does not include NPS Special Conditions in advance, after the issuance of the Well Construction Permit but prior to a) the issuance of a Pump Installation Permit, a

Well Certificate, and any transfer or other assignment of the Ota Well and its appurtenances to the County DWS, the CWRM shall hold a hearing as required under HRS 174C-9 and HRS 91-9 to determine if the Pump Installation Permit, Well Certificate should be issued, and if so, with what conditions.

Include in the Well Construction Permit, that the permittee shall meet the conditions listed below (as proposed in the January 29, 2021 CWRM Proposed Mitigative Measures) and that the parties shall meet quarterly to update each other on progress implementing such “Mitigative Measures”:

- Evaluate impacts to other adjacent high-level wells from pumping the Ota Well
- Identify what reduction in water levels is considered unacceptable in adjacent wells
- Quantify the connection between the high-level and basal aquifers near the Ota Well
- Determine if the current USGS groundwater model can be utilized or modified to determine the effects of operating the Ota Well beyond the time period of the pump test
- Conduct a tracer/isotope study to assist in determining groundwater flow paths and travel times
- Review and present data collected through the NELHA Comprehensive Water Quality Monitoring Program (CEMP)
- Expand the CEMP if necessary, based on the results of this analysis

Finally, the NPS response relates only to the issuance of the Well Construction Permit application currently before the Commission (dated August 13, 2018). This application was filed for the construction of a single well with a proposed withdrawal rate of 672,000 gallons per day. Any increased production capacity and/or additional wells, as described in the Final Environmental Assessment of the Ota Well project (dated October 31, 2018) shall be applied for and evaluated separately from this process which is limited to the current well permit applications.

We look forward to continuing to work with the Commission, Staff, and stakeholders on solutions to ensure the demands for fresh water in North Kona are met, while maintaining the sustainability of groundwater resources and the protection of groundwater-dependent ecosystems. If you have any question about this letter, please contact Dr. Jeff Zimpfer of my staff (808 329 6881 ex 1500, or [jeff\\_zimpfer@nps.gov](mailto:jeff_zimpfer@nps.gov)).

Sincerely,

**JOHN  
BROWARD**

Digitally signed by JOHN  
BROWARD  
Date: 2021.03.23 15:20:02 -10'00'

John Broward  
Superintendent  
Kaloko-Honokōhau NHP



DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII

345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAII 96720

TELEPHONE (808) 961-8050 • FAX (808) 961-8657

March 8, 2019

RECEIVED  
COMMISSION ON WATER  
RESOURCE MANAGEMENT  
2019 MAR 13 AM 11:22

Mr. Kaleo Manuel, Deputy Director  
State of Hawai'i  
Department of Land and Natural Resources  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, HI 96809

Dear Mr. Manuel:

**Subject: Well Permit Application, Ota Well, State Well No. 8-3957-006  
Tax Map Key (3) 7-5-001:165, Keauhou, Island of Hawai'i**

The subject well, if tested successfully for quality and quantity, is intended to be outfitted along with the construction of other necessary infrastructure improvements and dedicated to the Department of Water Supply (DWS). There have been preliminary meetings regarding the potential developments by the Natural Energy Laboratory of Hawai'i Authority (NELHA); however, there is no formal agreement regarding the proposed water demands and/or timelines for the completion of the well and/or their development(s). It is anticipated that until they can successfully test the well and determine the available quantity, they will not be able to provide assurances of their water needs and necessary infrastructure requirements.

Subject to the successful testing of the exploratory well and subsequent completion of the production well and other infrastructure improvements, it is the intent that a portion of the well's capacity would be able to support the overall high-level, high-quality sources for the North Kona water system and be an integral part of reducing DWS' dependency on the basal sources as outlined in our Water Use and Development Plan update for the Keauhou Aquifer.

On the contrary, should the well be unsuccessful, NELHA will need to address their current and future developments as well as their water demands at that time.

Should you have any questions, please call Mr. Kurt Inaba of our staff at 961-8070, extension 238.

Sincerely yours,

Keith K. Okamoto, P.E.  
Manager-Chief Engineer

KYI:dmj

*... Water, Our Most Precious Resource ... Ka Wai A Kāne ...*

The Department of Water Supply is an Equal Opportunity provider and employer.

Exhibit 4 Hawaii DWS March 2019 Letter

**From:** [DLNR.CW.DLNCWRM](mailto:DLNR.CW.DLNCWRM)  
**To:** [Hardy, Roy](mailto:Hardy.Roy)  
**Subject:** FW: Comments about the OTA Wells  
**Date:** Tuesday, September 25, 2018 1:02:58 PM

---

FYA.

**From:** Megan Lamson <mehana.consulting@gmail.com>  
**Sent:** Monday, September 24, 2018 1:28 PM  
**To:** Leonard, Alexander <alexander.leonard@hawaii.gov>  
**Cc:** makena@psi-hi.com; DLNR.CW.DLNCWRM <dlncwr@hawaii.gov>  
**Subject:** Comments about the OTA Wells

Alexander Leonard / NELHA  
73-4460 Queen Kaahumanu Highway, No. 101  
Kailua-Kona, HI 96740-2637

Dear Mr. Leonard,

It has come to my recent attention that the proposed Ota Wells at NELHA will likely threaten some of the native habitats (wetlands, estuaries, anchialine pools, nearshore coral reefs), their constituent native species that utilize these systems (e.g., resident and protected: migratory shorebirds, waterbirds, endemic and listed damselflies, anchialine pool shrimp, small jack fishes and other species that are found to use brackish estuaries and embayments as nursery site habitat), and potentially even access to cultural resources along this historic coastline.

I understand that a draft EA was conducted to address this proposal of two deep wells, and a finding of no significance impact was determined. **I would like to state for the record that an EA is not the proper choice for this large-scale proposal and that an EIS should be conducted.** Freshwater is a public trust resource in Hawai'i and must be treated with the utmost respect. The proposed LARGE quantities of freshwater draw-downs from the Keauhou aquifer has the potential to do more harm than good, and all potential issues and alternatives should be considered. I should hope that in your judgement and review of this EA, you are willing to consider all the variables and natural / cultural resource impacts along with more potential alternatives (in site selection, use pattern, water re-use options, other mitigation activities to reduce impact).

Please keep me informed about this process and the steps you plan to take to address the concerns of adjacent landowners, such as the National Park Service, businesses, and residents alike.

Mahalo for your time and consideration.

Me ke aloha,  
*Megan Lamson*

cc: DLNR Commission on Water Resource Management; Planning Solutions, Inc.

--

<''))<< <\*))<< <''))<< >>((( \*> <''))<<

**Megan R. Lamson Leatherman, M.S.**

& MEHANA CONSULTING

[mehana.consulting@gmail.com](mailto:mehana.consulting@gmail.com)

<http://mehanaconsulting.weebly.com>

Post Office Box 1127

KEALAKEKUA, HI 96750

@meganlamson

cell 808/217-5777

**From:** [Janice Glennie](#)  
**To:** [Case, Suzanne D](#)  
**Cc:** [william\\_thompson@nps.gov](mailto:william_thompson@nps.gov); [Leonard, Alexander](#); [Hardy, Roy](#); [Komori, Queenie K](#)  
**Subject:** Ota Well permit (Well No. 8-3957- 006)  
**Date:** Monday, December 31, 2018 11:14:39 AM

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December 30, 2018

Aloha Chairwoman Case,

Our group's goal is to enjoy and protect our oceans. That's why we're writing to ask that more review be given to the proposed Ota Well permit (Well No. 8-3957- 006).

Our group has followed the Keauhou Aquifer System Area proposal and hearings closely, and we testified in support of designation on several occasions. It was deeply disappointing that protective designation was not given to this critical aquifer, not just for the park's mandate to protect its natural and cultural resources, but for the protection of the coastline for the benefit of the entire community and ocean ecosystems. It appears that the proposal to drill the Ota Well would potentially skirt designation-like protections as well as others necessary to protect the cultural and natural resources of Kaloko-Honokohau Park and beyond.

Without elaboration, our group strongly supports the National Park Service in its request that this proposal be referred to the State of Hawai'i Commission on Water Resource Management (Commission) for further discussion and decision making for the reasons they expressed in their testimony to you.

We appreciate this opportunity to provide input on this matter which is essential for the long-term well-being of our region and its natural resources.

Sincerely,  
Janice Palma-Glennie  
For the Kona Kai Ea Chapter of  
The Surfrider Foundation

MEMORANDUM OF UNDERSTANDING  
DHHL ALLOCATION FROM OTA WELL

THIS MEMORANDUM OF UNDERSTANDING, effective as of October 14, 2020, made by and between the HAWAII HOUSING FINANCE AND DEVELOPMENT CORPORATION, a public body and a body corporate and politic of the State of Hawaii ("HHFDC"), doing business at 677 Queen Street, Suite 300, Honolulu, Hawaii, 96813, the NATURAL ENERGY LABORATORY OF HAWAII ("NELHA"), doing business at 73-987 Makako Bay Drive, Kailua Kona, Hawaii 96740, and the DEPARTMENT OF HAWAIIAN HOME LANDS, State of Hawaii ("DHHL"), doing business at 91-5420 Kapolei Parkway, Kapolei, Hawaii 96707.

