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ALEXANDER & BALDWIN, INC.  
and EAST MAUI IRRIGATION COMPANY, LLC

BOARD OF LAND AND NATURAL RESOURCES

STATE OF HAWAI'I

In the Matter of a Contested Case  
Regarding the Continuation of Revocable  
Permits (RPs) for Tax Map Key Nos.  
(2) 1-1-001 :044 & 050; (2) 2-9-014:001,  
005, 011, 012 & 017; (2) 1-1-002:002 (por.)  
and (2) 1-2-004:005 & 007 for Water Use on  
the Island of Maui to Alexander & Baldwin,  
Inc. (A&B) and East Maui Irrigation  
Company, LLC (EMI) for the remainder of  
the 2021 RPs, if applicable, and for their  
continuation through the end of 2022

DLNR File No. CCH-LD-21-01

**DECLARATION OF CEIL HOWE, III**

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I, CEIL HOWE, III, hereby declare as follows:

1. I am the Manager of Mahi Pono Holdings, LLC, which owns 41,000 acres of land in central Maui. 30,000 of those acres have historically been irrigated by the East Maui Irrigation Company, LLC (“EMI”) ditch system (the “**Ditch System**”) with water diverted from east Maui.

2. I am also the Chief Executive Officer of Mahi Pono, LLC. Mahi Pono Holdings formed Mahi Pono, LLC to farm these agricultural lands on the Island of Maui. Through the practices of responsible sustainable agriculture, modern farming technology, and best management practices, Mahi Pono, LLC hopes to significantly improve Hawaii's food security by growing nutritious food for local consumption and contribute to the diversification of Maui's economy by providing a range of agricultural employment opportunities.

3. Mahi Pono, LLC and its affiliates (collectively, "**Mahi Pono**") presently have 300 full time employees. Mahi Pono has not laid off any employees as a result of the Covid-19 pandemic and Mahi Pono has no plans to reduce its work force so long as Mahi Pono can continue to viably farm. In fact, Mahi Pono anticipates hiring additional employees as its farming operations expand. At full build out, Mahi Pono anticipates it will have 793 employees. *See Ex. X-2 at p. X-2-01910.*

### **Personal Background**

4. I am a fourth generation farmer and business man, born and raised in Stratford, California on my family's farm Westlake Farms Inc., which has operated for the past 90+ years. I have a Bachelor of Science in Agriculture Systems Management with a minor in Agricultural Business and Finance and a concentration in Water Management from California Polytechnic University of San Luis Obispo and over 23 years' experience in farm management and development covering many different crop types. This experience includes working with my family's farm, Westlake Farms Inc., and its related entities, which currently farms and farm manages over 8,000 acres in central California. Additionally, I spent part of my career as Chief Operating Officer of a progressive vertically integrated agribusiness, managing over 35,000

acres of diversified almonds, pistachios, walnuts, cherries, raisins, forage crops and cattle, 100,000 acres of support property and sales and marketing.

### **2021 Crops**

5. Mahi Pono is presently transforming 30,000 acres of land in Central Maui from vacant former sugar cane fields to a diversified portfolio of food crops which will provide a nutritional yield that is sustainable and resilient.

6. As of October 2021, Mahi Pono has planted 9,786 acres of crops. The specific crops along with the number of acres planted with those crops are identified in Exhibit X-9 attached hereto.

7. In addition, Mahi Pono has approximately 9,000 acres of pasture land for its Maui Cattle Company operation. Co-owned by Mahi Pono and a number of member ranches, Maui Cattle Company supplies the local market with natural, grass-fed beef products, thus helping to offset the State's reliance on imported beef.

8. In November and December of 2021, Mahi Pono plans to plant an additional 225 acres of lime trees, an additional 154 acres of lemon trees and an additional 120 acres of coffee trees, which will bring the total acreage being cultivated to 5,085 acres by the end of 2021. *See* Ex. X-9.

9. On November 9, 2021, Mahi Pono reached a major milestone, planting its millionth tree on Maui

### **2022 Crops**

10. In 2022, Mahi Pono anticipates planting an additional 4,860 acres of crops. The specific crops and the number of acres to be planted with those crops are identified in Exhibit X-9 attached hereto.

11. Exhibits X-10, X-11 and X-12 attached hereto are maps of Mahi Pono's farming operations in central Maui. The fields that have been planted or will be planted by the end of 2021 are depicted in blue and the fields that will be planted in 2022 are depicted in red.

