

**HŌ'IKE HO'OPŌKOLE NO KA LILO ANA O KA WAI OLA O MAUI
HIKINA, PEHEA LĀ E NELE AI?**
(An Ethnographic Synthesis and Story Map of How Alexander & Baldwin and its
Successors Gained Control of Maui Hikina Water Sources)



Kumu Pono Associates LLC

Historical & Archival Documentary Research · Oral History Interview Studies · Researching and
Preparing Studies from Hawaiian Language Documents · Māhele 'Āina, Boundary Commission & Land
History Records · Integrated Cultural Resources Management, Preservation & Interpretive Program
Development

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Prepared for

- East Maui Water Authority
- 'Aha Wai O Maui Hikina

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Cover Figure:

- 1977 HSA PPBAC-2-9-016 Kailua Stream-Falls East Maui (George Bacon).

TABLE OF CONTENTS

HŌ'IKE HO'OPŌKOLE NO KA LILO ANA O KA WAI OLA O MAUI HIKINA, PEHEA LĀ E NELE AI?	1
Wai o ke Ola (Waters of Life – A Cultural Context)	1
Executive Summary	2
SECTION 1. Introduction	5
SECTION 2. Land Commission Awards and Baseline Water Use in Maui Hikina	8
Section 2.1 – Land Commission Award Case Studies	11
MOKU O HĀMĀKUALOA	11
Huelo, Honopou & Hanehoi: Kuluwaimakalani (Helu 5459E)	11
Honopou: Palea (Helu 5451)	12
Honokala, Waipio & Holawa: Hanauwaha (Helu 5130 & 6510F)	13
Halehaku: Kulani (Helu 5512)	15
MOKU O HĀMĀKUAPOKO	16
Haliimaile, Paniau: Kekahuna, Kamahine, Kuana, Nawai, Paelua & Kakanui (Helu 4142 & 5421)	16
Paia, Hamakuapoko & Haiku, Hamakualoa: Kiha (Helu 5325)	17
Waiaka at Wailuku, Honohina & Hulaia, Hamakuapoko: Kekipi (Helu 8314)	17
MOKU O KO'OLAU	19
Wailua: Kiowai (Helu 3499)	19
Keanae: Nuole/Naeole (Helu 4863 & 4665)	19
Wailua & Pauwalu: Kamanu (Helu 5051)	20
Section 2.2 – Patterns of Land and Water Use in Maui Hikina	22
SECTION 3. Plantation Formation, Institutional Authority, and Demand for Water	22
Section 3.1 Actors and Roles	23
Section 3.2 Conditions Preceding the 1876 Water License	25

Section 3.3 Application, Review, and Issuance of the 1876 Water License	25
SECTION 4. Development of Diversion Systems and Control of Water Resources (1876–early 20th century)	26
Section 4.1 Construction and Early Operation of Diversion Systems	26
Section 4.2 Consolidation and Corporate Reorganization of Land and Water Interests	27
Section 4.3 Expansion of Conveyance Infrastructure and System Capacity	28
Section 4.4 Corporate Organization of Diversion System Management	29
Section 4.5 Continuation of Diversion Authorization Under Territorial & State Administration	29
Section 4.6 Termination and Disposition of Water Licenses	30
Section 4.7 Conclusion - Development and Authorization of Diversion Systems	31
SECTION 5. Documented Conditions Associated with Water Diversions	31
Section 5.1 Early Observations and Concern	32
Section 5.2 Reported Conditions Along Stream Systems	32
Section 5.3 Land Use and Access to Resources	32
Section 5.4 Forest Condition and Water Supply	32
Section 5.5 Environmental Conditions and Variability	33
Section 5.6 Conclusion – Conditions within Lived Biocultural Landscapes	33
SECTION 6. Control of Water Systems and the Transformation of Maui Hikina	33
REFERENCES	36

FIGURES

Note: Figures 1-5 were created as oversized maps which may be accessed through [EMWA XX who/link], and have been included in this synthesis as reduced figures.

Figure 1. Hō'ike Ho'opōkole No Ka Lilo Ana O Ka Wai Ola O Maui Hikina, Pehea Lā E Nele Ai? Fee Simple Land Ownership Of Parcels Circumjacent to the Water Diversion Systems of Maui Hikina	3
Figure 2. Hō'ike Ho'opōkole No Ka Lilo Ana O Ka Wai Ola O Maui Hikina, Pehea Lā E Nele Ai? Water Diversion Networks: Contextualized Within The Natural Landscape Of Maui Hikina	4

Figure 3. Hō'ike Ho'opōkole No Ka Lilo Ana O Ka Wai Ola O Maui Hikina, Pehea Lā E Nele Ai? Water Diversion Networks: Contextualized Within The Natural Landscape Of Maui Waena (Central Maui)	6
Figure 4. Hō'ike Ho'opōkole No Ka Lilo Ana O Ka Wai Ola O Maui Hikina, Pehea Lā E Nele Ai? Changes In Land Ownership And Natural Resource Use In The Ahupua'a Of Halehaku (1800s & 2026)	9
Figure 5. Hō'ike Ho'opōkole No Ka Lilo Ana O Ka Wai Ola O Maui Hikina, Pehea Lā E Nele Ai? Changes In Land Ownership And Natural Resource Use In Ahupua'a & 'Ili of Hāmākuapoko	10
Figure 6. Survey Map of Helu 5459/5459E for Kuluwaimakalani Showing 'Āpana 1, 2, and 3 With 'Auwai Crossing through All Awarded 'Āpana	12
Figure 7. Survey Map of Helu 5451 for Palea Showing the Kahawai Bordering 'Āpana 2 And the 35/100 Ac. Pō'alima Exclusion	13
Figure 8. Survey Map of Helu 6510F for Hanauwaha Depicting The Three Awarded 'Āpana in Honokala, Waipio & Holawa	14
Figure 9. Survey Map of Helu 5512 for Kulani 'Āpana I & II in Halehaku Showing The Kahawai As The Border For Both 'Āpana	15
Figure 10. Survey Map of Helu 4142 & 5512 for Kekahuna 'Āpana I in Hamakuapoko showing the alignment of the Alanui, Konohiki Boundaries and additional land purchased by Kekahuna	16
Figure 11. Survey Map of Helu 5325 for Five 'Āpana Awarded to Kiha in Paia, Hamakuapoko	17
Figure 12. Survey Map of Helu 8314 for Kekipi in Hāmākuapoko	18
Figure 13. Survey Map of Single Mo'o Awarded to Kiowai for Helu 3499 in Wailua.	19
Figure 14. Survey Map of Helu 4665 for Nuole (Naeole) in the 'Ili of Kapae in Ke'anae	20
Figure 15. Survey map of Helu 5051 to Kamanu in Wailua	21
Figure 16 A. Loi Kalo Depicting 'Auwai at Lakini Pauwalu (Wailua) Helu 3472 to Kaihaa and in the Family of Kupuna Helen Nakanelua (Nov. 8, 1001, KPA-2195)	34
Figure 16 B. Loi Kalo Depicting Traditional Practice of Staggered Planting, and the Feeder 'Auwai at Lakini Pauwalu (Wailua) Helu 3472 to Kaihaa and in the Family of Kupuna Helen Nakanelua (Nov. 8, 1001, KPA-2199)	34

HŌ'IKE HO'OPŌKOLE NO KA LILO ANA O KA WAIOLA O MAUI HIKINA, PEHEA LĀ E NELE AI?

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Wai o ke Ola (Waters of Life – A Cultural Context)

...He ui, he nīnau,
E u-i aku ana au iā 'oe,
Aia i hea ka Wai a Kāne...?

Aia i ke kuahiwi, i ke kualono,

I ke awāwa, i ke kahawai.
Aia ilaila ka Wai a Kāne...

...E ui aku ana au iā 'oe,
Aia i hea ka Wai a Kāne?
Aia i lalo, i ka honua, i ka Wai hū,

I ka wai kau a Kāne me Kanaloa

He waipuna, he wai e inu,
He wai e mana, he wai e ola
E ola no, ea!

...A query, a question,
I will make a query of you,
From where do the waters of Kāne
come...?

It is there on the mountain tops and
ridges,

In the valleys, in the streams.
That is where the waters of Kāne
are found...

I am asking you,
Where are the waters of Kane?
There below in the earth, in
the overflowing spring,
The waters set in place by Kāne and
Kanaloa,

A bubbling spring of water, to drink,
A divine water, water of life
Let there be life!¹

The Hawaiian word for water is “wai.” The Hawaiian word for wealth is “waiwai,” wai said twice. When you have wai you have life, the wealth to sustain yourself upon the land. Water itself was believed to be the body form of the god, Kāne i ka wai ola (Kāne, giver of the waters of life). This same god in another form was Kāne i ka 'ōnohi o ka lā (Kāne, the eyeball-center of the sun). In the Hawaiian biocultural environment and religious system, it was recognized that there is a fine balance between the right amount of water and sunshine and the sustainability of life.

The general Hawaiian word for a spring of water is pūnāwai. Pūnāwai or pu'una-wai describes a place where water bubbles up from the ground (rising like a hill or a mound), it is the source of water. The relationship of water in all Hawaiian life is also integral to the family system. The Hawaiian word “kupuna/kūpuna,” may be translated as — “kū” (standing at) “puna” (the source of water). Kū-puna are those who stand at the source of water. This has deeper meaning than standing at the “water source.” Elders, those who stand at the puna, stands at the source of wealth.

In this case, the wealth isn't material things or economic gain, it is that our elders are those who stand at the source of knowledge; the well-spring gained by the years of their life, and from that which has been handed down to them from their own kūpuna; and they in turn pass their waiwai on to their 'ohā, keiki, mo'opuna, mo'opuna kuakāhi, kualua, and on down the generations, mai kāhi piko a kāhi piko (from one piko or generation to the next piko... (M.K. Pukui, pers. comm., Kepā Maly)

¹ “Mele no Kāne” traditional, adapted from “Unwritten Literature of Hawaii, The Sacred Songs of the Hula,” N. B. Emerson (1909:257-259).

Executive Summary

At the request of Ms. Gina Young, Director of the County of Maui East Maui Water Authority, and the ‘Aha Wai o Maui Hikina Board, Kumu Pono Associates LLC (KPA) conducted ethnographic research to assist in the development of a watershed management plan. That technical report, *Maui Hikina – E Ho‘oponopono ‘Āina* (Maly et al. 2025), and its associated appendices and digital repository, provide the basis for this synthesis of historical and archival records documenting the development, authorization, and continued operation of water diversion systems in Maui Hikina over approximately the past one hundred seventy years. This subsequent report and accompanying maps, also prepared for the East Maui Water Authority and ‘Aha Wai o Maui Hikina, examines changes in water flow and land tenure and how those changes correspond to documented conditions within the Maui Hikina landscape.

The scope of this report is to review archival water resource records and synthesize the sequence of legal, infrastructural, and organizational actions that enabled the capture and conveyance of water away from East Maui streams. There are over 50-miles of tunnels, 24-miles of open ditches and siphons and flumes, over 400 intakes, and eight reservoirs. The analysis focuses on how these actions shifted water use from systems embedded within ahupua‘a-based management and traditional and customary practices to large-scale diversion systems developed for plantation agriculture and subsequent economic use. The objective is to present an evidence-based account of how control over water sources in Maui Hikina was established and maintained, and how those processes correspond to documented changes in water availability and use.

This synthesis and story maps are based on primary historical records, including Land Commission Awards (LCA), registry testimony, and survey maps; Hawaiian Kingdom water licenses and leases; agreements modifying or extending diversion rights; Territorial and State-era leases, licenses, and easements; corporate records documenting land acquisition and system management; and newspaper accounts, petitions, and government correspondence. The history is complicated, and as a part of this synthesis, *a series of maps were developed, identifying the primary water ways that transported wai through ditches across Maui Hikina to lands beyond the Watershed boundaries, the primary TMK parcel numbers of the water sources (Figure 1), and also include shaded topographic features that will help users identify familiar places/features on the landscape (Figure 2).*²

Maui Hikina – E Ho‘oponopono ‘Āina (Maly et al. 2025), its appendices, and associated digital repository provide the documentary foundation for this report. Records not included in that repository are cited in the References section. Information not individually cited herein is drawn from Appendix A of the technical report (pp. 329–611).

This study is grounded in a biocultural approach, recognizing that wai, ‘āina, kai and kānaka function as an interconnected system extending across the ahupua‘a. Water is understood as

² In preparing the story maps, every effort has been made to identify the locations of water resources and primary natural features, original Kuleana and Grants held in fee-simple interest, as well as the numerous components of the water diversion systems. We have found that there are a number of discrepancies, between historical and modern maps—e.g. locational references to the ahupua‘a boundaries and kahawai, and the hundreds of diversions, tunnels and ditches—so these renderings should be considered as work in progress.