WITNESSETH:

WHEREAS, the Natural Energy Laboratory of Hawaii Authority ("NELHA") operates the Hawaii Ocean Science and Technology ("HOST") Park in Kailua-Kona, Hawaii. HOST Park is a major economic engine for West Hawaii, helping to create 600 jobs and \$120 million in economic activity annually;

WHEREAS, NELHA has permits from the County of Hawaii's Department of Water Supply ("DWS") for approximately 440,000 gallons per day but is using approximately 600,000 gallons per day of water from the DWS system and NELHA needs to develop a well source for the excess water it is using as well as to complete buildout of its HOST Park;

WHEREAS, Act 122, Item No. 25.01, SLH 2014 appropriated \$2.5 million in capital improvement project funds to NELHA for planning, design and construction to complete the exploratory phase for a potable water well;

WHEREAS, the HHFDC the Board of Directors at its meeting of March 10, 2016 approved NELHA as an eligible developer pursuant to Section 15-307-24, Hawaii Administrative Rules, and approved a Memorandum of Understanding ("MOU") with NELHA for the joint development of Ota Well as a potable water source for Kamakana Villages;

WHEREAS, Kamakana Villages is HHFDC's 2,330-unit master planned community on 272 acres in North Kona, Hawaii, where more than 50% of the residential units are affordable to households at 140 percent or below the U.S. Department of Housing and Urban Development's area median income;

WHEREAS, in 2008, through a request for proposals process, the HHFDC selected Forest City Hawaii Kona, LLC ("Forest City") as the master developer for the Kamakana Villages and a development agreement was executed on March 31, 2009;

WHEREAS, in 2008, an Environmental Impact Statement for Kamakana Villages was completed;

WHEREAS, Forest City or its successor is required to develop wells to supply potable water to Kamakana Villages;

WHEREAS, in 2011, Forest City subdivided, acquired and placed in escrow 2.265 acres at Tax Map Key No. (3) 7-5-001: 015 (por), now known as Tax Map Key No. (3) 7-5-001: 165, above Mamalahoa Highway for a second well site for Ota Well;

WHEREAS, on June 29, 2016, HHFDC, NELHA, FHT Kamakana, LLC ("FHT"), and Forest City, executed an MOU for the joint construction and dedication to DWS for the Ota Well Project;

WHEREAS, the allocation of water capacity from the Ota Well is based upon the pro rata share of total development cost contributed by HHFDC and NELHA, assuming a one-third allocation to DWS;

WHEREAS, on June 29, 2016, NELHA procured and executed a design-build contract with Water Resources International, Inc. ("WRI") for the planning, approvals, development and testing of an exploratory well at Ota Well;

WHEREAS, in 2018, a Final Environmental Assessment and a Finding of No Significant Impact was published for the Ota Well project;

WHEREAS, on October 18, 2018, WRI submitted an application with the Commission on Water Resource Management ("CWRM") for a Well Construction/Pump Installation Permit for an exploratory well at Ota Well;

WHEREAS, Hawaii State Constitution Article XII Section 2 was ratified on November 7, 1978 and states in part that "The State and its people do further agree and declare that the spirit of the Hawaiian Homes Commission Act looking to the continuance of the Hawaiian homes projects for the further rehabilitation of the Hawaiian race shall be faithfully carried out;

WHEREAS, at its August 17, 2015 meeting, the CWRM adopted reservations of 3.398 million gallons per day of water from the Keauhou Aquifer System Area ("KASA") for DHHL by its authority under HRS 174C-101, for various purposes in the planned development of its 1,510 acres of land in the KASA, including the development of homesteads under Section 221 of the Hawaiian Homes Commission Act;

WHEREAS, in a letter to CWRM, dated December 20, 2018, on Ota Well's permit application, DHHL requested its reservation of water from the KASA be fulfilled in part from Ota Well, and requested that CWRM condition issuance of Ota Well's permit application to provide approximately 18,077 gallons per day from the Project to DHHL



as credits following successful dedication of the well to DWS ("DHHL Allocation"), or that the application be referred to the full Commission for decision-making;

WHEREAS, HHFDC, NELHA and DHHL would like to provide for the DHHL Allocation from Ota Well;

**NOW, THEREFORE**, the parties hereby agree as follows:

- A. HHFDC and NELHA will allocate approximately 18,077 gallons per day from Ota Well to DHHL at no charge.
- B. The water allocated to DHHL will be taken from both HHFDC and NELHA's share of Ota's Well production as water credits for 30.13 equivalent units ("EU") in proportion to the cost contributed to the development of the Ota Well by both HHFDC and NELHA, based upon 600 gallons per day of maximum-day demand per EU, following successful dedication of the well to DWS.
- C. DHHL will not be obligated to contribute to the financing of Ota Well.
- D. HHFDC and NELHA do not warrant or guarantee that Ota Well will be successful, nor that funding for completion of the Project is guaranteed, and reserves the right to abandon the Ota Well project at any time, at either parties sole discretion, for any reason including but not limited to the following:
  - 1. The Construction/Pump Installation Permits for Ota Well are not approved by CWRM;
  - 2. The exploratory well reveals that there is insufficient yield to warrant proceeding with development of a production well;
  - 3. The cost of the exploratory and/or production wells and dedication to DWS are deemed to be infeasible or unjustifiable for the yield at Ota Well; or
  - 4. DWS does not accept dedication of Ota Well.

In the event the Ota Well is abandoned as set forth herein, HHFDC and NELHA will have no further obligation to DHHL hereunder.

- E. DHHL shall act in good faith to support any entitlements and approvals necessary to develop, test, and dedicate Ota Well to DWS.
- F. This MOU shall be effective as of the date listed above.
- G. The terms of this MOU may not be waived, modified, or in any way changed by implication, through conduct, correspondence, or otherwise, unless such waiver, modification, or change shall be specifically agreed to in writing by HHFDC, NELHA, and DHHL. Any waiver in whole or in part to any of the

terms and conditions hereunder, shall be specific and not general. Each waiver shall only apply to specific conditions and circumstances.

- H. This MOU shall be binding upon and inure to the benefit of HHFDC, NELHA, and DHHL, and their respective successors and assigns.
- I. The use of any pronoun in reference to HHFDC, NELHA, and DHHL shall be construed to mean the singular or plural, the masculine, feminine or neuter, as the instrument and context may require.
- J. The parties agree that neither HHFDC, NELHA, nor DHHL shall be deemed to be the drafter of this MOU and in the event this MOU is ever construed by a court of law, such court shall not construe this MOU or any provision hereof against any party as the drafter of this MOU.
- K. This MOU may be executed in any number of counterparts. Each such counterpart hereof shall be deemed to be an original instrument, but all such counterparts together shall constitute but one MOU.
- L. If any provision of this MOU as applied to any party or to any circumstances shall be adjudged by a court of competent jurisdiction to be void or unenforceable for any reason, the same shall in no way effect any other provision under circumstances different from those adjudicated by the court, or the validity or enforceability of this MOU as a whole.
- M. This MOU shall be interpreted in accordance with the laws of the State of Hawaii as such laws are construed and amended from time to time.
- N. This MOU shall constitute the entire agreement between all parties regarding the services provided under this MOU. There are no other memorandums, agreements, conditions, promises, warranties, or representations between the parties with respect to the services provided under this MOU.
- O. This MOU shall not create any third-party benefits or rights in any person or entity not a party to this MOU.
- P. Any written notice required to be given by any party to this MOU shall be (a) delivered personally, or (b) sent by United States first class mail, postage prepaid. A notice shall be deemed to have been received three (3) days after mailing or at the time of actual receipt, whichever is earlier. The parties are responsible for notifying each other in writing of any change of address.

Notice to the HHFDC shall be addressed to:

Executive Director  
Hawaii Housing Finance and Development Corporation  
677 Queen Street, Suite 300  
Honolulu, Hawaii 96813

Notice to the NELHA shall be addressed to:

Executive Director  
Natural Energy Laboratory of Hawaii Authority  
73-987 Makako Bay Drive  
Kailua Kona, Hawaii 96740

Notice to the DHHL shall be addressed to:

Chairman  
Department of Hawaiian Home Lands  
91-5420 Kapolei Parkway  
Kapolei, Hawaii 96707

IN WITNESS WHEREOF, the undersigned have executed these presents as of the day and year first written above.

Approved as to Form:

*Sandra Ching*

Deputy Attorney General  
Representing HHFDC

Hawaii Housing Finance and Development Corporation

By *Francis Paul Keeno*  
~~for Denise Iseri Matsubara~~ Francis Keeno  
~~Its Executive Director~~ Deputy Director  
*EM/NP*

Approved as to Form:

*[Signature]*

Deputy Attorney General  
Representing NELHA

Natural Energy Laboratory of Hawaii Authority

By *[Signature]*  
Gregory P. Barbour  
Executive Director

Approved as to Form:

*[Signature]*

Deputy Attorney General  
Representing DHHL

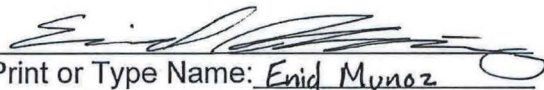
Department of Hawaiian Home Lands

By *William Aila Jr*  
William J. Aila, Jr.  
Its Chairperson, Hawaiian Homes Commission

STATE OF HAWAII )  
 ) SS  
CITY AND COUNTY OF HONOLULU )

On this 12 day of October, 2020, before me appeared FRANCIS KEENO, personally known to me, who, being by me duly sworn, did say that he is the DEPUTY DIRECTOR of the HAWAII HOUSING FINANCE AND DEVELOPMENT CORPORATION, a public body and a body corporate and politic of the State of Hawaii, that the seal affixed to the foregoing instrument is the corporate seal of the corporation, and that this 9-page MEMORANDUM OF UNDERSTANDING, DHHL ALLOCATION FROM OTA WELL ~~dated~~ undated at time of notary, was signed and sealed on behalf of the corporation by authority of its Board of Directors, and the said officer acknowledged the instrument to be the free act and deed of the corporation.

Doc. Date: undated at time of notary  
# of Pages: 9  
Doc. Description:  
MEMORANDUM OF UNDERSTANDING,  
DHHL ALLOCATION FROM OTA WELL


  
Print or Type Name: Enid Munoz  
Notary Public, State of Hawaii  
First Judicial Circuit  
My commission expires 11/24/23

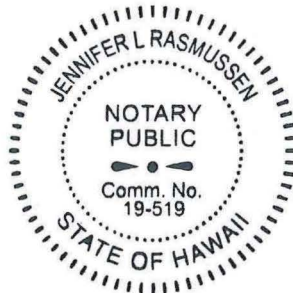


STATE OF HAWAII )  
 )  
 ) SS  
~~CITY AND COUNTY OF HONOLULU~~ )  
Hawaii )

On this 14<sup>th</sup> day of October, 2020, before me appeared GREGORY P. BARBOUR., to me personally known, who, being by me duly sworn, did say that he is the EXECUTIVE DIRECTOR of the NATURAL ENERGY LABORATORY OF HAWAII AUTHORITY, and the person described in and who executed this 8<sup>th</sup> - page MEMORANDUM OF UNDERSTANDING, DHHL ALLOCATION FROM OTA WELL dated October 14, 2020, and acknowledged to me that he executed the same freely and voluntarily for the use and purposes therein set forth.