### **2021 Diversified Agriculture Water Usage**

12. Starting in June 2021, Mahi Pono made operational changes which increased the amount of water needed for crop irrigation. These changes included (1) the adoption of a 24-hour per day irrigation cycle facilitated by increased staffing; and (2) an increase in applied water per plant to help encourage more rapid growth rates for adolescent—but maturing—trees. In addition to these operational changes, Mahi Pono also planted over 1,600 acres of orchard crops during the 5-month period between May-October 2021 which also increased the amount of water needed for crop irrigation. The increase in the amount of water needed for crop irrigation reduced the amount of water that needed to remain in reservoirs. Taken as a whole, these circumstances allowed Mahi Pono to reduce its overall water diversions by 24.4% while increasing Mahi Pono's crop irrigation rates by 151%.

13. The effect of these operational changes are reflected in the table of Monthly Water Usage for 2021, attached hereto as Exhibit X-13, which shows that the amount of water used for "Reservoir/Seepage/Fire Protection/Evaporation/ Dust Control/Hydroelectric" has significantly declined beginning in June 2021. Over that same time period the amount of water used for diversified agriculture increased significantly. Most recently, in September and October of 2021, 9.08 mgd and 11.26 mgd, respectively, were used for diversified agriculture. *See Ex. X-13.* It is anticipated that similar amounts of water will be used for diversified agriculture in November and December of 2021

14. Exhibit X-13 also shows that 18.87 mgd was diverted from the area covered by the subject revocable permits (the “**RP Areas**”). *See* Ex. X-13. It is anticipated that similar amounts of water will be diverted from the RP Areas in November and December of 2021.

#### **2022 Anticipated Diversified Agriculture Water Needs**

15. In 2022, it is anticipated that the amount of water needed for diversified agriculture will increase due to the additional plantings that will occur in 2022. In addition, the existing crops will require more water as they mature.

16. In 2022, approximately 21.79 mgd will be needed for diversified agriculture. *See* Ex. X-14 (Table of Diversified Agriculture Water Needs).

#### **Water Sources Other than Surface Water Diverted from the RP Areas**

17. In addition to using surface water diverted from the RP Areas, surface water diverted from west of the RP Areas is also used to meet Mahi Pono’s diversified agriculture water needs. Exhibit X-13 attached hereto details the amount of surface water diverted from west of the RP Areas during 2021. Water from west of the RP Areas alone is insufficient to meet Mahi Pono’s diversified agriculture water needs.

18. Also, due to the extremely dry conditions in east Maui recently, Mahi Pono has supplemented the use of surface water with ground water pumped from Mahi Pono’s wells. Exhibit X-13 attached hereto details the amount of groundwater that has been pumped and used for diversified agriculture during 2021.

19. Mahi Pono’s practice is to use ground water only when there is insufficient surface water to meet Mahi Pono’s irrigation demand. There is a risk associated with the use of ground water on Mahi Pono’s crops due to uncertainty regarding the quality of the water being applied. If the groundwater is too salty, it can adversely affect plant growth, fruit production and

quality. Increased use of groundwater will increase the salinity of the groundwater remaining in the aquifer. This would impact Mahi Pono as well as the users of other wells which share the same aquifers. In addition, the use of groundwater is used as a reserve. It is, however, not an infinite reserve. The groundwater basin has a yield that can be sustained. That yield was substantially increased when HC&S was importing and applying the 165 mgd. It is uncertain what yield can be sustained now that the importation and application of surface water has significantly decreased. Prudent management dictates a conservative use of the groundwater resource given these factors.

### **Total Anticipated Water Needs for 2022**

20. In total, in 2022 it is anticipated that 40 mgd (based on an annual average) will be needed from the RP Area. This amount is broken down as follows:

(a) 6 mgd - County of Maui Department of Water Supply: Operationally, a minimum of approximately 6 mgd must be reliably conveyed to / made available to the County each and every day so that the County has flexibility regarding when to run its plant depending on weather conditions, demand, water available from its Piihola plant, etc.;

(b) 1.5 mgd - County of Maui Ag Park: Operationally, a minimum of approximately 1.5 mgd must be reliably conveyed / made available to the County each and every day so that the County can be flexible regarding the needs of the Ag Park;

(c) 21.79 mgd - Diversified Agriculture: As discussed above, this is the anticipated amount to meet diversified agriculture water needs for 2022;

(d) 1.1 mgd - Historic / Industrial Uses: The historic / industrial uses are identified in Exhibit X-8;

(e) 5.7 mgd - Reservoir / Fire Protection / Evaporation / Dust Control / Hydroelectric: This number includes water not separately accounted for in the other categories of uses; and

(f) 4 mgd - Cushion: Estimated at 20% of the projected diversified agriculture water needs, this cushion allows Mahi Pono some flexibility as it continues to further develop and refine its diversified agriculture plan.