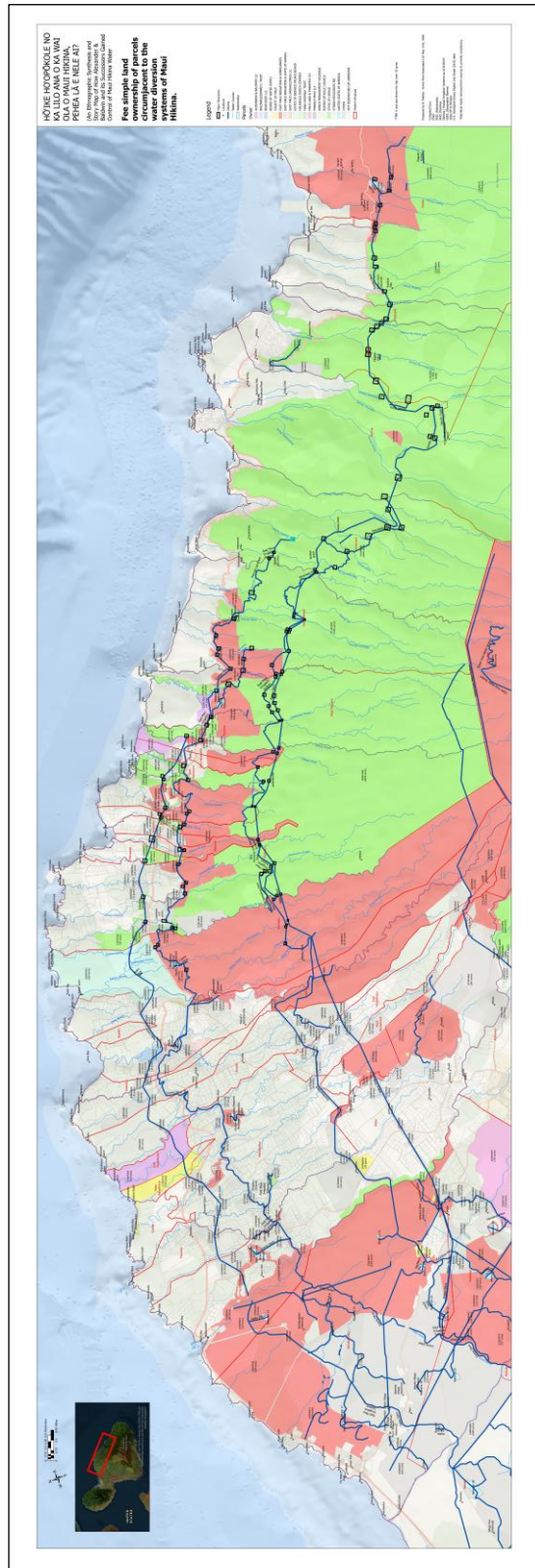


Figure 1. Hō'ike Ho'opōkole No Ka Lilo Ana O Ka Wai Ola O Maui Hikina, Pehea Lā e Nele Ai? Fee Simple Land Ownership Of Parcels Circumjacent to the Water Diversion Systems of Maui Hikina (Prepared by R. Mather)

integral to land use, cultivation, and subsistence, rather than as a separate or independently controlled resource. Changes in water flow are examined in relation to their effects on land use, access, and the functioning of this system.

Additionally, this report is prepared for an audience with familiarity in Hawaiian land, water, and cultural resource contexts. Accordingly, commonly used Hawaiian terms, including but not limited to ‘āina, kai, lo‘i kalo, konohiki, ‘auwai, ‘āpana, and hoa‘āina, are not defined and are used in accordance with their established meanings within the historical and cultural systems described herein.

Finally, diacritical markings are used in the narrative text for clarity and consistency with contemporary usage. They are generally omitted, however, in reference to place names, streams, and land features derived from archival records in order to reflect their historical representation and preserve the integrity of the source material. Orthography in this report therefore follows the context in which terms are used.

SECTION 1. Introduction

This report examines historical records documenting the development of water diversion systems in Maui Hikina and the processes by which control over those systems was established and maintained from the late nineteenth century to the present. The analysis begins with primary archival sources documenting land use, water access, and resource use in Maui Hikina during the mid-nineteenth century. It then examines the authorization and construction of diversion systems beginning in 1876 with the “Old Hamakua Ditch” and follows the sequence of legal, infrastructural, and organizational changes that enabled the capture and conveyance of water from East Maui streams to Central Maui (*Figure 3*). Finally, it examines documented changes in water availability and use associated with the diversion of water from established pathways, and the effects of those changes on the biocultural landscape of Maui Hikina as reflected in the historical record.

The study draws on Land Commission Awards (LCA), Boundary Commission testimonies, and related records documenting land use, cultivation, and water access in Maui Hikina in the time leading up to the Māhele ‘Āina as individual case studies. These documents record water-dependent systems associated with specific parcels, including irrigated cultivation, stream-adjacent land use, and the integration of agricultural and subsistence practices across multiple environmental zones. Testimony associated with LCAs further document lo‘i kalo, the presence of ‘auwai systems, and the use of streams for the above stated purposes. These sources provide a baseline for understanding how water was accessed and used prior to the development of large-scale diversion systems.

The scope of this synthesis is defined by available primary documentation, including Hawaiian Kingdom water leases issued in the late nineteenth century, agreements modifying or extending those rights, and subsequent Territorial and State-era licenses governing continued diversion and use. These records identify the parties authorized to divert water, the streams and regions subject to diversion, and the rights granted to construct, maintain, and expand conveyance systems across both government and private lands. When read together, they provide a continuous record of authorization and use extending from the 1870s to the present. Analysis proceeds through a chronological review of these records. Early leases issued in 1876



and 1878 authorized diversion from streams in the Hāmākualoa, Hāmākuapoko, and Koʻolau regions under multiple parties within a short period. Subsequent agreements in the late nineteenth century modified and extended these rights, while a Hawaiian Kingdom Supreme Court case in 1890 addressed the continuation of those rights beyond their initial terms. Later Territorial agreements and State-era licenses continued and formalized the authorization of diversion under subsequent governmental frameworks.

The synthesis also considers the development and expansion of ditch systems that implemented these authorized diversions. Precise intake locations are not consistently identified in the records reviewed for this study. Diversion areas are therefore described based on streams named in primary documents and their documented association with ditch systems. These systems expanded over time and operated across multiple ahupuaʻa, connecting streams from different valleys into integrated conveyance systems. Evidence from corporate records and historical accounts indicates that initially independent systems were subsequently brought under common control through acquisition and reorganization in the late nineteenth and early twentieth centuries. The incorporation of East Maui Irrigation Company, Ltd. in 1908 represents a significant point in this process, marking the consolidation of multiple ditch systems and associated rights into a single operating entity.

In addition to documenting diversion systems, this report examines their effects on existing land use and water-dependent practices across the biocultural landscape of Maui Hikina. LCAs and their associated testimony provide evidence of agricultural systems dependent on consistent stream flow prior to diversion. Hawaiian-language newspaper articles and petitions from the late nineteenth century document awareness of and response to changes in water availability during the period of early diversion. These sources are used to identify documented observations of water use and availability without extending interpretation beyond what is supported in the record.

The study also considers changes in land tenure that occurred alongside the development of diversion systems. Records of Land Grants, institutional land transfers, and plantation acquisition demonstrate the aggregation of land from individually held parcels into larger holdings associated with plantation operations.

In some cases, the native tenants attempted to respond to this shift in land tenure through hui lands in areas such as Peʻahi and Huelo, organizing as collective ownership structures with defined shares and recorded interests. Archival records indicate that these lands were subject to subdivision, transfer, and legal dispute over time, resulting in increasingly complex ownership patterns. Plantation interests appear within this framework through the acquisition of shares and partial interests, rather than through a single transfer, contributing to the gradual consolidation of land under plantation control. These processes facilitated the construction and operation of large-scale irrigation systems across multiple properties.

This report does not attempt to provide a comprehensive history of plantation agriculture or a complete legal history of water rights in Hawaiʻi. It is limited to the synthesis of the documents accumulated by Kumu Pono Associates over the last 45-years and the relationship evident between water sources, diversion systems, and controlling entities within Maui Hikina. *The analysis is based on selected case studies and the primary records within that accumulation, which are used to illustrate patterns observable across the broader system.* The objective is to present in both narrative and annotated maps a clear, evidence-based account of how control

over water sources was established and maintained, and to identify the documented effects of those processes on existing systems of land and water use.

Where relevant, this synthesis references prior documentation of LCAs and Boundary Commission testimonies to identify areas of established water use along streams later incorporated into diversion systems. These references are used selectively to illustrate the relationship between documented land use and subsequent diversion, without repeating the full compilation of those records. Supporting materials, including tabulated data and extended excerpts, have been presented separately to the East Maui Water Authority through the report, *Maui Hikina – E Ho’oponopono ‘Āina* (Maly et al. 2025), and its associated appendices and digital repository.

The sections that follow examine the development of water diversion systems through specific records and case examples presented in chronological and thematic sequence. Each section introduces primary documentation and describes what those records demonstrate regarding authorization, construction, consolidation, and continued operation of diversion systems. Through this approach, the report provides a documented framework for understanding how the present configuration of water systems in Maui Hikina developed over time and how those systems continue to operate today.

SECTION 2. Land Commission Awards and Baseline Water Use in Maui Hikina

Land Commission Awards (LCA), issued following the Māhele ‘Āina of 1848³, provide primary documentation of land use and water access in Maui Hikina during the mid-nineteenth century. These records include registry statements, testimony, and survey descriptions that identify the location, boundaries, and use of specific parcels within ahupua’a. Collectively, they document systems of land and water use in which wai was accessed, used, and managed within the ahupua’a and was not separated from land or treated as an independently controlled resource. As a means of illustrating the scope of changes from residency and access to resources between the 1800s to 2026, two detailed maps, one for Halehaku Ahupua’a (*Figure 4*) and one for the Moku of Hāmākuapoko (*Figure 5*) are including in this synthesis.

The records examined do not describe water as a separately owned resource, but rather as an integral component of land use associated with lo’i kalo cultivation and other subsistence activity. Testimony and registry statements identify these activities occurring within various types of lands, utilizing and stewarding forest resources, and residing within the parcels, indicating lived systems of use extending across environmental zones. The presence of ‘auwai and stream-adjacent cultivation further demonstrates that water use was embedded within the physical and functional organization of the land and traditional-customary practices of kānaka maoli.

For the purposes of this study, selected LCAs from across Maui Hikina are presented as case studies. These examples are drawn from a broader body of documentation from

3 For general discussions of the Great Māhele and the transformation of land tenure in nineteenth-century Hawai’i, see Lilikalā Kame’eleihiwa, *Native Land and Foreign Desires* (Honolulu: Bishop Museum Press, 1992) and Jon J. Chinen, *The Great Māhele: Hawai’i’s Land Division of 1848* (Honolulu: University of Hawai’i Press, 1958).



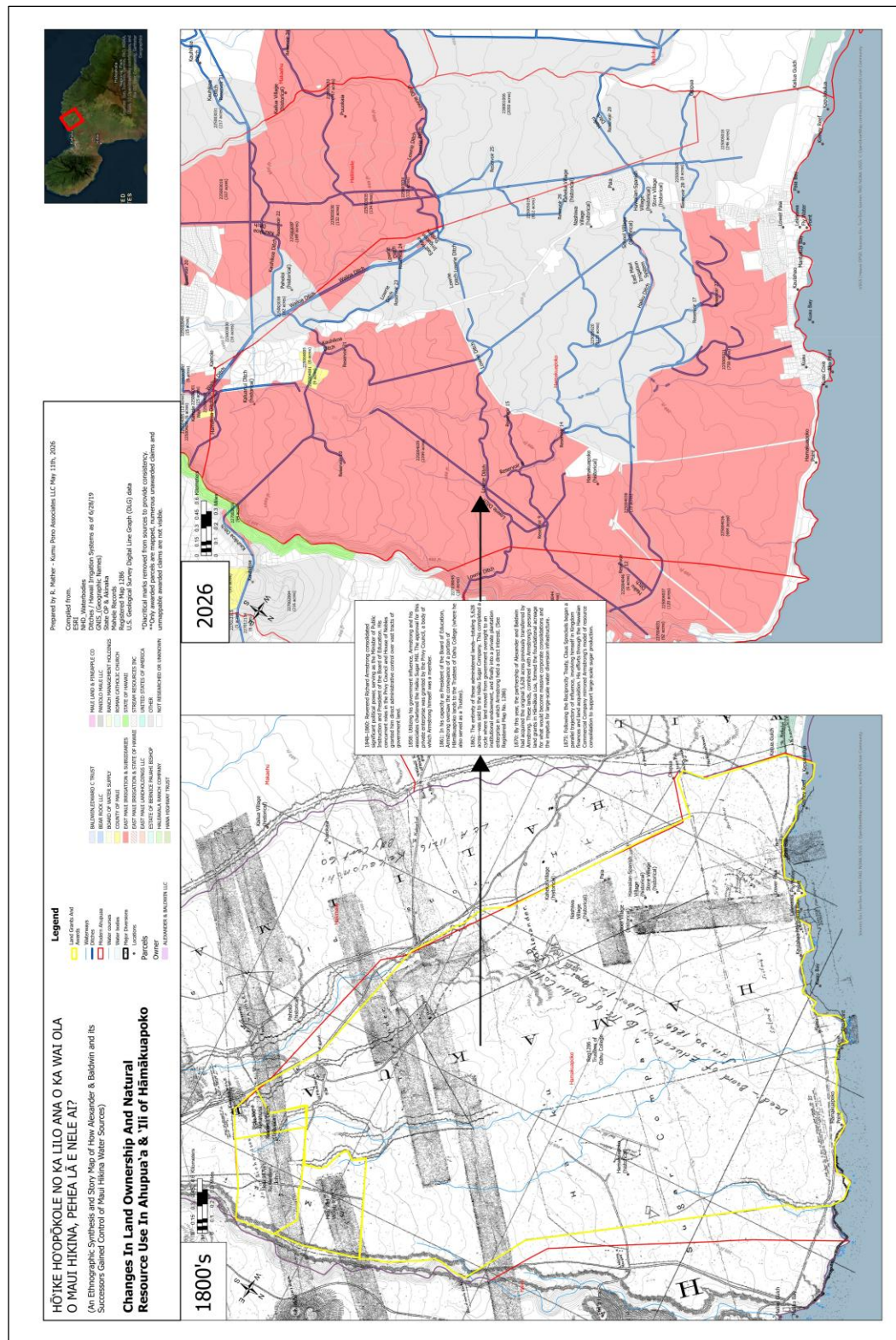


Figure 5. Hō'ike Ho'opōkole No Ka Lilo Ana O Ka Wai Ola O Maui Hikina, Pehea Lā E Nele Ai? 1800s & 2026: Changes In Land Ownership And Natural Resource Use In Ahupua'a & 'Ili of Hāmākuapoko (Prepared by R. Mather)