Doc. Date: October 14, 2020  
# of Pages: 9  
Doc. Description:  
MEMORANDUM OF UNDERSTANDING,  
DHHL ALLOCATION FROM OTA WELL

  
Print or Type Name: Jennifer L Rasmussen  
Notary Public, State of Hawaii  
3rd  
First Judicial Circuit  
My commission expires 12/22/2023



# 201012\_HHFDC NELHA DHHL MOU Re Ota Well\_Final\_Executed by HHFDC

Final Audit Report

2020-10-13

Created:	2020-10-12
By:	Andrew Choy (andrew.h.choy@hawaii.gov)
Status:	Signed
Transaction ID:	CBJCHBCAABAAsyi5Lip3NuJHhQ57uniduSs7L9nXvQF

## "201012\_HHFDC NELHA DHHL MOU Re Ota Well\_Final\_Executed by HHFDC" History








-  Document created by Andrew Choy (andrew.h.choy@hawaii.gov)  
2020-10-12 - 9:51:08 PM GMT- IP address: 162.221.247.254
-  Document emailed to Ryan Kanakaole (ryan.kp.kanakaole@hawaii.gov) for signature  
2020-10-12 - 9:52:25 PM GMT
-  Email viewed by Ryan Kanakaole (ryan.kp.kanakaole@hawaii.gov)  
2020-10-12 - 11:25:55 PM GMT- IP address: 98.150.153.225
-  Document e-signed by Ryan Kanakaole (ryan.kp.kanakaole@hawaii.gov)  
Signature Date: 2020-10-12 - 11:26:01 PM GMT - Time Source: server- IP address: 98.150.153.225
-  Document emailed to William Aila Jr (william.j.ailajr@hawaii.gov) for signature  
2020-10-12 - 11:26:03 PM GMT
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-  Agreement completed.  
2020-10-13 - 1:19:40 AM GMT

Exhibit 7 HHFDC, NELHA, DHHL October 14, 2020 MOU



**Department of Land and Natural Resources  
Aha Moku Advisory Committee  
State of Hawaii  
Post Office Box 621  
Honolulu, Hawaii 96809**

Hawaii State Aha Moku Response  
To the Commission on Water Resource Management

For the meeting of the  
Commission on Water Resource Management  
December 15, 2020  
Honolulu, Hawaii

Natural Energy Laboratory of Hawaii Authority and  
Hawaii Housing Finance and Development Corporation  
**APPLICATIONS FOR A WELL CONSTRUCTION PERMIT**  
Ota Well (Well No. 8-3957-006), TMK (3) 7-5-001:165,  
Lanihau 1-2, Moeauo Ahupua'a, Keauhou, Hawaii

Aloha Chairperson Case and Honorable Members of the Water Resource Management Commission,

On behalf of the Aha Moku participants and members of Native Hawaiian generational families connected to the ahupua'a that are part of the Keauhou Aquifer, we offer you the responses that impact the application for the Ota Well. The response is in relation to the application of the Natural Energy Laboratory of Hawaii Authority (NELHA), in collaboration with Hawaii Housing Finance and Development Corporation (HHFDC) who are proposing a new production well within the Lanihau Ahupua'a. If successful, the well will be dedicated to the Hawaii Department of Water Supply (HDWS).

Although there are many issues attached to this proposal, as indicated in the Ota Well Project Final Environmental Assessment and Finding of No Significant Impact (FEA-FONSI), we address only the traditional and cultural practices (TCP) associated with and impacted by the Ota Well.

Synopsis of Research

In order to accurately find if TCP were impacted by the development and use of the Ota Well, it was necessary first to look at the areas mauka and makai of the well. The generational families contacted were primarily the Kanuha 'Ohana, who still own land in the proximity of the well; the Kaluhiwa 'Ohana who were once *mahiai*, agricultural farmers in Lanihau; and the Palacat 'Ohana. Their extended families crossed the ahupua'a boundaries neighboring Lanihau and thus their practices that spread across the area known as the Keauhou Aquifer intertwined with the families directly connected to Lanihau generally in practices associated with the coastline and near-shore practices. Other *lawaia* from neighboring ahupua'a were also consulted and gave mana'o.

The challenge in pinpointing the ahupua'a directly connected to the Keauhou Aquifer is that maps used in the 2018 FEA do not completely match up to the traditional maps that Aha Moku uses – 1835 map done by David Kalama of Lahainaluna High School, Maui. These traditional ahupua'a are known culturally as Kaloko, Honokohauiki, Puapua'a (where Lanihau, now known as an ahupua'a is located), Holualoa, Kaumalumu, Kahaluu, Keauhou, Honuaino, Kaumoo, up to Kealakekua. This was important to list because of the currently approved water reservations requested by the Department of Hawaiian Homelands (DHHL), and the special conditions to this application by the Kaloko-Honokohau National Park (KHNP) – both of which are listed in this application.



Cultural Impact Statement (CIS) of the 2018 FEA

It is the consensus of the families (the ‘ohana) contacted that while there may be occasional explorations into previous *wahi pana*, the areas in Lanihau above and below the projected Ota Well are now too developed to allow for any current meaningful practices such as the agricultural *mahiai* disciplines that the area was well-known for prior to western arrival in 1778. The area directly below the Ota Well was fully operational in ranching (the Rapoza Ranch) and is now in urban development and use. Per the Kaluhiwa ‘Ohana there was a land dispute with the Ota family that concerned water recently, that has been rectified in the courts.

The 2018 Cultural Impact Assessment (CIA) as reported in the 2018 FEA was distributed and assessed by the ‘ohana who agreed with the objective: “The objective of this CIA is to determine whether traditional and customary practices were being conducted within, or adjacent to, the project area and could possibly be constrained, constricted, prohibited, or eliminated if the proposed wells, tanks, control buildings access drive, and other facilities proposed as part of this project were to be implemented.”

The historical content of the CIA was accurate in describing Umi a Liloa, the ruling Alii ai Moku who inherited authority of religious and cultural practices from his father Liloa. All that was related onward from 1778 is historical documentation listed in many history books – most written by missionaries, western authors, and sporadic references to Hawaiian authors such as Pukui. None of this was contested by the ‘ohana although it was noted that no generational and traditional customs in relation to gathering of Kona and Puapua’a (Lanihau) and practiced by the kanaka maoli of the place were examined in depth.

The agricultural use of the area and the customary practices associated with Lanihau were well documented. The makai practices – fishing, gathering and the practices used in the ocean were never examined. However, in all fairness, it was not until the Aha Moku was established first in 2007 via Act 212, SLH 2012 and then implemented within DLNR in 2012 via Act 288, SLH 2012 that the coastal and ocean practices within the eight main Hawaiian Islands (the *Pae Aina*) were brought forward by native Hawaiian *lawai’a*, expert fishing practitioners of the ahupua’a and moku districts of each island.

Therefore, the ‘ohana focused on sharing their knowledge of current coastal practices spread throughout the Keauhou Aquifer boundaries as they believe it is critical that the Ota Well does not diminish the fresh water needed for these cultural practices to remain sustainable.

Kapa’akai O Ka Aina<sup>1</sup> Analysis

The Kapa’akai Analysis was used in determining whether traditional and customary practices would be impacted by the Ota Well.

Findings of Fact and Conclusions of Law of the Kapa’akai Case

- Identification and scope of “valued cultural, historical, or natural resources” in petition or impacted area, including the extent to which traditional and customary native Hawaiian rights are exercised in the petition area;
- The extent to which those resources, including traditional and customary native Hawaiian rights, will be affected or impaired by the proposed actions;

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<sup>1</sup> Ka Pa’akai O Ka’Aina v. Land Use Commission, State of Hawai’i, 2000, Supreme Court of Hawai’i

- The feasible action, if any, to be taken to reasonably protect native Hawaiian rights if they are found to exist.

The petition area in this case is the distribution and usage of ground water, a public resource, in the Puapuaa Ahupuaa (Lanihau Ahupuaa).

### Three Critical Questions

It was established by the ‘ohana that traditional and customary practices still existed in the Lanihau Ahupua’a on the makai part of the areas that will be impacted by the Ota Well. The ‘ohana was asked to identify some of the practices still being used as *lawai’a*. The very first thing that kupuna said was “***Water is the life of the land, and kanaka maoli is the land***”. In other words, one cannot separate one from the other – land from life, and kanaka maoli from land. Water is the blood to both.

In order to put this into the perspective of the Ota Well, three questions were asked of the ‘ohana:

1. Are there still traditional and customary practices used?
2. What is the impact of the Ota Well on these practices?
3. If there are impacts of the Ota Well on these traditional and customary practices, how can this be mitigated?

### Mana’o shared by cultural and generational practitioners within the Keauhou Aquifer boundaries

- Our ahupua’a extends out in the ocean as far as our practices go, so traditional and customary practices still exist particularly on the coast, near-shore and in the deeper ocean all along the Kona coastline.
- There are still anchialine ponds in Kona. The one in Lanihau is the Alanio Loko Ia which is located on the grounds of the Hulihe’e Palace. The Ali’i used this loko ia specifically for *amaama*, a kapu fish raised for ali’i. This pond is still maintained by the Kanuha ‘Ohana of Lanihau for Hulihe’e Palace.
- There is abundant water in the aquifer – much of it goes out to the coast through lava tubes.
- The fresh water allows the limu and the reef fish in the ocean to flourish.
- We need the fresh water to feed our ponds, our anchialine ponds, our wetlands.
- There are still spawning areas off the Kona coast that have not been destroyed by development. Those spawning areas need the fresh water to survive.
- Without the fresh water from the springs and lava tubes, many of our marine species in Kona will die.
- Without the fresh water, our wetlands will die – causing the death of our endemic and indigenous marine species as well as causing the decline of native birds.