21. It is important to understand how water is currently diverted and used. For the better part of the last century, sugar, which has a high irrigation demand to achieve the growth necessary to produce acceptable yields, was furrow irrigated. While HC&S later converted to drip irrigation, due to its need to maximize its planted acreage, HC&S still generally took all the water that was available during moderate and low rainfall periods that the system could convey. Currently, the crop mix requires much less water than was needed for sugar and is only diverted from the east Maui streams when the water can be used on the farm for irrigation. This is an on demand system. Once on the farm, as explained below, the amount of water applied is precisely measured. The current system is the most efficient application of irrigation water on Maui. Even at full buildout, Mahi Pono's projected water use will never come close to what HC&S used during sugar cultivation.

22. Mahi Pono is currently operating under the subject revocable permits issued by the BLNR to A&B/EMI (Revocable Permits Nos. S-7263, S-7264, S-7265 and S-7266) (the "RPs"). Without the RPs, there would be insufficient surface water to sustain Mahi Pono's existing crops, let alone the crops scheduled to be planted in 2022. This would severely impact Mahi Pono's operations as well as the 300 employees who support these operations.

23. If sufficient surface water is not made available for the farm in 2022, then Mahi Pono will be forced to delay its scheduled plantings. This will negatively impact Mahi Pono's ability to (1) contribute to Hawaii's food security, (2) continue its hiring growth and, depending upon the severity, (3) may lead to work force reduction.

#### **Improvements to Water Efficiency**

24. Hawai'i requires the reasonable-beneficial use of water. Imbedded in that requirement is the dictate that water not be wasted but used as beneficially as

practical/reasonable. Mahi Pono has implemented agricultural practices to increase the efficiency of water use on the farm. These include upgrading outdated infrastructure, installing new automated control systems, new infield irrigation systems, upgrading electrical control systems, utilizing proven water saving technologies with established water management practices, and using real time monitoring to increase the efficiency of water usage on the farm. These practices are more fully described in Exhibit X-15 attached hereto. To date, Mahi Pono has spent more than \$20 million in implementing these practices.

25. As Mahi Pono's planting has increased, it allowed Mahi Pono to implement new water management efficiency processes. Irrigation schedules are developed based on farm demands, calculated from a variety of technologies, weather and soil conditions, including plant demands. The available water holding capacity ("AWC") of the soil for each irrigation set was determined and used for irrigation scheduling. Water requirements were based on evapotranspiration ("ETc"). The information is gathered weekly and the projected run times are calculated off leaf output and crop demand. Weekly water requirements were based on historical (normal year) regional ETc and were adjusted for actual ETc from the previous week adjusted with crop coefficients. The team utilizes technology of WiseConn weather stations, soil moisture probes, and University of Hawai'i historical data sets to determine the farm irrigation needs.

26. Future scheduling improvements, based through an online ordering platform, will be implemented for non-farm users to better align their demands with incoming water supplies in efforts to eliminate over deliveries

27. Exhibit X-16 attached hereto is a photograph of Wiseconn, a technology installed in Mahi Pono's fields to allow for automated control of the irrigation system. The network is



made up of nodes, which are connected to sensors and actuators for monitoring weather conditions, soil moisture and irrigation historic data, and to actuate over the irrigation system.

28. Exhibits X-17 and X18 attached hereto are photographs of remote gate technology installed in Mahi Pono's ditches to allow for efficient real-time on-farm management of water.

29. Exhibit X-19 attached hereto is a photograph of a direct flow irrigation emitter. Mahi Pono is in the process of installing these emitters at the base of each tree for Mahi Pono's tree crops. The emitter ensures the most efficient and direct application of irrigation water, thus minimizing evaporation losses while trees are younger and have a lower water use requirement. As the orchards mature and root systems develop, deep root irrigation system will be installed which apply water at various zones in the root system and have been proven to reduce water consumption.

30. Exhibits X-19 and X-20 attached hereto are photographs of weed mats. Mahi Pono is in the process of installing weed mats for all of our tree crops. The weed mat keeps applied irrigation water in the soil longer by preventing evaporation and reducing weeds (and their water intake).

31. Exhibits X-21 and X-22 attached hereto are photographs of a digital flow meter. Mahi Pono is in the process of installing these meters at each irrigation station as fields come online. These meters enable Mahi Pono to track water use more accurately on a field-by-field basis. The meters feed information into the automation systems so precise applications are made based on plant requirements.

32. Mahi Pono's efforts to increase water efficiency are ongoing. Planned future projects are identified in Exhibit X-15 attached hereto.

I declare under penalty of perjury that the foregoing is true and correct.

DATED: Stratford, California, November 11, 2021.

A handwritten signature in black ink, appearing to read "Ceil Howe III". The signature is written in a cursive style with a distinct flourish at the end.

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CEIL HOWE, III