Hāmākuapoko, Hāmākualoa and Koʻolau, and are used to illustrate consistent patterns of land and water use within ahupuaʻa located in the three regions later incorporated into diversion systems and defined by “license areas.” The case studies are presented cumulatively, with each building on the concepts established in the preceding examples. As such, recurring elements are not restated in full, and later entries focus on additional features identified in the record. The studies, therefore, serve as evidence of elements and patterns, demonstrating how the hoāʻāina and wai functioned within established systems of cultivation, subsistence, and resource use prior to the development of large-scale diversion infrastructure.

It is important to note, however, that LCAs and associated survey maps recorded in the “Mahele Award Books” document only those claims that were formally recognized through the award process. As such, they do not represent the full extent of land use, occupancy, and resource access within the ahupuaʻa. Numerous claims were not awarded or not pursued, including those associated with individuals who died prior to final adjudication, chose not to proceed, or continued to reside under the authority of the konohiki. These lands and associated uses are not mapped in the same manner, and their locations must be inferred through reference to neighboring awarded claims, named features, and descriptions contained in the record.

Nevertheless, the conditions documented in these records establish a baseline for understanding subsequent changes in water use and control. As later sections demonstrate, the authorization and construction of diversion systems beginning in the 1870s introduced new mechanisms for capturing and conveying water at a scale extending beyond individual parcels and ahupuaʻa. The records presented here document the landscape within which those changes occurred, one that supported sustained agricultural production, integrated resource use, and customary practices of water access and management.

Section 2.1 – Land Commission Award Case Studies

MOKU O HĀMĀKUALOA

Huelo, Honopou & Hanehoi: Kuluwaimakalani (Helu 5459E)

The Land Commission Award for Kuluwaimakalani in Huelo documents multiple parcels associated with distinct forms of land use. Testimony identifies ‘Āpana 1 as kalo land at Makauke (Kamakauke) and ‘Āpana 2 as kula land at Hanehoi, indicating the presence of both irrigated and non-irrigated cultivation within a single award. The identification of kalo land implies access to a consistent water source sufficient to support irrigated agriculture.

Survey records associated with LCA 5459E further identify an auwai as a boundary feature for ‘Āpana 1, indicating the presence of established irrigation infrastructure at the time of survey. The use of an auwai as a defining boundary element demonstrates that water conveyance features were integrated into the physical and legal delineation of the land.

Testimony also notes the presence of a poalima⁴ within ‘Āpana 1. Contextually, its inclusion indicates a recognized organizational feature associated with the management or use

⁴ “Poalima” according to Lucas (1995, 93) is a “term used for land farmed by tenants for aliʻi one day in five.” The term “Pōʻlima literally means “Friday” and was the day of the week on which hoāʻāina did their work in service of the aliʻi.

of the parcel. The combination of irrigated kalo land, adjacent kula land, and referenced infrastructure reflects a pattern of land use extending across environmental zones and supported by localized water access.

A corresponding survey map (*Figure 6*) further documents the configuration of the parcels in relation to surrounding topographic features.

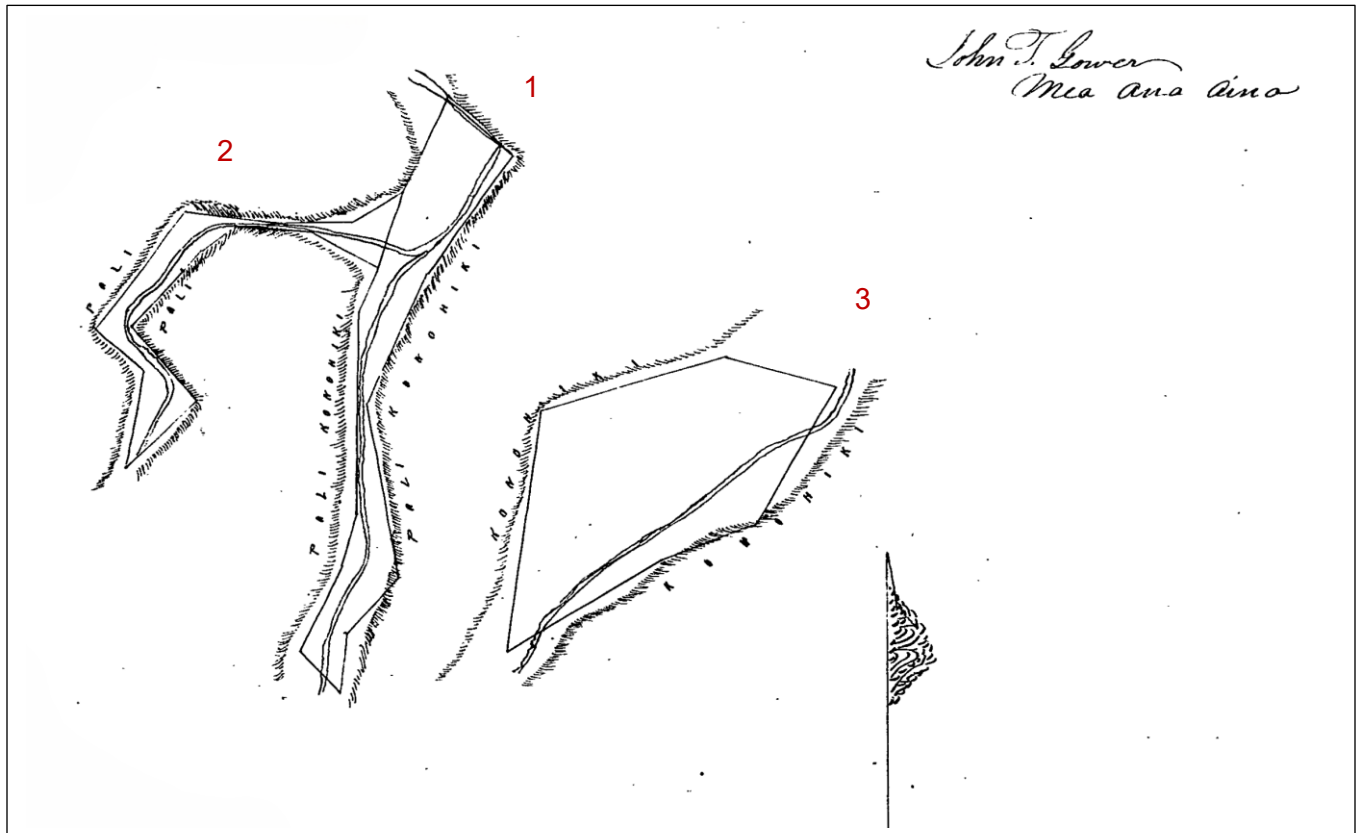


Figure 6. Survey Map of Helu 5459/5459E for Kuluwaimakalani Showing ‘Āpana 1, 2, and 3 With ‘Auwai Crossing through All Awarded ‘Āpana

Honopou: Palea (Helu 5451)

The Land Commission Award for Palea in Honopou documents cultivated land in direct relationship to a stream system and across two distinct locations within the ahupua‘a. Testimony identifies the kahawai of Honopou as a boundary for ‘Āpana 2, establishing the stream itself as a defining feature of the land. In this instance, water is not only associated with use, but functions as a fixed boundary element within the surveyed division of the parcel.

The claimant’s registry statement describes extensive cultivation at several named ‘ili—Uluke, Kahauiki, Kaluakanaka and Oiku—within the award. At Lukue (Uluke/Uluku) and Kahawiki (Kahauiki), the claimant reports twenty-five loi kalo along with additional areas planted in ‘uala extending to a residential structure. At Kahauiki, additional loi kalo, mounds, and planted areas are identified, along with access to forest resources. These descriptions indicate sustained and distributed agricultural throughout the parcel rather than a single concentrated area of cultivation.

A corresponding survey map (Figure 7) shows the parcels as spatially separated, with one aligned along the kahawai and another located further inland. This configuration reinforces the distribution of land use across distinct areas and supports the identification of the stream as a structuring element within the landscape. Additional boundaries are described by an “alanui pii a iho”, situating the land within a connected system extending from mauka to makai and indicating movement between zones of use.

Additional parcels within the award are described as “ua mahi ole” and “ua loa ole”, indicating areas that were not under cultivation or not secured at the time of documentation. These distinctions demonstrate that the award reflects land use conditions as recorded at a specific moment, with recognition tied to demonstrated cultivation and occupation rather than the full extent of land potentially used within a broader system.

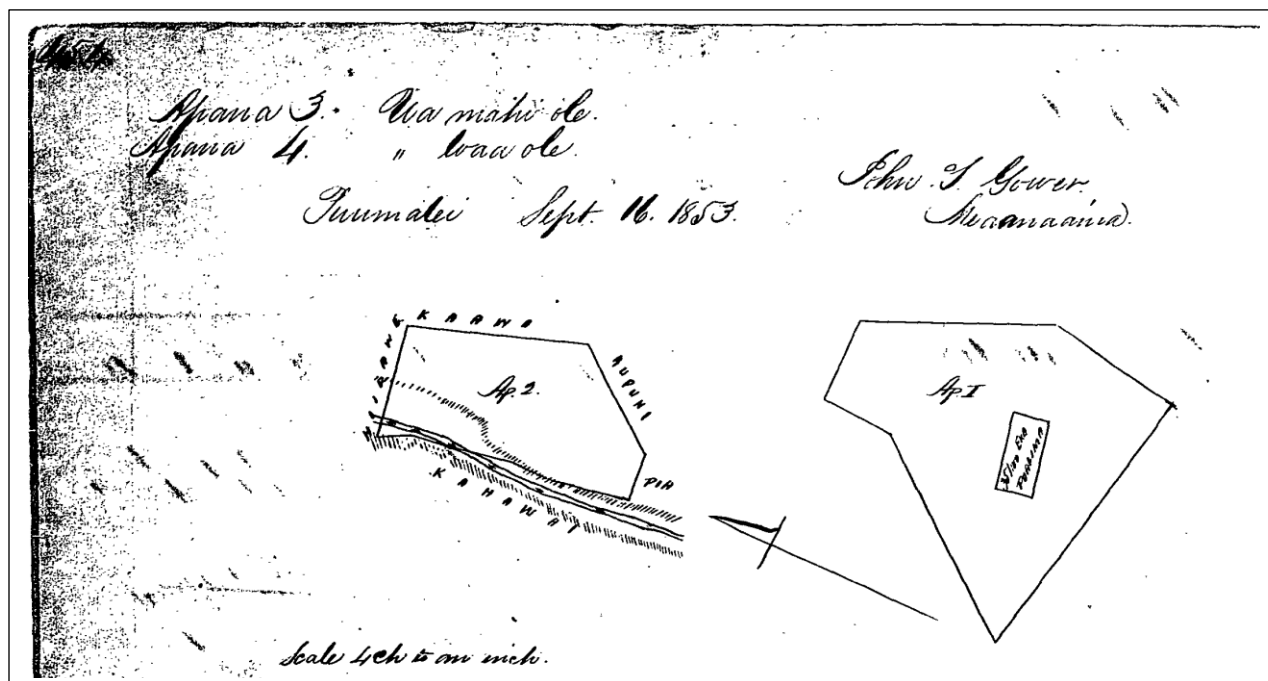


Figure 7. Survey Map of Helu 5451 for Palea Showing the Kahawai Bordering ‘Āpana 2 And the 35/100 Ac. Pō'alima Exclusion

Honokala, Waipio & Holawa: Hanauwaha (Helu 5130 & 6510F)