Our understanding of the Ota Well is that the sustainable yield for the Keauhou Aquifer System Area is intended to account for 44% of natural recharge so that 56% of recharge continues to discharge along the coast. That should mean that the amount of fresh water that naturally discharges along the Kona coast should continue to be sustainable for the present and near future.

This was not acceptable to the ‘ohana! Their questions were if DHHL and Kaloko-Honokohau can reserve water for their needs, why can’t the Water Commission reserve a percentage of coastal discharge for the protection of our marine ecosystems and the sustainability of our coastal and ocean traditional practices that are unique to Kona?

Questions the ‘ohana are asking:

Of course, this brought up the question of how much water from the Keauhou Aquifer is the Ota Well going to draw?

And, even if the CWRM staff can account for the percentages of water to be reserved for DHHL and others, how much discharge water is needed to protect traditional and customary practices in Lanihau? In the other ahupua’a connected to the Keauhou Aquifer boundaries?

What about the need for water on the coastline to promote and protect traditional cultural practices and existing coastal wahi pana?

Can CWRM, in keeping with the mandates of Kapa’akai, assure that the large draw from the Ota Well will not impact traditional and customary practices along the coastline and within the Lanihau ahupua’a?

Recommendation of Aha Moku

Per the wishes of the ‘ohana (as identified at the beginning of this report), it is requested that CWRM hold a symposium like the one held in 2018 for the Kaloko-Honokohau National Park for the following purposes:

- Identification of critical traditional and customary coastal and near-shore practices within the Keauhou Aquifer;
  - Include practitioners of wetlands, etc.
- Discussion of a process of how coastal traditional practices can be perpetually maintained through the adequate discharge of ground water into the ocean;
- Discussion of development of a state and county process where ground-water dependent ecosystems and the traditional and customary practices dependent upon them, including those of off-shore practices can be sustained.
- Invitation should include all stakeholders: Generational ‘Ohana of Ahupua’a impacted by the Keauhou Aquifer, CWRM: Commissioners, staff; Hawaii County DWS, Environmental groups, NH organizations, DHHL, Kamehameha Schools (due to their coastal holdings in Keauhou and maintenance of three heiau in the ocean), Kaloko-Honokohau National Park, NOAA, NELHA, HHFDC and whoever else CWRM wishes.

Note: this Symposium, if approved, should take place whether this application is approved or not once the Covid-19 restrictions are eased enough where a meeting such as this – which should be in person (Hawaiians do not do well on virtual meetings) can safely take place.

We believe that the CIS of the 2018 FEA-FONSI is incomplete because it does not address the traditional and cultural practices makai of the OTA well as mandated by law.

We understand the requests of the NPS is that this permit be denied “unless the Commission develops a plan to reallocate groundwater withdrawals from wells within the ahupua’a of Kohanaiki, Kaloko, Honokohau, and Kealakehe in a manner that reduces actual withdrawals in this area to less than 2.85 millions of gallons per day. This is asked to protect the groundwater-dependent ecosystems of the National Park and the traditional and customary practices they support because the applicant has speculated that groundwater in the area of the proposed Ota Well discharges “far offshore”. This speculation is blatantly incorrect!

While the people are struggling to understand the technicalities of such a condition, they also wonder if the NPS can object so strenuously because their ecosystems that support traditional and customary practices (as proven in the 2018 CWRM Symposium) are adversely impacted by the Ota Well, then why can’t native Hawaiian practitioners along the coast receive the same reassurance?

Commission on Water Resource Management  
December 15, 2020

We deeply appreciate the opportunity to bring the voices of the generational families of the ahupua'a connected to the Keauhou Aquifer District to the attention of the Water Commission so their mana'o can be heard relative to traditional and customary practices that may be impacted by the Ota Well application.

We understand the scope of this application, and the impacts that could be suffered by the native Hawaiian generational practitioners of tradition and customary practices if this application is approved. However, we also have trust in the Water Commission to make the right and pono decision.

Respectfully and humbly yours,

Frank Kawaikapuokalani Hewett  
Lehua  
Founder, Hawaii State Aha Moku

Rocky Leialoha Kaluhiwa, Chair  
Aha Moku Advisory Committee  
Hawaii State Aha Moku

Leimana DaMate, Executive Director  
Hawaii State Aha Moku



# NATURAL ENERGY LABORATORY OF HAWAII AUTHORITY

*An Authority of the State of Hawaii attached to the Department of Business, Economic Development & Tourism*



January 26, 2021

Mr. Kaleo Manuel, Deputy Director  
Commission on Water Resources Management  
Department of Land and Natural Resources  
P.O. Box 621  
Honolulu, Hawaii 96809

Dear Mr. Manuel:

Thank you for transmitting the letter from the Aha Moku Advisory Council regarding our permit application (Well No. 8-3957-006) for the Ota Well in Keauhou, Hawaii. I am writing to transmit our comments and recommendations for mitigation measures which may assist you in formulating special conditions to address the comments in the Aha Moku letter.

We recently met with all members of our team which includes Water Resources International Inc., Planning Solutions Inc., ASM Affiliates, E.M. Rivera and Sons, Inc., TNWRE Inc., and representatives from the Hawaii Housing Finance Development Corporation (HHFDC), Hawaii County Department of Water Supply (DWS), and Stanford Carr Development, to discuss the comments from Aha Moku.

We would like to address two main issues that are discussed in the Aha Moku letter: 1) the area of potential impact of the proposed Ota Well on the shoreline brackish water makai of the wellsite; and 2) the proposed symposium on traditional and customary practices associated with the coastline and near-shore practices in the Kona environs.

We welcome the input and analysis of the Aha Moku Advisory Committee and of those consulted in their review of our application. The cultural and historical mana`o of these contributors and of others with similar knowledge is vital to thorough evaluation of the potential impacts, not just of the well under discussion, but of any development action on traditional and cultural practices in a given region of the State. We believe that Aha Moku correctly applied the Ka Pa`akai O Ka Aina analysis as promulgated in Hawai`i law in reviewing whether traditional and cultural practices would likely be impacted by the Ota well.

The Aha Moku letter is critical of the scope the cultural impact study in our Environmental Assessment (EA) for not including a review and analysis of traditional fishing and shoreline gathering practices. However, It is our assessment that the EA with regard to the project's area of potential impact on traditional and cultural practices does not need to include the shoreline makai of the wellsite for several reasons.

The perspective pointed out in the Aha Moku letter is based on holistic wisdom associated with the ahupua`a system of resource management, that is in part based on an assumption of a connection between freshwater resources fed by rainfall in the mauka region and shoreline brackish water features makai, such as anchialine ponds and fishponds. While such a direct connection is indeed evident in the form of surface flows such as streams and rivers on the windward sides of most of the islands, the relatively drier and geologically younger leeward side of Hawai`i Island is graced with no permanent riparian flows, and only two intermittent temporary streams. In this region, traditional wisdom and science agree that freshwater flows into the shoreline environment from basal lens groundwater.

Our position is consistent with your agency's decision in 2017 to not designate the Keauhou aquifer as a "Water Management Area" in conjunction with a petition from the U.S. National Park Service (NPS). We believe that your agency correctly opined that the state of scientific knowledge at the time was unclear on the degree of connection between high-level water and the nominally downgradient basal lens which supplies groundwater dependent ecosystems at the shoreline. In fact, the NPS's own monitoring data presented at the time of the petition hearings showed either no change or a gradual decrease in salinities in the basal lens and brackish water fishponds at the park over recent time – quite the opposite of what would be the case if there were negative impacts from upland water withdrawals.

Commensurate with these observations, recent independent scientific studies, and ongoing – and growing – groundwater monitoring efforts in the region, it does appear that a substantial amount of the high-level groundwater actually flows at depth below the basal groundwater rather than through it to ultimately discharge into the marine environment offshore.

Given this growing body of knowledge, it is our position that the EA is not required to include the Lanihau shoreline in the area of potential effect of the proposed well and as such an analysis of fishing practices in the region is beyond the required scope of the EA.

We believe that the current efforts by your agency, County of Hawaii, and the private sector to establish a system of groundwater wells to monitor the status of groundwater in the Keauhou aquifer is the best solution to ensure that impacts (if any) in the future can be safeguarded. This program spearheaded by your agency to explore and parametrize the newly described "deep artesian water" resource through a broad and growing network of groundwater and deep monitoring wells (see attached list of regional groundwater monitoring wells) has been very well developed. The shared information from these monitoring wells will assist in formulating adaptive water management decisions in the region and ensures protection of the public trust resource for future generations and for the environment. At the same time the permitting of the Ota Well will allow for uses needed now for this West Hawaii community such as the development of low-income housing undertaken by our partners at HHFDC and the sustainable economic development and jobs that our science and technology park will provide.

The Aha Moku letter also suggests that your agency hold a symposium to follow up on the 2018 "Adaptive Management Symposium on Groundwater Dependent Ecosystems at Kaloko-

Honokōhau National Historical Park”. As you know, NELHA hosted that the 2018 event and would be pleased to organize and host the symposium now proposed by Aha Moku.

Those consulted by Aha Moku in connection with their review clearly ask that the Native Hawaiian perspective be actively sought and reflected at this symposium. As you may know, we have been working closely with the `Ike Wai team at the University of Hawaii for the past several years on their cross-disciplinary project that aims to increase understanding of Hawaiian island hydrology to provide improved data for decision-making tools that address the challenges to water sustainability from climate variability, increasing population demands, and water contamination. We believe that the `Ike Wai team can positively assist mediation of traditional and cultural practices especially for coastal fishing which tend to be treasured family secrets, passed on generationally through oral histories and word of mouth – could be recorded and archived in such away as to protect the details but still allow for informed and thoughtful consideration in cultural impact assessments of future projects.

I would like to close by pointing out that as a steward of State shoreline lands, NELHA manages and vigorously protects 24/365 access to the shoreline under its purview through a dedicated fishing permit system. In addition, we have established and continue to undertake the most extensive and longest running groundwater and offshore water quality monitoring program in the State. For over 35 years, this Comprehensive Water Quality Monitoring Program (CEMP) has monitored the pristine waters off Keahole Point to protect them from degradation from human activities.

Thank you for your assistance with our application and please do not hesitate to contact me by telephone at 542-4622 or email at [gregory.p.barbour@hawaii.gov](mailto:gregory.p.barbour@hawaii.gov).

Very truly yours,



Gregory P. Barbour

Cc: Mr. Stanley Fujimoto, Hawaii Housing Finance Development Corporation  
Mr. Keith Okamoto, Hawaii County Department of Water Supply  
Mr. Stanford Carr, Stanford Carr Development  
Mr. Blaise Clay, Water Resources International Inc.  
Mr. Makena White, Planning Solutions, Inc.  
Mr. Tom Nance, TNWRE Inc.  
Mr. Ben Barna, ASM Affiliates  
Mr. Hiram Rivera, E.M. Rivera and Sons Inc.

Attachment (1)

## Attachment A

### Listing of Ongoing Monitoring of Groundwater in North Kona

#### By the Water Commission Staff (Typically Quarterly)

- Keopu 1 (State No. 3858-001): Monitor well in basal groundwater. Monitoring consists of quarterly CTD (salinity and temperature) profiles through the water column and water levels recorded at hourly intervals.
- Keopu 2 (State No. 3858-002): Monitor well into fresh artesian water 400 feet below sea level. Monitoring consists of water levels recorded at hourly intervals.
- Komo (State No. 3957-002): Monitor well into high-level groundwater above Mamalahoa Highway and relatively close to the Ota Well site. Monitoring consists of water levels recorded at hourly intervals.
- Pahoehoe (State No. 3657-002): Unsuccessful production well above Mamalahoa Highway into basal groundwater. Monitoring is simply quarterly water level measurements.
- Kahaluu (State No. 3457-004): Monitor well in basal groundwater. Monitoring consists of quarterly CTD profiling and water levels recorded at hourly intervals.
- Keauhou A (State No. 3457-002): Unsuccessful production well into basal groundwater. Monitoring consists of quarterly water level measurements.
- Kalaoa (State No. 4360-001): Test well into basal groundwater at 680-foot elevation along Kaiminani Drive. Monitoring consists of water levels recorded at hourly intervals.

#### By TNWRE on Behalf of Hawaii County Department of Water Supply (DWS)

- Kamakana (State No. 3959-001): Monitor well into basal groundwater. Monitoring consists of periodic CTD profiling (4 to 6 times a year) and water levels recorded at 30-minute intervals.
- Kaloko (State No. 4159-001): Monitor well currently under construction along Hina Lani Street at the DWS 630-foot tank site. Monitoring consists of periodic CTD profiling in the open borehole during construction. When completed, the well will be turned over to the State to become part of the Commission on Water Resource Management's monitoring network, likely to include CTD profiling (quarterly) and water level recording at hourly intervals.
- Kaloko Control Tank (State No. 4161-013): Recently completed into basal groundwater at DWS tank site at the bottom of Hina Lani Street. Monitoring just started and will consist of periodic CTD profiling (4 to 6 times a year) and water levels recorded at 30-minute intervals.
- Kalako Irrigation 2 (State No. 4160-002): Unused irrigation well into basal groundwater. Monitoring formerly consisted of periodic CTD profiling and water levels recorded at 30-minute intervals. It has now been replaced by the Kaloko Control Tank well (State No. 4161-013).
- Kohanaiki MW-401 (State No. 4161-011): Monitor well into basal groundwater. Monitoring consists of periodic CTD profiling (4 to 6 times a year).
- Ooma Mauka (No State No.): Monitor well into basal groundwater. Monitoring consists of periodic CTD profiling (4 to 6 times a year).



- Ooma Makai (No State No.): Nearshore monitor well into basal groundwater. Monitoring consists of periodic CTD profiling (4 to 6 times a year).
- In addition to the above, water levels are recorded at 30-minute intervals in the following high-level DWS wells above Mamalahoa Highway: Hualalai (State No. 4258-003); Honokohau (State No. 4158-002); Keopu (State No. 3957-001); QLT (State No. 4057-001); and Palani (State No. 4158-003).

A comment on the monitoring effectiveness of water level recording versus CTD profiling is appropriate. In a basal lens that is relatively near to the shoreline and resides in a permeable formation, variations in ocean levels as the semi-diurnal tide and longer-term (weeks to months) mean ocean level changes in response to large scale meteorological events dominate the recorded groundwater levels. This means that it is almost impossible to accurately interpret the far more modest changes that may occur in response to pumping the upgradient high-level wells. CTD profiling of salinity and temperature through the basal lens and into the saline groundwater below has proven to be far more effective way to track changes in the basal lens that are not a response to ocean level variations. A series of CTD profiles accurately document changes of the salinity and the thickness of the lens, both indicators of a potential decrease or increase in the flowrate through the basal lens resulting from pumping the upgradient high-level wells.

###

# WELL CONSTRUCTION PERMIT

## Ota Well, Well No. 8-3957-006

*Note: This permit shall be prominently displayed at the construction site until the work is completed*

In accordance with Department of Land and Natural Resources, Commission on Water Resource Management's Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", this document permits the construction and testing of Ota Well (Well No. 8-3957-006) at TMK (3) 7-5-001:165, Island of Hawaii, subject to the Hawaii Well Construction & Pump Installation Standards (HWCPIIS - February 2004) which include but are not limited to the following conditions:

1. The Chairperson of the Commission on Water Resource Management (Commission), P.O. Box 621, Honolulu, HI 96809, shall be notified, in writing, at least two (2) weeks before any work authorized by this permit commences and staff shall be allowed to inspect installation activities in accordance with §13-168-15, Hawaii Administrative Rules (HAR).
2. This permit shall be prominently displayed, or made available, at the site of construction work until work is completed.
3. The well construction permit shall be for construction and testing of the well only. The permittee shall coordinate with the Chairperson and conduct a pumping test in accordance with the HWCPIIS (the latest pump test worksheet can be obtained by contacting Commission staff or at <http://files.hawaii.gov/dlnr/cwrm/forms/APTR.pdf>). The permittee shall submit to the Chairperson the test results as a basis for supporting an application to install a permanent pump. No permanent pump may be installed until a pump installation permit is approved and issued by the Chairperson. No withdrawal of water shall be made for purposes other than testing without a Certificate of Pump Installation Completion. The permitted pump capacity described on the pump installation permit **may be reduced** in the event that the pump test does not support the capacity.
4. In basal ground water, the depth of the well may not exceed one-fourth (1/4) of the theoretical thickness (41 times initial head) of the basal ground water unless otherwise authorized by the Chairperson. If it can be shown that the well does not tap basal ground water then this condition may be waived after consultation with and acceptance by Commission staff. However, in no instance can the well be drilled deeper than one-half (1/2) of the theoretical thickness without Commission approval.
5. The permittee shall incorporate mitigation measures to prevent construction debris from entering the aquatic environment, to schedule work to avoid periods of high rainfall, and to revegetate any cleared areas as soon as possible.
6. In the event that historically significant remains such as artifacts, burials or concentrations of shells or charcoal are encountered during construction, the permittee shall stop work and immediately contact the Department of Land and Natural Resources' State Historic Preservation Division. Work may recommence only after written concurrence by the State Historic Preservation Division.
7. The proposed well construction shall not adversely affect existing or future legal uses of water in the area, including any surface water or established instream flow standards. This permit or the authorization to construct the well shall not constitute a determination of correlative water rights.
8. The Well Completion Report Part I shall be submitted to the Chairperson within thirty (30) days after completion of work (please contact staff or visit <http://files.hawaii.gov/dlnr/cwrm/forms/WCR1.pdf> for current form).
9. The permittee shall comply with all applicable laws, rules, and ordinances; non-compliance may be grounds for revocation of this permit.
10. The well construction permit application and, if relevant, any related staff submittal approved by the Commission are incorporated into this permit by reference.
11. If the HWCPIIS are not followed and as a consequence water is wasted or contaminated, a lien on the property may result.
12. Any variances from the HWCPIIS shall be approved by the Chairperson prior to invoking the variance.
13. The work proposed in the well construction permit application shall be completed within two (2) years from the date of permit approval, unless otherwise specified. The permit may be extended by the Chairperson upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Chairperson no later than the date the permit expires.
14. If the well is not to be used it must be properly capped. If the well is to be abandoned during the course of the project then the permittee must apply for a well abandonment permit in accordance with §13-168-12(f), HAR, prior to any well sealing or plugging work.
15. The permittee, its successors, and assigns shall indemnify, defend, and hold the State of Hawaii harmless from and against any loss, liability, claim, or demand for property damage, personal injury, or death arising out of any act or omission of the applicant, assigns, officers, employees, contractors, and agents under this permit or relating to or connected with the granting of this permit.
16. This permit shall apply to the location shown on the application only. If the well is to be relocated, the permittee shall apply for a new well construction/pump installation permit in accordance with §13-168-12(f), HAR.
17. Special conditions in the attached cover transmittal letter are incorporated herein by reference.

Date of Approval: December 15, 2020  
Expiration Date: December 15, 2022

\_\_\_\_\_  
M. Kaleo Manuel, Deputy Director for  
Suzanne D. Case, Chairperson  
Commission on Water Resource Management

**I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed and understand that I shall not commence work until I have signed, dated, and returned the permit to the Commission. I understand that this permit is not to be transferred to any other entity. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to \$5,000 per day starting from the permit date of approval.**

Driller's Signature: \_\_\_\_\_ C-57 License #: C-17737 Date: \_\_\_\_\_

Printed Name: Blaise Clay Firm or Title: Water Resources International, Inc.