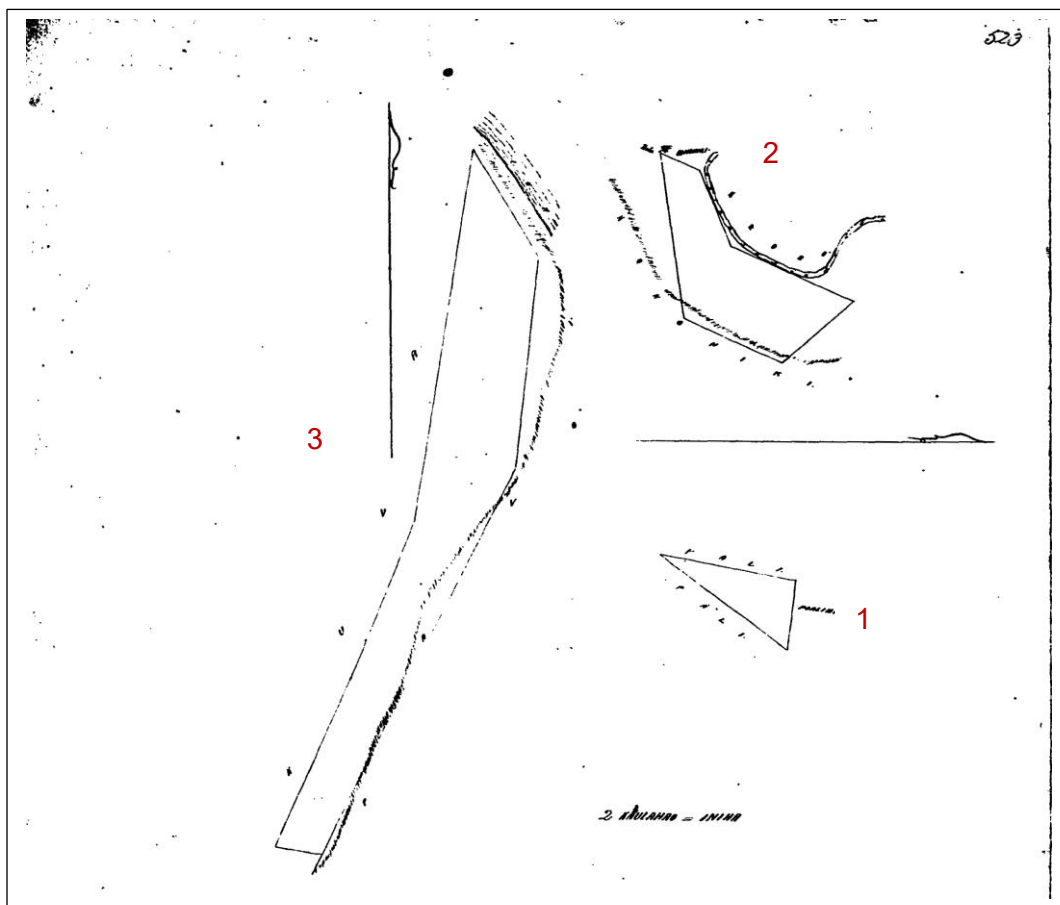
The Land Commission Award associated with Hanauwaha (originally recorded under the name Kahanauwaha, Helu 5130) in Honokala document claims to multiple parcels situated across several named places, including Puuokaupu, Maoli, Kauhiulu, Pukuhale in Waipio, and Waikakulu in Holawa. These lands are not described as a single continuous holding, but as a set of places connected through use. These claims appear in more than one entry within the Land Commission record, including LCA 5130 and 6510F, reflecting the presence of multiple recorded iterations of the same claim, a pattern that appears in other Land Commission records and indicates the complexity of how claims were documented during the Mahele period.

Testimony identifies five parcels described as “kula kalo,” indicating areas associated with cultivation across different environmental settings. The testimony further records that four of the

parcels were obtained from Kekauwai in 1835 and one from Auwae in 1831, situating these lands within an existing network of relationships and transfers prior to their presentation to the Land Commission. A pō'alima is identified in 'Āpana 1, indicating a recognized feature tied to the management of the land.

The award ultimately recognizes three of the five claimed parcels, while two are excluded and designated as “mahi ole” in the documentation, indicating that the formal award reflects only a portion of the lands described in the testimony. Similarly to Palea’s lands in Honopou, this does not mean that those lands were then vacated or unused.

A corresponding survey map depicts the awarded parcels (*Figure 8*). One parcel is elongated and extends from mauka to makai, terminating at the ocean, while the other two are more compact. The distribution of these parcels across the landscape reflects the relationship between land divisions and environmental conditions. Parcels located in different areas of the ahupua'a correspond to distinct resources and wao, indicating that native tenants maintained access across multiple zones to support subsistence.



**Figure 8. Survey Map of Helu 6510F for Hanauwaha
Depicting The Three Awarded 'Āpana in Honokala, Waipio & Holawa**

Taken together, the registry, testimony, award entries, and survey records show that the lands associated with Hanauwaha were understood and used as a set of connected places, while the Māhele award recorded and formalized only a portion of those relationships. The resulting documentation reflects land use as it was presented and accepted at that moment, rather than the full extent of the system within which those lands were situated.

Halehaku: Kulani (Helu 5512)

The Land Commission Award for Kulani in Halehaku identifies two parcels of land, referred to in the record as ‘Āpana I and ‘Āpana II. ‘Āpana I and ‘Āpana II were both awarded, though the survey of ‘Āpana II is qualified by the statement “aole mai oia,” which implies that the survey was made without Kulani being present to show the boundaries (Figure 9).

‘Āpana I is described as a single parcel containing two mahele. Testimony identifies multiple sections of cultivated land within this parcel, including a total of twenty-four lo‘i kalo distributed across these areas. These lo‘i indicate sustained use of water for irrigated cultivation.

The testimony also identifies areas of kula land within ‘Āpana I, along with forest resources including kukui, koa, and ohia. These elements are described together within the same parcel, indicating that the awarded land includes both cultivated and forested areas. A stream is identified at Kawailoa within ‘āpana I, with ‘o‘opu and ‘ōpae specifically noted. Additional uses of the land are identified through the presence of a wauke patch and areas planted in ‘uala.

Testimony records that ‘Āpana I was obtained during the reign of Kamehameha I and ‘Āpana II in 1819, establishing that their use predates the Land Commission process. A pō‘alima is identified within ‘āpana I, indicating a recognized feature associated with konohiki governance and land use.

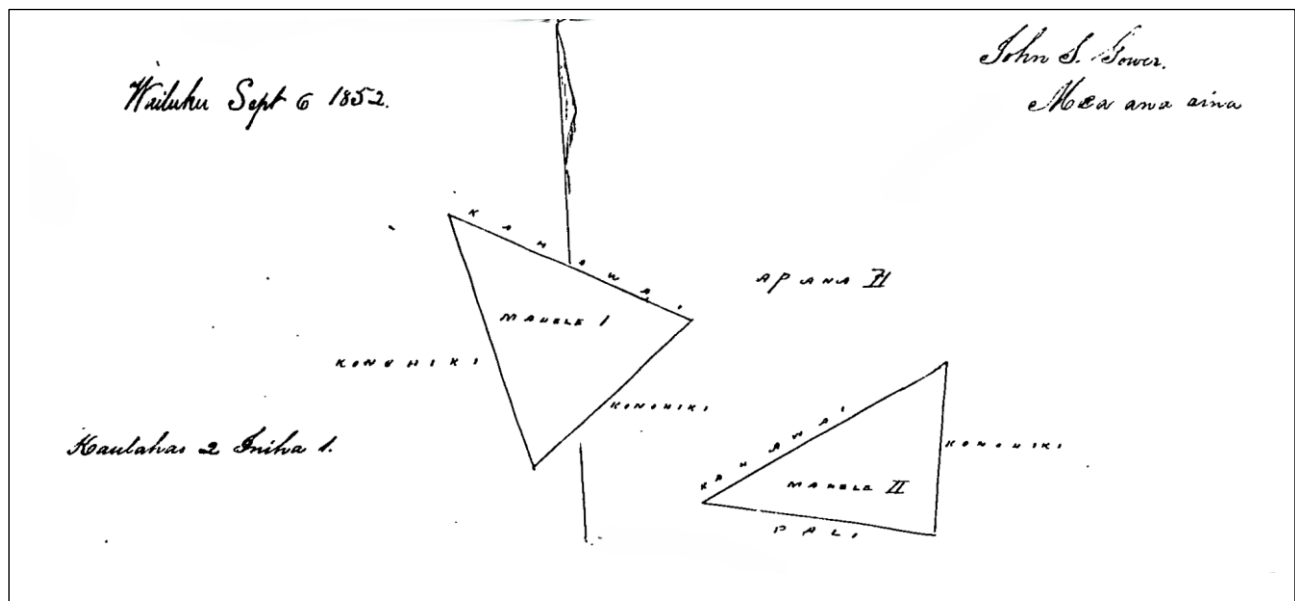


Figure 9. Survey Map of Helu 5512 for Kulani ‘Āpana I & II in Halehaku Showing The Kahawai As The Border For Both ‘Āpana

The award for Kulani documents irrigated cultivation, forest resources, and stream-based gathering are present together within the same claim, indicating a system of land and water subsistence rather than separate activities.

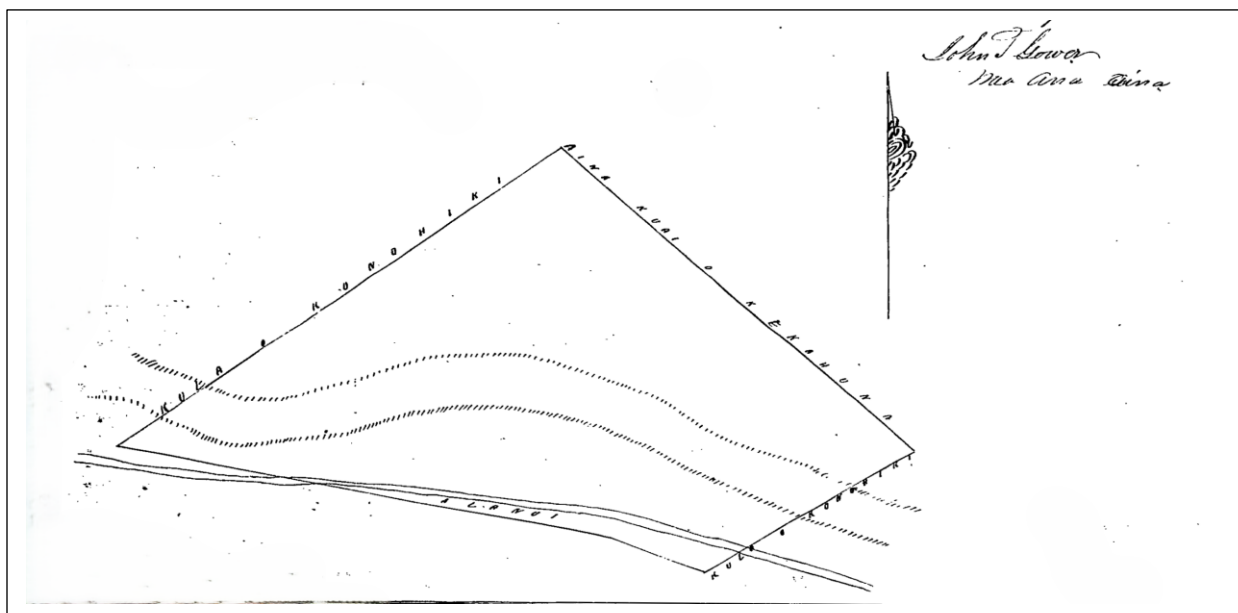
MOKU O HĀMĀKUAPOKO

**Haliimaile, Paniau: Kekahuna, Kamahine, Kuana,
Nawai, Paelua & Kanakanui (Helu 4142 & 5421)**

Helu 4142 documents multiple individual kuleana recorded under a single helu where lands are identified across several ‘ili within the ahupua‘a of Pānī‘au, with separate kuleana attributed to Kamahine, Kuana, Nawai, Paelua, and Kanakanui. These entries indicate that the helu does not represent a single, bounded parcel, but rather a grouping of individual claims associated with specific persons and locations (*Figure 10*).

Registry statements describe rights of residency extending from the time of Kahekili, indicating that the basis for these claims is tied to established occupation and descent. The identification of multiple kuleana within a single helu reflects how some land claims were recorded within the Land Commission process, with several individuals associated with lands documented together under one entry.

Testimony further distinguishes between areas of kula and kalo cultivation located in different parts of the landscape, each described with named boundaries. These records demonstrate that a single helu may include multiple individual claims submitted together across different locations. Each claimant is identified with a specific kuleana, but the claims are presented collectively, reflecting the interconnected nature of land use and access to resources, including water for kalo cultivation.



**Figure 10. Survey Map of Helu 4142 & 5512 for Kekahuna
‘Āpana I in Hamakuapoko showing the alignment of the Alanui, Konohiki Boundaries
and additional land purchased by Kekahuna**

Paia, Hamakuapoko & Haiku, Hamakualoa: Kiha (Helu 5325)

The claim of Kiha in Hamakuapoko identifies water through features other than streams and irrigation systems. Testimony describes the presence of three punawai nui within the claimed lands, indicating the use of spring-fed water sources as part of cultivation and subsistence activity (*Figure 11*).