*Please sign both copies of this permit, return one copy to the Commission office, and retain the other for your records.*

Attachment

well_number	well_name	well_use	well_owner_name	date_last_reported
8-3859-001	McCaskill	UNU	Annie Chong Park State of Hawaii, Department of Transportation, Airports	6/30/2021
8-4462-002	Keahole-DOT	UNU	Division, DOT	11/20/2019
8-4461-002	Keahole HELCO	INDEL	Hawaii Electric Light Co., Inc., HELCO	6/30/2022
8-4363-001	Keahole Point 1	UNU	Keahole Point Hatcheries	7/20/2021
8-4363-002	Keahole Point 2	UNU	Keahole Point Hatcheries	7/20/2021
8-4363-003	Keahole Point 3	UNU	Keahole Point Hatcheries	7/20/2021
8-4363-004	Keahole Point 4	UNU	Keahole Point Hatcheries	7/20/2021
8-4363-005	Keahole Point 5	UNU	Keahole Point Hatcheries	7/20/2021
8-4363-006	Keahole Point 6	UNU	Keahole Point Hatcheries	7/20/2021
8-4363-007	Keahole Point 7	UNU	Keahole Point Hatcheries	7/20/2021
8-4363-008	Keahole Point 8	UNU	Keahole Point Hatcheries	7/20/2021
8-4363-009	Keahole Point 9	UNU	Keahole Point Hatcheries	7/20/2021
8-4363-010	Keahole Point 10	UNU	Keahole Point Hatcheries	7/20/2021
8-4363-011	Keahole Point 11	UNU	Keahole Point Hatcheries	7/20/2021
8-4363-012	Keahole Point 12	UNU	Keahole Point Hatcheries	7/20/2021
8-4060-001	Honokohau Quarr	ABN	McClellan Honokohau Properties	
8-4463-004	Dust Control	UNU	Natural Energy Laboratory of Hawaii Authority, NELHA	
8-4262-001	Kohanaiki 1	IRR	Kohanaiki Shores, LLC	5/25/2021
8-4461-001	Cooper	ABNLOS	Mahi B. Cooper	
8-3658-052	KK	IRRLA	Michael E Anderson	6/1/2022
8-3558-001	Keauhou-Roberts	IRRLA	Michael H. Robertson (Wailani Drilling Services Inc)	9/28/2013
8-4458-001	Kau 1	UNU	Palamanui Global Holdings LLC State of Hawaii, DLNR-Division of Forestry and Wildlife	
8-3957-005	Keopu #4	UNU	Hawaii, Hawaii DLNR-DOFAW	
8-3257-003	Sophie	DOM	Timothy Walter & Stephanie Jean Teslow	7/31/2020

**Report Parameters**

Dates:	01/01/2020 - 7/1/2022
Island:	Hawaii
Aquifer:	80901 Keauhou
TMK:	All
# days missing more than:	60
exclude # of days missing more than:	None
Include wells with no reporter assigned:	No

DAVID Y. IGE  
GOVERNOR OF HAWAII



SUZANNE D. CASE  
CHAIRPERSON

BRUCE S. ANDERSON, PH.D.  
WILLIAM D. BALFOUR, JR.  
KAMANA BEAMER, PH.D.  
MICHAEL G. BUCK  
NEIL J. HANNAHS  
PAUL J. MEYER

JEFFREY T. PEARSON, P.E.  
DEPUTY DIRECTOR

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
P.O. BOX 821  
HONOLULU, HAWAII 96809

October 24, 2018

TO: Mr. Bruce S. Anderson, Ph.D., Director  
Department of Health  
Attention: Sina Pruder, Chief, Wastewater Branch  
Joanna L. Seto, Chief, Safe Drinking Water Branch

FROM: Jeffrey T. Pearson, P.E., Deputy Director for  
Suzanne D. Case, Chairperson  
Commission on Water Resource Management

SUBJECT: Well Permit Application  
Ota Well (Well No. 8-3957-006) TMK: (3) 7-5-001:165  
Well address: 75-5247 Mamalahoa Hwy.

Holualoa, HI 96725

Transmitted for your review and comment is a copy of the captioned Well permit application.

We would appreciate your comments on the captioned application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your department. **Please respond by returning this cover memo form by November 23, 2018.** If we do not receive comments or a request for additional review time by this date, we will assume that you have no comments.

Please find the attached maps to locate the proposed well. If you have any questions about this permit application, request additional information, or request additional review time, please contact Queenie Komori of the Commission staff at 587-0251.

QK:ss  
Attachment(s)

RESPONSE:

- This well qualifies as a source which will serve as a source of potable water to a public water system (defined as serving 25 or more people at least 60 days per year or has 15 or more service connections) and must receive Director of Health approval prior to its use to comply with Hawaii Administrative Rules (HAR), Title 11, Chapter 20, Rules Relating to Potable Water Systems, §11-20-29.
- This well does not qualify as a source serving a public water system (serves less than 25 people or more people at least 60 days per year or 15 service connections) and if the well water is used for drinking, the private owner should test for bacteriological and chemical presence before initiating such use and routinely monitor the water quality thereafter. However, if future planned use from this source increases to meet the public water system definition then Director of Health approval is required prior to implementation.
- If the well is used to supply both potable and non-potable purposes in a single system, the user shall eliminate cross-connections and backflow connections by physically separating potable and non-potable systems by an air gap or an approved backflow preventer, and by clearly labeling all non-potable spigots with warning signs to prevent inadvertent consumption of non-potable water. Backflow prevention devices should be routinely inspected and tested.
- It does not appear that this well will be used for consumptive purposes and is not subject to Safe Drinking Water Regulations.
- For the applicant's information, a source of possible wastewater contamination [ ] is not located near the proposed well site (information attached).
- An NPDES permit is required.
- Other relevant DOH rules/regulations, information, or recommendations are attached.
- In the event that the location of the well changes but is still within the parcel described on this application, our division considers the comments to still be applicable, and we do not need to review the new location.
- An injection well permit is required for the disposal of the effluent from this well.

No comments/objections

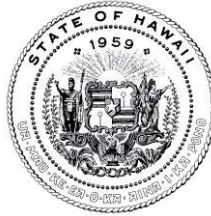
Contact Person: Dane Hiromasa, Eng. in Kona 322-1963

Signed: Mark Tomomi ts, PD Supervisor 586-4294

Date: 11/0/2018

land use JD 4354

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

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

STATE HISTORIC PRESERVATION DIVISION  
KAKUHIHEWA BUILDING  
601 KAMOKILA BLVD, STE 555  
KAPOLEI, HAWAII 96707

April 24, 2020

Alexander Leonard  
Natural Energy Laboratory of Hawai'i Authority  
73-4460 Queen Ka'ahumanu Highway #101  
Kailua-Kona, HI 96740  
Email: [alexander.leonard@hawaii.gov](mailto:alexander.leonard@hawaii.gov)

IN REPLY REFER TO:  
Log No. 2019.02055  
Doc No. 2004GC12  
Archaeology

Dear Mr. Leonard:

**SUBJECT: Chapter 6E-8 Historic Preservation Review –  
Archaeological Data Recovery of SIHP 50-10-28-28995 and 28998  
Lanihau Ahupua'a, North Kona District, Island of Hawai'i  
TMK: (3) 7-5-001:015 por. and 165 por.**

This letter provides the State Historic Preservation Division's (SHPD's) review of the draft plan titled, *Archaeological Data Recovery of SIHP 50-10-28-28995 and 28998, Lanihau Ahupua'a, North Kona District, Island of Hawai'i, TMK: (3) 7-5-001:015 por. and 165 por.* (Hall and Barna, September 2019). The SHPD received this submittal on September 11, 2019.

Previously SHPD, concurred with the recommendation of archaeological data recovery for Sites 50-10-28-28995 and 50-10-28-28998 in a letter dated April 2013 (Log No. 2013.2045, Doc. No. 1304MV24). Subsequently, in a letter dated June 18, 2018 (Log No. 2017.02525, Doc No. 1806SL04), SHPD accepted a supplemental AIS (Dircks Ah Sam and Barna, November 2017). The SAIS documented 21 newly identified archaeological features and 22 previously recorded features within the project area at two of the previously recorded sites. No new features were identified at Site 28995 while 17 features were newly identified at Site 28998; a total of 129 features have been documented at Site 28998. Additionally, on April 10, 2019 (Log No. 2018.01495, Doc. No. 1904SN03), SHPD accepted the data recovery plan (Barna, June 2018). In a letter dated April 10, 2020 (Log No. 2019.02521, Doc. No. 1004GC11) SHPD accepted an archaeological monitoring plan (AMP) (Barna 2019).

This data recovery report (DRR) of Sites 50-10-28-28995 and 50-10-28-28998 was prepared by ASM Affiliates (Hall and Barna, September 2019). The DRR was written at the request of Blaise Clay of Water Resources, Inc., on behalf of the Natural Energy Laboratory Hawai'i (NELHA). NELHA plans to develop a potable water well (the "Ota Well") and supporting infrastructure including a permanent access road and well-pad site. The data recovery sites are located within the Ota Well project area, situated on an active coffee farm. Site 28995 is located within Parcel 15. Site 28998 and its various features are distributed throughout the cultivated portion of the coffee farm within portions of Parcels 15 and 165, as well as within the planned well-pad site. Data recovery methods included manual excavation of 6 excavation units at Site 28995 and 6 excavation units at selected features at Site 28998.

The report summarizes the data analysis in identifying the chronology of occupation of Site 28995, interpretation of site function for Site 28995, interpretation of the chronology and sequence of features at Site 28998, and assessment of evidence indicating reuse of features at Site 28998. The agricultural features examined are located on soils overlying a substrate of 3,000 to 5,000-year-old bedrock originating from Hualālai volcano.

Data recovery field work was conducted between May 13 and May 23, 2019. Site 28995 was originally identified by Haun and Henry (2011) as a Prehistoric/Historic permanent habitation site. Site 28998 was identified as a Prehistoric/Historic agricultural complex (Haun and Henry 2011), and 17 newly identified additional features were documented during a supplemental AIS (Barna and Dircks Ah Sam 2017). Both sites were assessed as significant

pursuant to Hawaii Administrative Rules (HAR) §13-278-7, as significant under Criterion “d” for having yielded information for understanding land use during the Pre-Contact and Historic periods.

Fieldwork involved excavation of twelve 1 X 1-meter-square excavation units within the two sites, with an average combined depth of 93 cm below surface. Profiles were prepared for all excavation units. Three general layers were observed. The stratigraphy consisted of a single architectural layer of cobbles and boulders overlying culturally sterile stony silty loam. At Site 28995, cultural remains consisted of waterworn basalt pebbles and coral, burned *kukui* nutshells, 114 charcoal fragments, and a D-cell battery. Additionally, 98.29 grams of volcanic glass were recovered from the site. At Site 28998, excavation units examined three *kuaiwi*, one terrace, one wall and one mound. Stratigraphic profiles were recorded for the *kuaiwi* features (BJ, BF, and CA) and the mound (Feature BM), and at the intersection of the *kuaiwi* and a terrace (Features BJ and BG). A charred fragment of *‘uala* root was recovered beneath the terrace (Feature BG). Radiocarbon dating ranged between AD 1721-1818.

Establishing the timing of occupation at Site 28995, radiocarbon dating determined a terminus post quem of AD 1470-1640 for the construction of the site which is consistent with Haun et al. (2004), and the period during the establishment and expansion of Kona Field System above Kailua Bay. The functional interpretation of Site 28995, through stratigraphic evidence and cultural materials recovered from the site, provided sufficient information to conclude that Site 28995 was not used as a habitation site as Haun and Henry (2011) inferred, but rather was an agricultural planting feature. Interpreting Site 28998’s timing and sequence of development, radiocarbon dating indicates that at least one *kuaiwi* (Feature H) was constructed between AD 1619 and 1670, which falls on the later end of the period during which *kuaiwi* and other major infrastructure were established. Additionally, cultivation evidence from an *‘uala* root fragment dated to AD 1721-1818, indicating that the site was used to grow crops into the early period of interactions with Europeans and other foreigners. Two agricultural features (Features H and BG) were assessed for re-use through a combination of chronometric stratigraphic evidence. Analysis of the stratigraphy within Feature H confirms Haun and Henry’s (2011) interpretation that the stacked and core filled portions of the feature are the result of Historic-period modification to a *kuaiwi* originally constructed during the seventeenth century. At Feature BG, the stratigraphic relationships among the terrace, an adjacent *kuaiwi* Feature BJ, and the charred fragment of *‘uala* root recovered from beneath Feature BG indicates that the terrace previously used for sweet potato cultivation, was modified for coffee cultivation probably during the 1890s or later.

This DRR report is very well written; it describes field and laboratory methods, summarizes the available background, environmental, historical, and archaeological information, and provides detailed information concerning the timing of occupation and site function of Site 28995, and the interpretation of the chronology and sequence of features and evidence for reuse at Site 28998. The DRR provides new data and interpretations significant with respect to earlier settlement and land use models and to data collected from the project area during earlier studies. Of particular interest is Site 28995, in which the data recovery has yielded results consistent with, but at odds with other earlier observations regarding criteria for interpretation of habitation (e.g., Clark 1986, Cordy 1981, Kirch 1983, 1985; and more recently, Tulchin and McDermott 2010, citing Robins et al. 2000, and Haun and Henry 2011). Based on the data recovery results, the terraces at Site 28995 are argued not to be habitation terraces but most probably planting terraces, although the possibility of use as a processing area could not ruled out.

The data recovery report requirements of HAR §13-278-4. **It is accepted.** Please send two hard copies of the document, clearly marked FINAL, along with a copy of this letter and a text-searchable PDF version of the report to the Kapolei SHPD office, attention SHPD Library. Please also forward a PDF copy of the report to [Lehua.K.Soareshawaii.gov](mailto:Lehua.K.Soareshawaii.gov).

Please contact Dr. Susan A. Lebo, Archaeology Branch Chief, at [Susan.A.Lebohawaii.gov](mailto:Susan.A.Lebohawaii.gov) or at (808) 692-8019 for any questions regarding this letter.

Aloha,

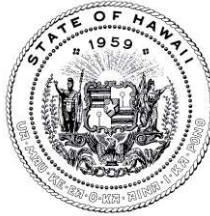
*Alan Downer*

Alan S. Downer, PhD  
Administrator, State Historic Preservation Division  
Deputy State Historic Preservation Officer

Alexander Leonard  
April 24, 2020  
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cc: Ben Barna, ASM Affiliates [bbarna@asmaffiliates.com](mailto:bbarna@asmaffiliates.com),  
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ROBERT K. MASUDA  
FIRST DEPUTY

M. KALEO MANUEL  
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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

STATE HISTORIC PRESERVATION DIVISION  
KAKUHIHEWA BUILDING  
601 KAMOKILA BLVD, STE 555  
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April 30, 2020

Alexander Leonard  
Natural Energy Laboratory of Hawai'i Authority  
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IN REPLY REFER TO:  
Log No. 2019.02521  
Doc No. 2004GC11  
Archaeology

Dear Mr. Leonard:

**SUBJECT: Chapter 6E-8 Historic Preservation Review –  
Verification of Data Recovery Implementation  
Archaeological Monitoring Plan for the Exploratory Phase of the “Ota Well”  
Lanihau Ahupua‘a, North KONA District, Island of Hawai‘i  
TMK: (3) 7-5-001:015 por. and 165 por.**

This letter provides the State Historic Preservation Division's (SHPD's) review of the draft archaeological monitoring plan (AMP) titled, *Archaeological Monitoring Plan for the Exploratory Phase of the “Ota Well,” Lanihau Ahupua‘a, North Kona District, Island of Hawai‘i, TMK: (3) 7-5-001:015 por. and 165 por.* (Barna, November 2019). The SHPD received this submittal on November 14, 2019 (Log No. 2019.02521). It also provides verification that the data recovery mitigation has been completed and, with acceptance of the AMP, project initiation may occur.

ASM Affiliates (Barna, November 2019) prepared the archaeological monitoring plan (AMP) on behalf of the Natural Energy Laboratory Hawai'i (NELHA). NELHA plans to develop a potable water well (the “Ota Well”) and supporting infrastructure including a permanent access road and well-pad site. The project area includes an approximately 2.26-acre corridor (60 X 1,640 ft along existing roadway) in portions of TMK: (3) 7-5-001:015 and 165.

SHPD correspondence pertaining to the subject project include the following:

- 2013 SHPD accepted an archaeological inventory survey (Haun and Henry 2011) in a letter dated April 2013 (Log No. 2013.2045, Doc. No. 1304MV24). The archaeological inventory survey (AIS) identified seven sites comprising of 145 features, including, a post-Contact agricultural feature complex (SIHP 50-10-28-28993, with 18 Features); a post-Contact pet cemetery (Site 28994, 2 Features); pre-/post-Contact habitation terrace (Site 28995, 1 Feature); a post-Contact habitation and water-storage feature complex (Site 28996, 8 Features); water-storage features and outhouse (Site 28997, 4 Features); a pre-/post Contact agricultural feature complex (Site 28998, 112 Features); and, a Historic burial (Site 29699, 1 Feature). The AIS assessed all seven sites as significant pursuant to HAR §13-284-6, under Criterion d (information content), and Site 29699 additionally as significant under Criterion e (important ethnic value). Preservation was recommended for Site 29699, no further work for Sites 28993, 28994, 28996 and 28997, and mitigation in the form of data recovery for Sites 28995 and 28998, and archaeological monitoring during all ground disturbing activities during construction.
- 2018 SHPD accepted a supplemental AIS (SAIS) in a letter dated June 18, 2018 (Log No. 2017.02525, Doc. No. 1806SL04). The SAIS (Dircks Ah Sam and Barna, November 2017) documented 21 newly identified archaeological features and 22 previously recorded features within the project area at two of the previously recorded sites. No features were newly identified at Site 28995 while 17 features were



newly identified at Site 28998 bring total to 129 features documented at Site 28998. The SHPD concurred with the project effect determination of “effect, with proposed mitigation commitments” and mitigation in the form of data recovery at Sites 28995 and 28998, preservation of Site 29699, and archaeological monitoring during all ground disturbing activities.

- 2019 SHPD accepted a data recovery plan for Sites *50-10-28-28995 and 50-10-28-28998* (Barna, June 2018) in a letter dated April 10, 2019 (Log No. 2018.01496, Doc. No. 1904SN03).
- 2019 SHPD received an End of Fieldwork letter report titled, *End of fieldwork for data recovery of SIHP Sites 50-10-74-28995 and 28998* (Barna, June 20, 2019) documenting compliance with the data recovery plan and data recovery findings (received June 21, 2019; Log No. 2019.01395).
- 2019 SHPD received the draft data recovery report titled, *Archaeological Data Recovery of SIHP 50-10-28-28995 and 28998, Lanihau Ahupua‘a, North Kona District, Island of Hawai‘i, TMK: (3) 7-5-001:015 por. and 165 por.* (Hall and Barna, September 2019) on September 11, 2019 (Log No. 2019.02055).
- 2019 SHPD received a letter dated September 16, 2019 from NELHA requesting SHPD’s verification of NELHA’s completion of data recovery mitigation commitment (received September 19, 2019; Log No. 2019.02101).
- 2020 SHPD accepted the draft data recovery report titled, *Archaeological Data Recovery of SIHP 50-10-28-28995 and 28998, Lanihau Ahupua‘a, North Kona District, Island of Hawai‘i, TMK: (3) 7-5-001:015 por. and 165 por.* (Hall and Barna, September 2019) in a letter dated April 24, 2020 (Log No. 2019.02055, Doc. No. 2004GC12).