In addition to cultivated lots, the claim includes a pa pipi, reflecting the keeping of cattle within the same system of land use. The presence of livestock indicates that water supported uses beyond irrigated agriculture. The registry describes Mokuoi as an area where people do not live, yet it is cultivated and maintained. This indicates that land was used and cared for without permanent residence, with water supporting that use.

These features show that access to water was not limited to streams or auwai, but included additional sources integrated into land use, even in areas without habitation.

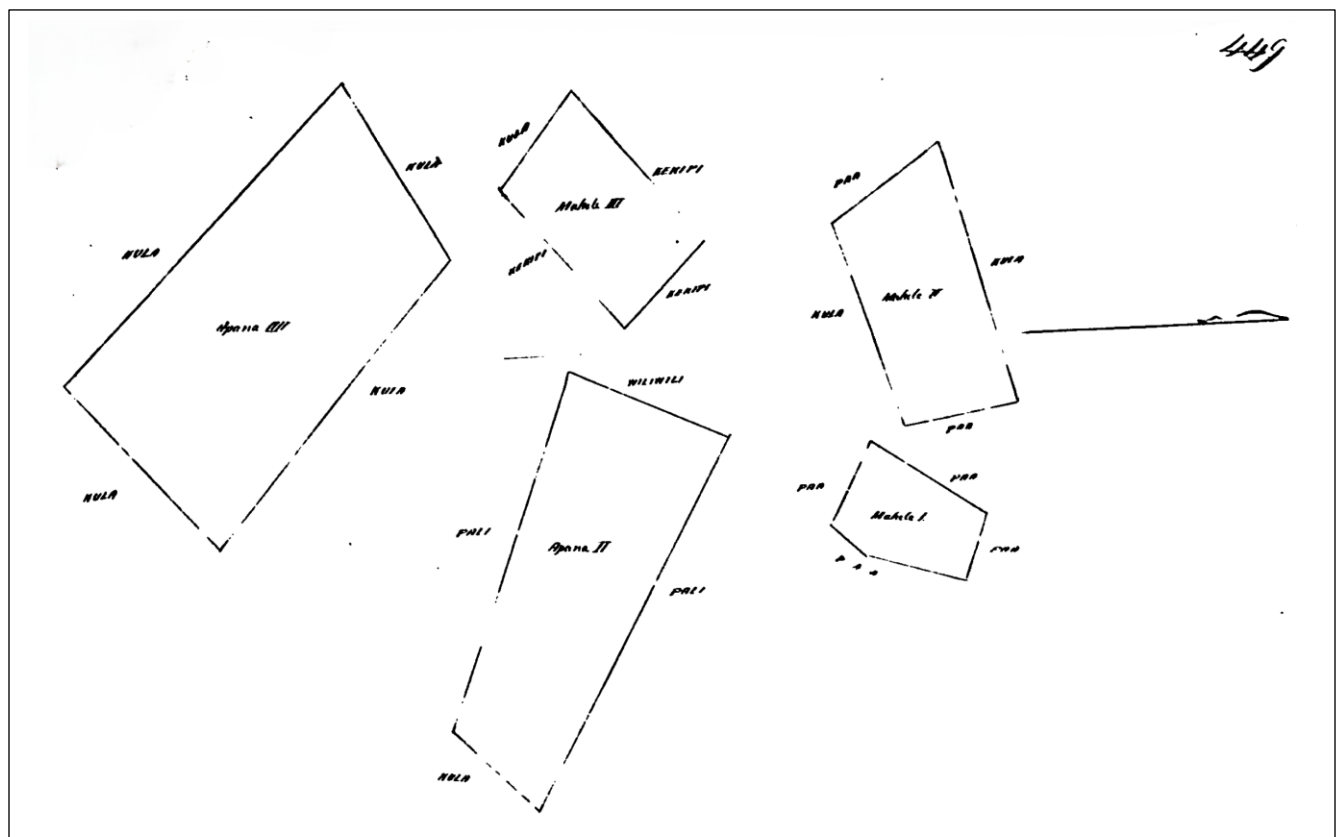


Figure 11. Survey Map of Helu 5325 for Five ‘Āpana Awarded to Kiha in Paia, Hamakuapoko

Waiaka at Wailuku, Honohina & Hulaia, Hamakuapoko: Kekipi (Helu 8314)

Helu 8314 documents the claim of Kekipi in Hamakuapoko and identifies multiple 'āpana located at Hulaia and Honohina, including a pa hale and several mo'o kula. 'Āpana 3 is described as a house lot, while 'Āpana 4 through 7 are identified as mo'o kula, indicating areas associated with dryland cultivation. Survey records show that 'Āpana 3 is bounded by a loko

(pond) on one side and kula lands on two others, situating the house lot in direct relation to both water and surrounding cultivated areas (*Figure 12*).

The repetition of mo'o kula across several 'āpana reflects intensive cultivation within a defined area. Each parcel is described with named boundaries, including adjacent 'ili, ahupua'a, and an alanui aupuni, situating these lands within an established landscape. The presence of multiple cultivated parcels indicates that water was necessary to support this level of use.

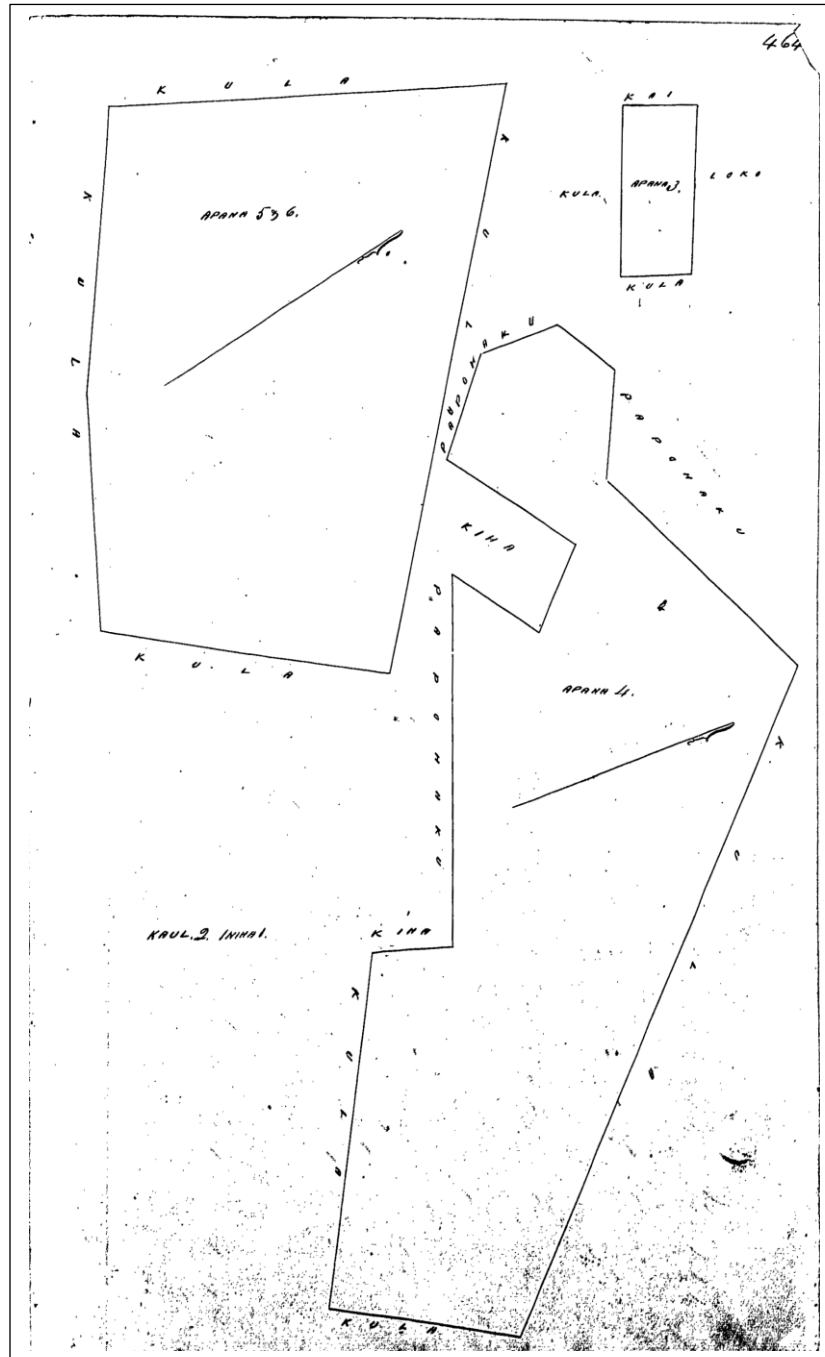


Figure 12. Survey Map of Helu 8314 for Kekipi in Hāmākuapoko

MOKU O KO'OLAU

Wailua: Kiowai (Helu 3499)

Kiowai's claim through helu 3499 in Wailua identifies extensive lo'i kalo and kula lands across several named locations within the ahupua'a, including Waieli, Paakamaka, and Palolena. The claim records a total of forty lo'i, with a concentration of twenty-seven at Palolena, indicating intensive irrigated cultivation within these areas. The claim also includes a hala grove at Paehala, identifying the use of additional plant resources within the same system of land use.

Testimony associated with the claim describes individual kīhāpai located within these lands and defines them through named boundaries. These boundaries include both adjacent lands and water features, with an auwai and a kahawai identified as boundary elements for specific garden plots. In one instance, a kīhāpai is bounded by an auwai on one side and a kahawai on another, situating cultivation directly in relation to water conveyance and flow.

The claim and testimony show that large numbers of lo'i and smaller garden plots were supported within Wailua. Ultimately, Kiowai was awarded a single mo'o at Waieli (*Figure 13*).

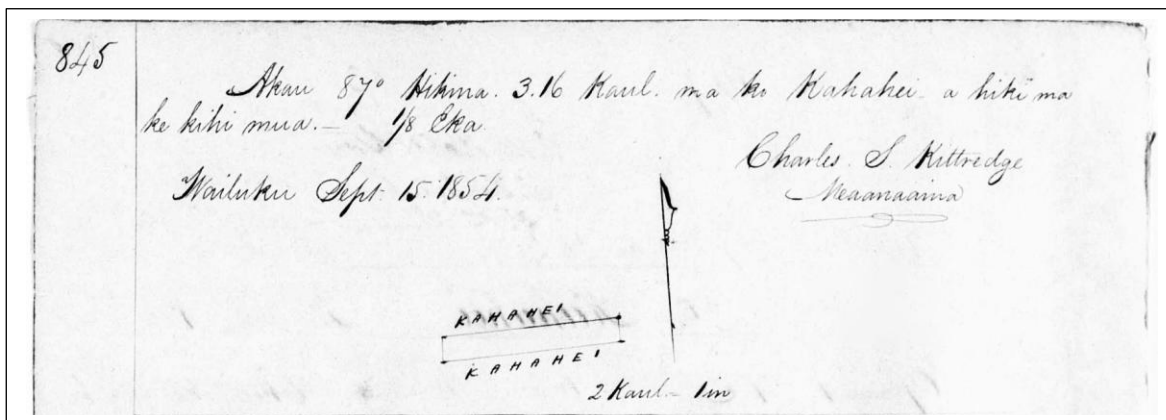


Figure 13. Survey Map of Single Mo'o Awarded to Kiowai for Helu 3499 in Wailua.

Keanae: Nuole/Naeole (Helu 4863 & 4665F)

The claim of Nuole (Naeole) in Keanae identifies lo'i kalo within the ili of Kapae, with sixteen lo'i recorded within the claim. This concentration reflects intensive cultivation within an area known for sustained kalo production as evident through Registered Map 2238 of the Keanae Flat.

In addition to irrigated cultivation, the claim includes an olona patch in the uplands, indicating other plant cultivars in the region. The claim also identifies a house lot and adjacent lands within the defined boundaries of Keanae. The number of lo'i recorded, together with their location in Kapae, reflects continued and concentrated kalo cultivation within Keanae, an area where these practices persist (*Figure 14*).