The AMP stipulates the following monitoring procedures:

- A pre-construction briefing will be conducted prior to construction activities;
- On-site monitoring will occur for all ground disturbing activities within the project area;
- The archaeological monitor has the authority to temporarily halt all activity in the area in the event of a potential historic property being identified, or to record archaeological information for cultural deposits;
- In the event that non-burial historic properties are identified, the archaeological monitor shall protect the find from further disturbance until the find can be adequately assessed and documented in consultation with SHPD, and in accordance with HAR §13-279-5 and HAR §13-280;
- If human remains are identified, work will cease in the vicinity and the find shall be secured, and provisions outlined within the Hawaii Revised Statutes (HRS) §6E-43 and HAR §13-300-40, and any SHPD directives, shall be followed;
- Project materials will be stored temporarily with ASM Affiliates and final curation facilities shall be determined in consultation with SHPD and the landowner;
- Documentation of non-burial cultural deposits may include recording stratigraphy using USDA soil descriptions, GPS point collection, recordation of feature contents through excavation or sampling of features, screening of features, representative scaled profile drawings, photo documentation, and appropriate laboratory analysis of collected samples and artifacts;
- Any samples suitable for radiocarbon analysis shall be submitted for wood taxa identification prior to radiocarbon dating. Final curation of collected items shall be determined in consultation with the landowner and the SHPD; and
- Any deviation from these provisions shall occur only in consultation with the SHPD.

The plan meets the minimum requirements of HAR §13-279-4. **It is accepted.** Please send two hard copies of the document, clearly marked FINAL, along with a copy of this letter and a text-searchable PDF version of the AMP to the Kapolei SHPD office, attention SHPD Library. Please also provide a PDF copy of the AMP to [Lehua.K.Soareshawaii.gov](mailto:Lehua.K.Soareshawaii.gov).

**SHPD hereby notifies** the County of Hawaii construction activities for the present project may proceed in accordance with the SHPD-approved AMP. The permit issuance process may proceed

Alexander Leonard  
April 30, 2020  
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**SHPD requests written notification** at the start of archaeological monitoring. Upon completion of archaeological monitoring fieldwork, SHPD looks forward to reviewing an archaeological monitoring report meeting the requirements of HAR §13-279-5 within 60 days after completion of fieldwork.

Please contact Jordan Calpito, Hawai'i Island Burial Specialist at [Jordan.V.Calpito@hawaii.gov](mailto:Jordan.V.Calpito@hawaii.gov) for any concerns regarding burials, and Susan A. Lebo, Archaeology Branch Chief, at [Susan.A.Lebo@hawaii.gov](mailto:Susan.A.Lebo@hawaii.gov) for any questions regarding this letter.

Aloha,

*Alan Downer*

Alan S. Downer, PhD  
Administrator, State Historic Preservation Division  
Deputy State Historic Preservation Officer

cc: Ben Barna, ASM Affiliates [bbarna@asmaffiliates.com](mailto:bbarna@asmaffiliates.com),  
Blaise Clay, Water Resources International, [bclay@wri.us.com](mailto:bclay@wri.us.com)  
Sean Nāleimaile, SHPD, [sean.p.naleimaile@hawaii.gov](mailto:sean.p.naleimaile@hawaii.gov)

General Management Action	Tactical Goals	Action Items	Estimated Cost/Year	Estimated Cost (10 years)
<b>Watershed Values</b>				
Cattle control	Removal of all cattle from the forest reserve	Conduct cattle removal through trapping, fences, aerial pushing, and staff shooting in Tract II.	\$70k/year	\$700k
		Issue SUP for cattle removal from Tract III once fencing is complete	DOFAW staff & mgmt. costs	
		Transition out of SUP for grazing in Kealakehe Tract once area is ready to manage for reforestation	DOFAW staff & mgmt. costs	
	Fence construction & maintenance	Construction of fenceline along makai border of Tract III & creation of paddock in Kealakehe tract	\$74k/year	\$740k total cost of fence
		Continued maintenance of existing fencelines	\$25k/year	\$250k
Reforestation	Re-establishment of appropriate vegetative cover	Facilitate passive regeneration of native trees after cattle removal	DOFAW staff & mgmt. costs	
		Reforest areas in upper sections (Tract II & Tract I) with koa, mamane, and 'iliahi after cattle removal as needed	\$10k/year	\$100k
	Control ungulate populations at levels consistent with watershed protection needs	Encourage public hunting through outreach	DOFAW staff & mgmt. costs	
		Based on monitoring, identify sensitive areas suitable for natural resource protection through ungulate exclusion fencing projects	DOFAW staff & mgmt. costs	

<b>General Management Action</b>	<b>Tactical Goals</b>	<b>Action Items</b>	<b>Estimated Cost/Year</b>	<b>Estimated Cost (10 years)</b>
Forest Monitoring	Determine landscape level needs and areas of reforestation & native ecosystems over time	Continue photo point monitoring in Tract II & Tract I every 3 years	\$10k/year	\$100k
		Establish & implement transect monitoring in Tract III starting 2 years after cattle removal	\$50k/year	\$500k
Maintain DOFAW's role in Three Mountains Alliance (TMA)	Improve communication and coordination between agencies	Establish regular communications, schedules, and protocols with TMA	DOFAW staff & mgmt. costs	
		Participate in TMA's quarterly meetings	DOFAW staff & mgmt. costs	
Climate change adaptation	Keep current on the latest climate change, information modeling and adaptation	Participate in climate change seminars, meetings and workshops	DOFAW staff & mgmt. costs	
Erosion control	Decrease erosion and sediment delivery to improve water quality and protect municipal water supplies	Design and construct roads to minimize erosion and sediment production.	DOFAW staff & mgmt. costs	
<b>Resource Protection</b>				
Fire Management	Fire pre-suppression	Development of fire management plan	\$5k/year	\$50k lump sum cost
	Fire prevention	Maintain existing roads to act as fuel breaks and fire aids	\$20k/year	\$200k
		Close Honua'ula FR during extreme fire preparedness level	DOFAW staff & mgmt. costs	
	Public education and outreach	Participate in specific target outreach activities as appropriate based on fire preparedness level	DOFAW staff & mgmt. costs	

General Management Action	Tactical Goals	Action Items	Estimated Cost/Year	Estimated Cost (10 years)
Forest Health	Forest health monitoring and implementation of forest management practices	Conduct quarterly forest health surveys. Compose and submit annual survey report to Forest Health Coordinator	\$10k/year	\$100k
		Rapid response to mitigate forest health issue	TBD	
	Rapid 'Ōhi'a Death (ROD) Detection and Management	Conduct aerial surveys and trail user information surveys for early detection	\$10k/year	\$100k
		Document and report any sightings of dead or dying 'ōhi'a trees during routine field operations	\$10k/year	\$100k
		Collect samples of suspected trees to test for ROD & fell infected trees where possible	\$10k/year	\$100k
		Consider high value 'ōhi'a stands when considering further ungulate fencing areas	DOFAW staff & mgmt. costs	
		Collaborate with partners to secure essential technical information of ROD threats & modes of transmission	\$5k/year	\$25k
		Install additional public sanitation stations	\$500/year	\$5k lump sum cost
		Include ROD sanitation and prevention procedures on all permits designated for Honua'ula FR	DOFAW staff & mgmt. costs	
	ROD public information and awareness	Sign installation and replacement as needed	\$2k/year	\$20k

<b>General Management Action</b>	<b>Tactical Goals</b>	<b>Action Items</b>	<b>Estimated Cost/Year</b>	<b>Estimated Cost (10 years)</b>
Monitor weather conditions	Gather rain data	Install rain gauges	\$500/year	\$5k lump sum cost
	Use weather data to determine district fire preparedness levels	Implement fire preparedness level activities	DOFAW staff & mgmt. costs	
	Use data to monitor environmental conditions relating to forest health	Implement appropriate forest management activities	DOFAW staff & mgmt. costs	
Invasive Species Management	Invasive species monitoring and control	Continued manual, chemical and mechanical control of target species	\$50k/year	\$500k
	Continue to work with cooperating agencies, including BIISC, TNC, NRCS, HDOA, UH-CTAHR, TMA, USFWS, and others	Invasive species technician and support staff to work with cooperating agencies to monitor and control invasive species in the FR	\$125k/year	\$1.25m
	Support biological control efforts	Support applied research for potential biocontrol release and monitoring of new agents such as strawberry guava, Christmas berry, and banana poka	TBD	
	Develop a comprehensive list of invasive and incipient plant species	Conduct surveys in identified undersurveyed areas of the FR	\$3k/year	\$30k lump sum cost
	Long Term Planning	Develop a comprehensive weed plan	\$500/year	\$5k lump sum cost

General Management Action	Tactical Goals	Action Items	Estimated Cost/Year	Estimated Cost (10 years)
<b>Native Ecosystems Management</b>				
Identify areas of regenerating and potential native ecosystems	Monitor changes to native ecosystems over time as cattle are removed	Utilize photo point monitoring & veg surveys during and after cattle removal	DOFAW staff & mgmt. costs	
		Identify areas of native ecosystem natural recovery	DOFAW staff & mgmt. costs	
	Determine landscape level needs	Implement common native outplanting in select areas after cattle removal	TBD estimate \$10k/acre. # of acres TBD. Estimate somewhere between 50-500 acres. Potentially significant added cost in 3-5+ years	
Ungulate control	Remove ungulates from within ungulate proof fences designated for zero tolerance	Ground control work as needed	TBD potentially significant added cost in 3-5+ years	
	Consider areas for further ungulate proof fencing	Based on monitoring after cattle removal, identify sensitive areas suitable for natural resource protection through ungulate exclusion fencing projects	TBD potentially significant added cost in 3-5+ years	
<b>Access, Trails, Hunting &amp; Other Public Uses</b>				
Infrastructure Management	Maintain road infrastructure	Grading and repair of roads as needed, and maintenance of other road features for access to FR to conduct management	\$35K/year	\$350k
			<b>Per year total costs</b>	<b>\$ 525,500</b>
			<b>10 year total costs</b>	<b>\$ 5,230,000</b>