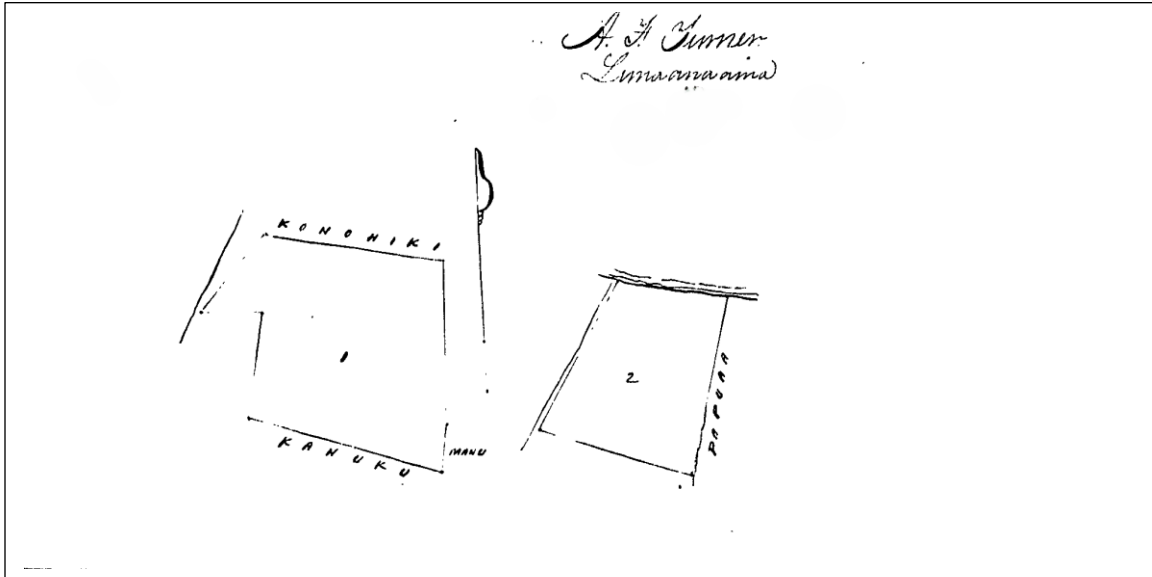


Figure 14. Survey Map of Helu 4665F for Nuole (Naeole) in the ‘Ili of Kapae in Keanae.

Wailua & Pauwalu: Kamanu (Helu 5051)

Helu 5051, the claim of Kamanu, identifies extensive lo‘i kalo within Wailua, including twenty-six lo‘i within a single parcel in the ili of Keononalu. Additional lo‘i are recorded in Waieli, Pauwalu, and Paakamaka.

The claim identifies these lands as having been received from named individuals, including Wahapuu, Wahinemaikai, Kahahei, Kauaikalihi, and Kaiwa, as well as through inheritance. Several of these individuals are also associated with claims in the same areas, indicating that these lands were held and used within ongoing relationships among people connected to those places.

Survey records identify a kahawai as a boundary feature for the claimed lands, situating these lo‘i in direct relation to stream flow. The number of lo‘i recorded reflects sustained and intensive kalo cultivation within Wailua and adjacent areas, indicating that these systems required substantial and consistent water flow to be maintained. The full page of this Award Book (3:613) is cited with notes of survey and plot plan as an example of how they were recorded in the claims & awards cited in this synthesis (*Figure 15*).

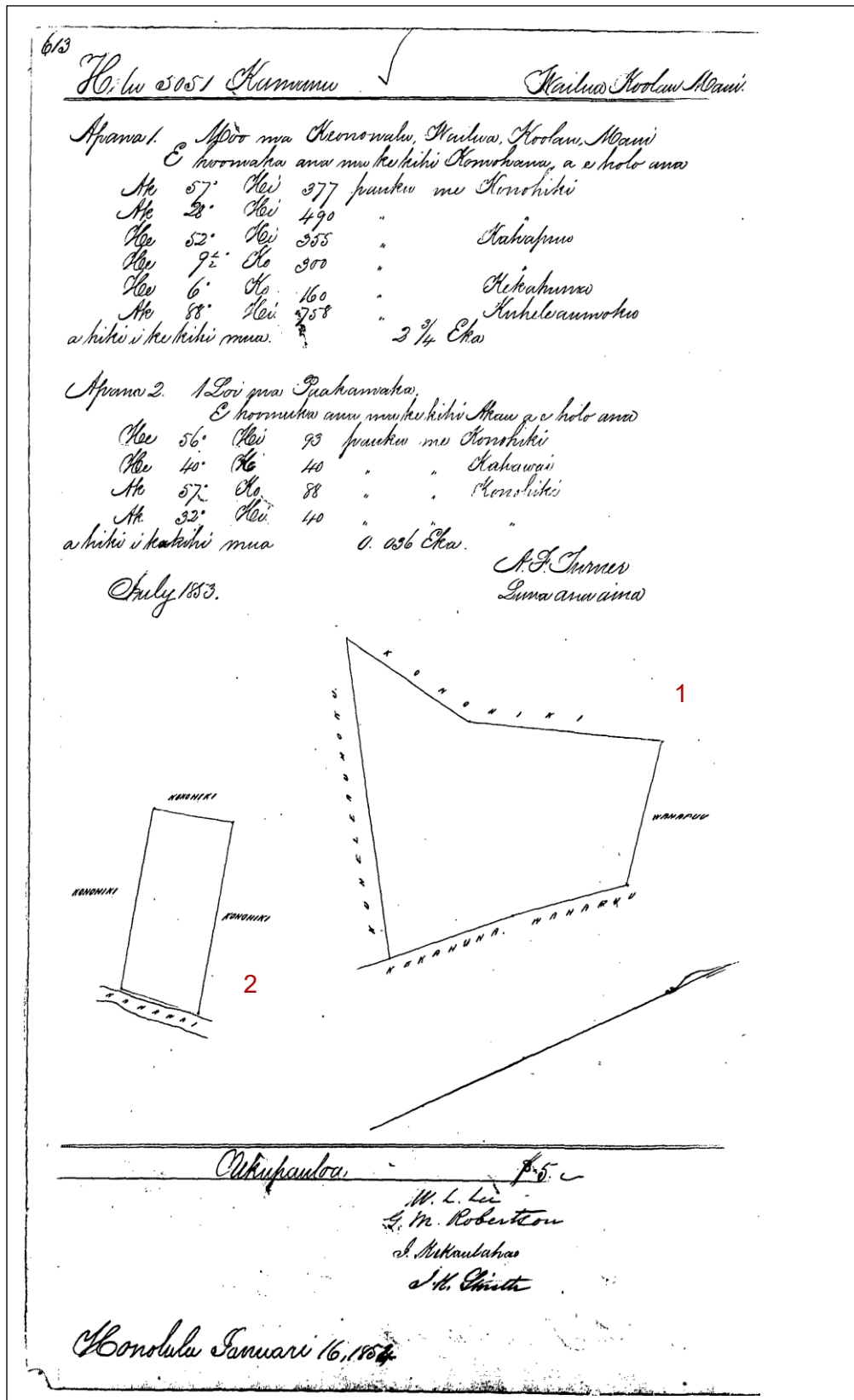


Figure 15. Survey Map of Helu 5051 to Kamanu in Wailua

Section 2.2 – Patterns of Land and Water Use in Maui Hikina

The Land Commission Awards reviewed document consistent features of land and water use in Maui Hikina. The presence of lo'i kalo in multiple locations indicates reliance on accessible and sustained water sources. These fields are frequently described in proximity to streams or within areas defined by water features such as 'auwai.

Land use extends beyond irrigated cultivation. Parcels commonly include combinations of kalo land, kula land, forest resources, and residential areas, reflecting integrated systems of use across environmental zones. The movement of activity from mauka to makai further indicates the connected nature of these landscapes.

References to pō'alima and other organizational features suggest that land use was structured and managed through recognized systems of responsibility or access. While not described in detail in the records reviewed, their repeated presence is indicative of konohiki governance and forms of organization beyond individual cultivation.

Water is not described as a separate commodity or independently controlled resource. Instead, it is embedded within the use of land, particularly in relation to lo'i kalo and stream-associated resources. Access to water is indicated through the existence and productivity of cultivated fields rather than defined through explicit rights or allocations in the records examined⁵.

The conditions documented in the LCAs provide a baseline against which later changes in water use and control can be assessed. *The identification of stream-dependent agricultural systems, integrated land use across environmental zones, and the absence of separate water ownership establishes a point of comparison for the development of commercial diversion systems beginning in the 1870s.*

As subsequent sections will show, the authorization of large-scale, permanent diversion systems introduced mechanisms for accessing and redirecting water at a scale extending beyond individual parcels, ahupua'a, and districts. The records presented here establish the conditions under which those changes occurred and provide a basis for examining the relationship between existing land use and later diversion.

SECTION 3. Plantation Formation, Institutional Authority, and Demand for Water

By the mid to late nineteenth century, the lands of Maui Hikina documented through Land Commission Awards remained demonstrably tied to established patterns of Native Hawaiian subsistence and resource management. The preceding records show consistent reliance on stream-fed irrigation, the presence of lo'i kalo systems, and the continued use of 'auwai that directed water across multiple zones of cultivation. These features reflect not only agricultural practice, but the operation of a broader hydrological system maintained through customary stewardship and native knowledge of water distribution.

⁵ For a early 20th century explanation of Hawaiian water rights, see Emma Nakuina, *Ancient Hawaiian Water Rights and Some of the Customs Pertaining to Them* in the Hawaiian Almanac and Annual (Honolulu: Thrum, 1893).

It is within this already developed and actively managed biocultural landscape that the first large-scale efforts to divert East Maui water for commercial agriculture emerged. Beginning in 1876, a series of agreements, leases, and engineering undertakings initiated the redirection of water away from these established systems and toward plantation fields as far away as the central isthmus. These actions did not occur in isolation, nor did they represent the creation of new water sources. Rather, they relied upon the interception of streams that had long sustained the agricultural and subsistence practices described in earlier records.

The earliest of these developments centered on the construction and expansion of what would become known as the “Hamakua Ditch” system. Associated with both private actors and formalized corporate entities, these efforts were supported through legal instruments issued during the Hawaiian Kingdom period, including water leases that granted rights of diversion from specific streams. These agreements marked a fundamental shift in how water was allocated, from systems embedded within ahupua’a-based management and konohiki governance to arrangements that enabled its transport across district boundaries for commercial use.

At the same time, individuals and organizations involved in these projects were not operating independently of broader political and economic structures. Their activities were connected to emerging plantation interests, evolving land tenure systems, and a growing alignment between government authority and private enterprise. As subsequent ditch systems were proposed and constructed, the scale and coordination of these efforts expanded, further entrenching the redirection and commodification of East Maui water.

Because the agreements and instruments executed between 1876 and 1878 establish the legal and structural basis for all subsequent diversion, this section examines the conditions that led to the agreements and the actual records in greater detail than later periods. The licenses, indentures, and associated agreements from this period define the initial allocation of rights, the organization of diversion infrastructure, and the terms under which water could be taken and conveyed. These records form the foundation upon which later expansion, consolidation, and system integration were built, and therefore require closer examination to understand the development of the system as a whole.

Section 3.1 Actors and Roles

The development of large-scale water diversion systems in Maui Hikina was closely tied to a defined group of individuals and business interests whose activities in land acquisition and plantation development preceded and informed the construction of diversion infrastructure. By the 1870s, these actors were actively consolidating landholdings across Maui Hikina through a combination of purchase, lease, and corporate organization, establishing the physical and economic foundation necessary for plantation agriculture.

Among the earliest plantation enterprises in Maui Hikina was the Haiku Sugar Company, which played a central role in the expansion of sugar cultivation in the region. Records associated with its formation and land acquisition show how control over land and plantation operations became concentrated by specific individuals.

One such individual was the Reverend Richard Armstrong, a member of the fifth company of the American Board of Commissioners for Foreign Missions (ABCFM). He served as Minister of Public Instruction and President of the Board of Education for the Hawaiian Kingdom from 1848 to 1860 (The Polynesian 1848). He was also a Trustee of Oahu College from 1853 to 1860

(Alexander 1907). Through his governmental positions he was also a part of the Privy Council and was appointed to the House of Nobles. These positions placed him in direct administrative control over government lands.

In 1857, the Trustees of Oahu College determined to establish an endowment to support the institution and needed a means of funding it. In 1858, Armstrong and his associates chartered the Haiku Sugar Mill, an action approved by the Privy Council. This action established a plantation enterprise requiring both land and capital investment. In 1861, as President of the Board of Education, he conveyed a portion of Hāmākuapoko to the Trustees of Oahu College. In 1862, the entirety of these lands (5,628 acres) was sold to the Haiku Sugar Company. This sequence of actions, documented through institutional and land records, shows that lands administered by the Board of Education were conveyed into institutional control and subsequently transferred into plantation ownership under an enterprise in which Armstrong held a direct interest. These acres, along with nearly 2,400 xx acres of Land Grants to Armstrong in Hāmākua Loa, would ultimately form the basis for the corporate consolidation that would follow in the subsequent decades.

At the same time, parallel plantation development by Samuel T. Alexander and Henry Perrine (H.P.) Baldwin created a growing demand for water that could not be met by local sources alone. Alexander and Baldwin, a handshake partnership between two friends with Lāhainā ties, had, by 1870, acquired lands that were originally part of the 5,628 acres conveyed to Oahu College in 1861. Alexander served as the plantation manager for Haiku Sugar Company while Baldwin oversaw their early agricultural ventures at their neighboring Alexander and Baldwin plantation (later Paia Plantation). Similar to other plantation enterprises of the time, their crops were initially dependent on rainfall and limited irrigation. With rapid expansion in scale, the need for increasing reliable and controllable water supplies became necessary. This need was not unique to their operations but reflected a broader condition across plantation enterprises in Maui, where suitable lands for sugar cultivation were often located in areas with insufficient rainfall to sustain commercial production.

On lands in Central Maui, the activities of Claus Spreckels in the late nineteenth century demonstrate the increasing scale and capital investment associated with plantation agriculture. After the Reciprocity Treaty of 1865, Spreckels' involvement in Kingdom finances, land acquisition, and irrigation development reflects a coordinated approach to securing the resources necessary for sustained production. His efforts through the Hawaiian Commercial Company (later Hawaiian Commercial & Sugar Co./HC&S), like those of Alexander and Baldwin and the Haiku Sugar Company, relied on the acquisition of land, the redirection of water, and consolidation of corporate powers, linking these processes directly to the emergence of diversion infrastructure.

Collectively, these actors and entities, and others like them, were not simply participants in agricultural development, but were instrumental in reshaping both land tenure and resource use across Maui Hikina. Their acquisition of land, supported by legal transactions and governmental recognition, created the conditions under which large-scale irrigation systems became commonplace. The demand for water generated by plantation expansion, coupled with access to capital and political influence, set the stage for the authorization and construction of diversion systems beginning in 1876.

Section 3.2 Conditions Preceding the 1876 Water License

By the mid-1870s, plantation enterprises operating in Maui had established both the land base and the production capacity necessary for large-scale sugar cultivation. The consolidation of lands associated with the Haiku Sugar Company and the expansion of adjacent plantation operations under Alexander and Baldwin, T. Holbron, and others, created a sustained demand for water that exceeded the availability of local sources.

The limitations of rainfall and existing irrigation systems are documented in early plantation operations, where agricultural production remained dependent on variable environmental conditions. As acreage under cultivation increased, the need for a consistent and controllable water supply became a defining constraint. This condition is reflected in the timing of subsequent actions, where efforts to secure water through diversion occur only after land consolidation and plantation development had reached a scale requiring external sources.

At the same time, the streams of Maui Hikina represented a well-known and accessible source of water. These streams, already documented in Land Commission Awards as supporting lo'i kalo cultivation and localized 'auwai, provided a continuous flow that could be redirected through engineered conveyance. The geographic separation between plantation lands and reliable water sources necessitated the construction of infrastructure capable of transporting water across districts.

The convergence of these conditions, established plantation operations, insufficient local water supply, and the availability of perennial streams in Maui Hikina, directly precedes the issuance of the first formal instrument authorizing water diversion in 1876.

Section 3.3 Application, Review, and Issuance of the 1876 Water License

The authorization for large-scale diversion of water from Maui Hikina streams did not begin with the execution of the September 1876 indenture. It followed a sequence of stakeholder interest, written applications, legal review, and negotiated terms documented in correspondence between plantation agents and the Hawaiian Kingdom government.

On August 20, 1876, agents for the Haiku Sugar Company, Samuel T. Alexander and Henry P. Baldwin operating as co-partners under Alexander & Baldwin, James M. Alexander, and Thomas H. Hobron submitted a formal application through Castle & Cooke to the Minister of the Interior. The request sought permission to divert water from streams in Hāmākualoa, including Nā'īlīlīhaele, Kailua, Hoalua, Huelo, Holawa, and Honopou, for irrigation of plantation lands in Ha'ikū and Hāmākuapoko.

On September 7, 1876, the Interior Department agreed to issue a twenty-year license to the named parties and their successors and assigns, authorizing the diversion and conveyance of water across government lands for an annual rent of one hundred dollars. *The terms required construction of a ditch within a reasonable time, protected existing tenant rights, and reserved to the Government the authority to grant additional rights that did not diminish the supply.*

A legal opinion issued the same day confirmed that the request constituted a license rather than a transfer of ownership, and that the Minister of the Interior, with the consent of the King and Privy Council, had authority to grant such rights for agricultural purposes.

The applicants accepted the terms on September 8, 1876 and executed the indenture on September 13, 1876. The agreement granted the right to take water from the named streams and to construct and maintain a ditch across government lands, subject to completion within two years.

The issuance of the 1876 license and the agreements that followed mark a shift from systems of water use embedded within ahupua'a to the large-scale diversion of water for plantation agriculture. These instruments established the basis for capturing and conveying water beyond the lands and systems in which it had previously been accessed and used.

SECTION 4. Development of Diversion Systems and Control of Water Resources (1876–early 20th century)

This section examines the sequence of actions through which authorized diversion was implemented, expanded, and reorganized following the issuance of the initial water licenses in 1876 and 1878. The records reviewed for this study document these processes across multiple categories, including the construction and operation of ditch systems, the issuance and overlap of licenses, the transfer and consolidation of land and water-related interests, and the formation of corporate entities responsible for system management.

Because these actions occurred concurrently and are documented across different types of records, the analysis is organized by the nature of the actions described rather than as a strictly continuous chronology. The sequence presented below traces the development of diversion systems from initial construction through subsequent expansion, transfer of interests, and consolidation of management, as documented in the archival records presented previously to the East Maui Water Authority.

Section 4.1 Construction and Early Operation of Diversion Systems

Following execution of the September 1876 indenture, the parties named in the agreement organized the construction and operation of a ditch system to convey water from the streams identified in the license. On November 2, 1876, they established the “Hamakua Ditch Company,” defining shares of ownership, assigning responsibility for construction costs, and setting terms for the distribution of water among participants.

The company was formed within weeks of the license issuance, consistent with the requirement that a ditch be constructed within a specified period. Ownership and operational responsibility were distributed among shareholders, rather than concentrated under a single individual or entity.

Construction proceeded under the authority granted in the license, which permitted diversion from named streams and conveyance across government lands to plantation areas in Ha'ikū and Hāmākuapoko. The ditch connected multiple stream sources into a single conveyance line, enabling the movement of water from the windward valleys of Maui Hikina to leeward plantation lands.

Within a short period, additional licenses were issued authorizing diversion from streams in the same region. On July 8, 1878, a separate water license was granted to Claus Spreckels under terms distinct from the earlier Hāmākua agreement, including a defined rental structure and duration. The Spreckels and Hāmākua licenses applied to adjacent and, in some cases,

overlapping watershed areas, and records indicate that both systems operated concurrently, drawing from streams within the same districts. The licenses were not exclusive and allowed for further authorizations, provided that existing supply was not diminished under their terms.

By the late 1870s, multiple diversion systems were operating in Maui Hikina under separate parties. Each functioned under its own license and organizational structure while drawing from the same stream systems within a shared watershed.

During the 1880s, these systems remained in operation, conveying water from East Maui streams to plantation lands. The Hāmākua and Spreckels systems served as the primary conveyance works, each operating under the terms of its respective license. Records indicate that water from multiple licensed sources was transported across ahupuaʻa boundaries, with conveyance becoming increasingly interrelated as water moved through connected or adjacent ditch alignments rather than entirely separate systems.

Later descriptions of the East Maui ditch network identify the Hāmākua and Spreckels ditches as early components of a broader system that remained in use beyond their initial construction. Portions of these ditches continued to operate alongside later works added to the network. In this system, water was taken from named streams in Maui Hikina, collected through multiple intakes, and conveyed through a single ditch line to plantation lands located outside of the originating ahupuaʻa.

Section 4.2 Consolidation and Corporate Reorganization of Land and Water Interests

By the 1890s, records describe changes in the control and organization of lands, water rights, and associated diversion systems in Maui Hikina through legal, financial, and corporate actions. Court proceedings, land transactions, and corporate records identify the continuation and reassignment of rights originally granted under earlier licenses.

A Hawaiian Kingdom Supreme Court case in 1890 addressed the continuation of water rights beyond their initial term, establishing that rights granted under earlier agreements could persist under defined conditions. Subsequent agreements in the 1890s modified and extended these rights, allowing for continued diversion and use under new or reassigned parties.

During this same period, records associated with the Hui Aina o Huelo document the transfer of land interests through the sale of shares. Beginning in 1899, individual shareholders conveyed their interests to Hawaiian Commercial & Sugar Company, with acquisitions continuing into 1900. By that time, HC&S held a controlling share within the organization, and governance shifted as company-affiliated individuals assumed leadership roles.

Contemporary accounts from 1898 also describe a reorganization of HC&S, identifying a transition in management and operational authority to controlling interests associated with Alexander & Baldwin. By the end of that year, HC&S was no longer controlled by Spreckels and his successors, but was now part of the plantation and business interests aligned with Alexander & Baldwin, which later incorporated in July of 1900 as Alexander & Baldwin, Ltd. This marked the change from the simple partnership between Samuel and H.P. to a new corporate structure and management that would move them into the 20th century.

In January 1901, a financial transaction further affected the lands held by the Hui Aina o Huelo. An outstanding mortgage placed these lands at risk of foreclosure, and Alexander & Baldwin, acting on behalf of HC&S, paid the balance due, preventing the loss of the property. The amount was carried on the books of HC&S, with repayment collected from shareholders over time. This arrangement placed financial responsibility with the company while maintaining the formal structure of shareholder ownership. These types of land acquisition transactions continued as a pattern in other Hui Aina like Pe'ahi, Hāmākuapoko, and Ulumalu.

Maui Agricultural Company was established in 1904 as a co-partnership of Haiku Sugar Company, Paia, Kailua, Kalialinui, Makawao, Pūlehu, and Kula plantations. This arrangement brought multiple plantation operations under a shared management structure, facilitating the coordination of land use, infrastructure, and water use across the broader system. The formation of Maui Agricultural Company reflects a further stage of consolidation in which plantation interests were aligned under a unified organizational framework associated with Alexander & Baldwin.

This consolidation was carried forward in 1948, when Maui Agricultural Company was absorbed into Hawaiian Commercial & Sugar Company, with the HC&S name retained for continued operation. This transition reflects the continued concentration of land, operations, and associated water use under a single corporate structure.

These transactions reflect a shift in land tenure from individually held and collectively managed parcels, including hui lands, to consolidated control under corporate structures associated with Alexander & Baldwin. Through a sequence of co-partnerships, mergers, and corporate consolidation, land, plantation operations, and associated water use were brought into alignment, enabling the expansion and coordinated management of diversion systems across the lands of Maui Hikina.

Section 4.3 Expansion of Conveyance Infrastructure and System Capacity

Beginning in the late nineteenth and early twentieth centuries, additional ditch systems were constructed to increase the conveyance of water from East Maui streams. Construction of the Lowrie Ditch began in 1899 and continued through approximately 1901. Although intended in part to deliver water at a higher elevation than the earlier Haiku system, it also increased overall conveyance capacity while the existing ditches remained in use.

In 1904, construction of the “Koolau Ditch” extended diversion into the Ke’anae and Nāhiku watersheds. Water from this system was distributed through existing conveyance lines, with a portion added to the flows carried by the “Lowrie” and “Haiku” ditches and the remainder transported through the “New Hamakua Ditch,” which was constructed during the same period. By 1905, the combined capacity of the East Maui ditch systems reached approximately 212 million gallons per day.

Further increases in capacity occurred in 1914 with the construction of the “New Haiku” and “Kauhikoa” ditches. These systems replaced portions of earlier ditches while increasing total conveyance capacity. The earlier “Hamakua” and “Haiku” ditches were gradually abandoned or supplemented, although portions remained in use for extended periods.

In 1923, the “Wailoa Ditch” was completed and placed into service. At the same time, portions of the “Lowrie” and “New Hamakua” Ditches were abandoned in their western sections,

while eastern portions continued in use as components of later systems. Following these changes, total system capacity at the delivery point reached approximately 340 million gallons per day.

Records describing these developments note that increases in conveyance capacity were not accompanied by proportional increases in available water supply. By 1923, capacity had increased by more than three times the original system, while the available gravity water supply had increased by less than half.

As additional systems were constructed and integrated, water from multiple stream systems was combined and redistributed through a connected network of ditches and tunnels, extending the reach of diversion across districts and increasing the dependence of water distribution on the operation of this infrastructure.

Section 4.4 Corporate Organization of Diversion System Management

On June 19, 1908, an agreement was executed establishing the East Maui Irrigation Company, Ltd. (EMI), through the participation of Hawaiian Commercial & Sugar Company, Haiku Sugar Company, Paia Plantation, Maui Agricultural Company, and other associated entities. The Articles of Association, dated June 23, 1908, formalized the creation of the company and defined its scope of operation. These entities were operating within a coordinated plantation system, with shared infrastructure and management aligned through corporate organization associated with Alexander & Baldwin.

Under the terms of the agreement, existing ditch systems, water rights, and associated easements were leased to EMI. These included diversion works constructed under earlier licenses and agreements, along with the rights necessary to operate and maintain those systems. The agreement established a corporate structure through which these systems and rights were managed under a single company. Participating entities retained their underlying interests while transferring operational responsibility for the ditch systems and associated infrastructure to EMI.

Section 4.5 Continuation of Diversion Authorization Under Territorial & State Administration

Following the establishment of the Territory of Hawaii in 1900, authority over government lands and associated water resources was exercised through a series of lease, license, and easement instruments governing access to watershed lands and the diversion of water in East Maui.

On February 26, 1902, the Commissioner of Public Lands executed General Lease Nos. 538 and 539 to H.P. Baldwin, conveying rights to forest lands and water resources across extensive portions of the Ko'olau district, including areas extending from Honomanū to Ha'ikū and from Wailua Iki to Ke'anae. These leases provided access to streams and watershed lands used in conjunction with existing ditch systems and established conditions governing their use, including provisions related to forest protection and the furnishing of water to homesteaders.

Subsequent territorial records document the continued issuance of water licenses covering additional stream systems and watershed areas. Beginning in 1917, licenses issued to EMI authorized the diversion of waters within defined districts, including named streams and all other

government-owned waters within specified boundaries, with provisions allowing for the development of additional water sources and the construction of conveyance works. Additional licenses issued in 1919, 1925, and 1930 extended similar rights across the ahupuaʻa of Honomanū, Keʻanae, Wailua, and Nāhiku, authorizing the diversion of surface waters, the development of additional supply, and the use of associated power resources, while reserving water for domestic use and cultivated lands.

These licenses were issued for fixed terms, generally twenty-one years, and included provisions for rental adjustment, modification, or withdrawal of water for public purposes. A land license issued in 1930 further granted the right to enter government lands within the Koʻolau Forest Reserve and to take, develop, and convey water through the construction and maintenance of ditches, tunnels, and related infrastructure. Territorial records from 1934 also include the issuance of perpetual easements granting rights-of-way for ditch systems across government lands, defining corridors for the continued operation and maintenance of conveyance works.

In 1938, an agreement between the Territory of Hawaii and EMI addressed the use of the existing aqueduct system extending from Nāhiku to Honopou. The agreement provided for the joint use of the system for the conveyance of water, including water derived from both territorial and company sources, and established terms under which water would be transported through shared infrastructure. It also addressed the transition of existing licenses and the conditions under which future licensing would occur.

Following the transition from Territorial to State administration in 1959, authority over public lands and water resources continued under state agencies through a system of leases, revocable permits, and other authorizations governing access to watershed lands and the diversion of water. Records document the continued issuance and renewal of these instruments to EMI, maintaining the ability to divert and convey water through the existing system of ditches, tunnels, and intakes. While the form of authorization shifted under state administration, the operation of the diversion system continued under successive licensing and permitting arrangements, extending the framework established under territorial administration into the present.

Section 4.6 Termination and Disposition of Water Licenses

The licenses in this period that were issued across Maui Hikina and beyond, included conditions and were for subject to future and reversion to the Governmental Authority. An example of this is found in the “Huelo License,” General Lease No. 3578, date August 11, 1959. Among the numerous conditions are the following excerpts describing the region covered in the agreement and reversion to the government:

...Island of Maui, Territory of Hawaii, between and including *Puohokamoa and Honopou streams and tributaries, in the districts of Koolau and Hamakualoa, and extending from the sea on the north to the land of Haiku Uka, Hamakualoa on the south*, as shown in yellow on the plan attached hereto and made a part hereof, and hereinafter referred to as the “Licensed Area...” [August 11, 1959:2 Section 4]

29. In case of the violation or failure to observe or perform any of the terms, conditions, covenants and agreements of this license by the Licensee at any time or times, the Licenser may, after ninety (90) days written notice to the Licensee and if the Licensee has not then

remedied such failure or default, and without prejudice to any other right or remedy it may have under this or other agreement for breach of contract, cancel this license and thereupon, as well as upon the termination of this license by elapse of time or for any other cause, all improvements now or hereafter erected upon the Licensed Area, including the whole of such aqueduct system and all extensions thereof and improvements made thereto, but excluding such improvements as are provided for in the next succeeding paragraph, shall revert to and become the sole property of the Licensor; provided, however, that any such cancellation or termination of this license shall in no way affect the rights that the Licensee may have under provisions of the East Maui Water Agreement and other existing licenses or agreements in full force and effect from or with the Licensor for the conveyance of water over and across said Licensed Area unless said violation or failure shall also constitute a violation or failure to observe or perform the terms, conditions, covenants and agreements of said other licenses or agreements and separate breach or breaches shall have been declared.

30. It is agreed that the Licensee may, on or before the termination of this license by elapse of time, or within ninety (90) days or such further reasonable time as the Licensor may allow following the cancellation or termination of this license for cause, remove any improvements, including power plants, power and telephone lines and all appurtenances thereto which have been or will have been constructed, erected and maintained by the Licensee upon or across the Licensed Area for purposes other than those necessary to operate any aqueduct system or systems, and any such improvements not removed within said time shall forthwith become the property of the Territory without necessity of any payment or further action.
[August 11, 1959:17-18 Section 29-30]

Section 4.7 Conclusion - Development and Authorization of Diversion Systems

The records reviewed in this section describe the development of water diversion systems in Maui Hikina from initial construction and operation under early licenses to the expansion of infrastructure and continued use across multiple ahupua'a. They document changes in the ownership and management of lands and water-related interests through legal proceedings, share transfers, and financial arrangements, along with the formation of EMI as the entity managing multiple ditch systems and associated rights.

Territorial and State lease, license, and easement instruments further authorized access to watershed lands, the diversion of water, and the construction and maintenance of infrastructure, with later agreements addressing the coordinated use of existing systems. These records describe the establishment, expansion, and continued authorization of diversion systems in Maui Hikina through legal, physical, and administrative actions and provide the context for examining their effects on water use, landscape conditions, and traditional practices.

SECTION 5. Documented Conditions Associated with Water Diversions

Records from the late nineteenth and early twentieth centuries describe conditions observed in areas along and below the watersheds affected by diversion systems. These records include petitions, government correspondence, and published accounts that reference stream flow, land use, agricultural activity, and access to resources.

The sources presented in this section describe a range of conditions associated with the diversion and conveyance of water. The records describe conditions that extend across stream

systems, lands, and areas of use, indicating that changes in water availability were associated with related conditions affecting cultivation, resource use, and access within the same watershed areas, reflecting the interconnectedness of the biocultural landscape. These records document conditions within the same systems of water use described in earlier sections and provide evidence of changes associated with the diversion and redirection of water from those systems.

Section 5.1 Early Observations and Concern

Accounts from the late nineteenth century include references to the proposed diversion of water from East Maui streams and concerns associated with its removal. *An 1878 newspaper report describes plans to take water from upland sources and convey it across districts for use in other areas, noting that such actions should not proceed in a manner that would deprive native tenants of their established uses along the streams from which the water was taken. These tenants are identified as holding rights near the banks of those streams, and concern is expressed that the removal of water would affect their ability to continue those uses.*

Section 5.2 Reported Conditions Along Stream Systems

Petitions and published accounts from the late nineteenth and early twentieth centuries describe conditions observed along stream systems where water had previously been available. An 1881 petition submitted by residents of Honomanū, Ke‘anae, and Wailua requests that water rights not be granted for diversion, stating that such actions would cause difficulty for residents living on the lands through which those streams flowed.

A later account from 1904 reports that residents in the Pe‘ahi–Huelo region observed that streams which had previously flowed past their residences and had not been known to run dry had ceased flowing. These accounts describe conditions in which water that had historically been present along the course of the streams was no longer available at those locations.

Section 5.3 Land Use and Access to Resources

Government correspondence from the same period describes conditions related to land use and access to resources in areas associated with upland water sources. Reports note that residents relied on upland areas for water needed to sustain livestock, particularly during periods when water was not available elsewhere. Efforts to restrict access to these areas, including the impounding of cattle, are described as creating hardship for residents whose livelihood depended on raising a small number of animals.

Additional accounts describe limitations in the ability to fence lands and regulate livestock movement, indicating that access to water and land resources was directly associated with agricultural and subsistence activities.

Section 5.4 Forest Condition and Water Supply

Other records describe the condition of forest lands in East Maui and their relationship to water supply. Correspondence and reports emphasize the importance of maintaining forest cover in areas where streams originate, noting that forest conditions affected the availability and regularity of water.

Damage to forest areas from cattle and fire is described, along with efforts to control access and implement measures such as fencing. Reports identify upland forest regions as primary sources of water for the island and recommend their protection to sustain stream flow used for irrigation.

Section 5.5 Environmental Conditions and Variability

Published reports and correspondence also describe environmental conditions affecting land and water systems, including variations in rainfall, periods of dry weather, and storm events. Weather observations from the early 1900s describe alternating periods of rain and dry conditions across areas such as Pe‘ahi, Huelo, and Ha‘ikū, with references to both favorable growing conditions and dry pasture at lower elevations.

Other accounts describe heavy rains that caused damage to roads and irrigation ditches, as well as earlier references to strong winds and flooding that affected cultivated lands. Additional observations note reduced moisture in areas where forest cover had been cleared, with associated effects on water flow, pasture and land condition.

Section 5.6 Conclusion – Conditions within Lived Biocultural Landscapes

The records presented in this section describe conditions observed along stream systems, lands, and watershed areas where water had previously been available for use by *hoa‘āina* and *maka‘āinana*. These include changes in stream flow along inhabited areas, reported reductions in water at locations where it had historically been present, and related conditions affecting cultivation, grazing, and access to resources.

Additional accounts describe the condition of forest lands associated with water supply, the management of those lands, and environmental conditions affecting rainfall, moisture, and land use. These observations appear across multiple sources and describe conditions within areas that traditionally supported agricultural activity, settlement, and resource use.

These records correspond to the landscape contexts described in Section 2, where Land Commission Awards and associated case studies identify patterns of residence, cultivation, and use along stream systems and within the same watershed areas. The conditions described in these records occur within those same areas of use and provide documentation of changes observed within those biocultural landscapes.

SECTION 6. Control of Water Systems and the Transformation of Maui Hikina

The preceding sections of this synthesis provide a sequence of legal, infrastructural, and organizational changes through which water from Maui Hikina streams was captured, conveyed, and redistributed. Early licenses authorized diversion from specific stream systems, followed by the construction of interconnected ditch systems extending across multiple *ahupua‘a*. These systems enabled the movement of water from upland sources to distant areas of use and were expanded over time to increase capacity and reach.

The systems described in these records differ in scale and function from earlier methods of water use in Maui Hikina. Rather than localized diversions associated with specific areas of cultivation and managed within the *ahupua‘a* — extending *mauka* to *makai*, the ditch systems constructed in the late nineteenth and early twentieth centuries enabled the large-scale and continuous diversion of water from multiple stream systems, conveying it across districts and

away from established areas of use. These systems operated through fixed infrastructure and were maintained over time as permanent components of the landscape (*Figure 16 A & B*).



Figure 16 A. Loi Kalo Depicting ‘Auwai at Lakini Pauwalu (Wailua) Helu 3472 to Kaihaa and in the Family of Kupuna Helen Nakanelua (Nov. 8, 1001, KPA-2195)



Figure 16 B. Loi Kalo Depicting Traditional Practice of Staggered Planting, and the Feeder ‘Auwai at Lakini Pauwalu (Wailua) Helu 3472 to Kaihaa and in the Family of Kupuna Helen Nakanelua (Nov. 8, 1001, KPA-2199)

Land and water-related interests were subsequently transferred and consolidated through corporate structures. The formation of EMI established a single operating entity responsible for managing diversion systems constructed under earlier agreements. Territorial leases, licenses, and easements continued to authorize access to watershed lands, the diversion of water, and the maintenance of infrastructure, while later agreements formalized coordinated system use under corporate and government authority.

Through these combined legal, infrastructural, and organizational mechanisms, control over the collection, movement, and distribution of water became concentrated under Alexander & Baldwin and its associated entities. This structure continues through the present, with EMI and its successors, including Mahi Pono, maintaining the ability to divert and convey water from Maui Hikina watersheds.

The records presented in Section 5 describe conditions observed along stream systems where water had previously been available for use, including reductions in stream flow, the absence of water along established stream courses, and related conditions affecting cultivation, grazing, and access to resources. These observations occur within the same landscapes identified in Section 2 as areas of residence, agricultural production, and resource use.

Water use and diversion in Maui Hikina have also been the subject of ongoing contested cases and legal proceedings brought forward by residents and practitioners of the region. These cases reflect continued assertions of rights to wai by those living within the ahupua'a from which water is diverted, as well as challenges to the scope and conditions under which water has been taken and conveyed. The presence of these proceedings demonstrates that the system of diversion and control described in this report has not been static but remains actively contested by communities whose relationships to these water sources continue into the present.

Wai is not separate from land or people, but part of an interconnected system that links upland forests, stream flow, cultivated fields, and communities. The diversion of water from established pathways redirected wai away from areas where it had been historically available and used, and its distribution became controlled through the operation of conveyance infrastructure rather than through its natural flow within the ahupua'a.

In this context, the consolidation of water systems corresponds to a broader transformation of the Maui Hikina landscape from one that sustained kānaka maoli to one that fostered environmental degradation and diminished the ability of generational residents to sustain themselves on the 'āina. The same sequence of changes that enabled large-scale diversion also restructured access to wai within the watershed, affecting the lands, resources, people and practices that depend upon it. The system documented in this report reflects facets of traditional and customary practices, and the development of irrigation infrastructure and the establishment of a centralized and continuing system of water control in Maui Hikina.

Pehea lā e ho'oponopono ai?

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