



LAE I LAE POINT TO POINT

Lae I Lae, a newsletter from the **Hawaii Land Surveyors Association**, an affiliate and a member with the National Society of Professional Surveyors

EMAIL: hlsa-hawaii@outlook.com WEBSITE: www.hlsahawaii.org

COMPRISED OF APPROXIMATELY 70% OF THE LICENSED LAND SURVEYORS IN HAWAII OUR OBJECTIVE IS TO BRING TOGETHER THE LAND SURVEYING COMMUNITY THROUGH EDUCATION AND TO PROVIDE NETWORKING OPPORTUNITIES AND BUSINESS RESOURCES.





PRESIDENT'S MESSAGE

BY: ALIKA GARO, LPLS

It is my honor to serve as this year's Hawaii Land Surveyors Association President. As HLSA President, I will do everything in my power to ensure that HLSA continues to function as well as it has in the past. My first objective for this year is to offer our members workshops to better educate themselves on cutting-edge technologies, best Land Survey Practices, and guidance on becoming a Licensed Professional Land Surveyor in the State of Hawaii. The second objective would be to put an effort to raise awareness for Land Surveyors in the State of Hawaii. I would like to increase the general public's level of awareness about the implications and significance of certain situations in Land Surveying (to clarify, by "general public" I mean the individuals we engage with every day, such as clients and/or other professionals like civil engineers, architects, contactors, GIS analysts, and realtors).

Sincere thanks to the outgoing and new HLSA Board of Directors and Liaisons. With the help of their commitment, determination, and efforts, the spirit has been kept alive throughout the Land Surveying Community in Hawaii with the hope that it would continue to adapt and evolve. The 2023 Board Directors are President - Alika K. Garo, Vice President: Victor M. Rasgado, Treasurer: Erick Wenceslao, Secretary: Brett C. Etheredge, NSPS Director: Joanne Williamson, Director: Cliff Yim, Director: Sherman "Dudley" Deponte, Director: Beverly V. Pascual, and Director: Ryan D. Morales.

I would also like to express my sincere gratitude to everyone who attended the Pacific Rim Geospatial Conference, which took place at the Ala Moana Hotel on March 16 and 17, 2023. "BIG MAHALO!" to the Conference Planning Committee, which was made up of members from Pacific Rim Concepts LCC, Alaska Society of Professional Land Surveyors (ASPLS), Hawaii Land Surveyors Association (HLSA), and Hawaii Geographic Information Coordinating Council (HIGICC). The Conference Planning Committee worked tirelessly months prior to the Conference to make it a success. I would likewise want to thank all the Presenters, Moderators, Sponsors, and attendees; there would not have been a conference without you all.

On March 16, 2023; HLSA held the 2023 Installation Banquet at Jade Dynasty Seafood Restaurant. It has been nearly three years since we all came together for this banquet which used to be celebrated annually. It was wonderful seeing many familiar faces from the very close-knit Land Surveying Community we have here in Hawaii. I appreciate all who came out to celebrate the Installation of 2023 Board of Directors, along with the Newly Licensed Surveyors in the State of Hawaii for 2020, 2021, and 2022. We had a Special Surprise Award during the banquet where Past President, Victor Rasgado, presented a Presidential Citation to "Meyer A. Cummins, LPLS for his advocacy on legislative matters and continuing to educational workshops in support of the Land Surveyors in the State of Hawaii". Congratulations Meyer and Thank You for everything you do for the Land Surveyors in Hawaii!

PRESIDENT'S MESSAGE CONTINUATION

BY: ALIKA GARO, LPLS



Finally, it is with heavy heart that I close this president's message with sad news that one of our own, Mr. Pat Cummins, Licensed Professional Land Surveyor has passed away this past April. Warmest thoughts, prayers, and Aloha to the Cummins Ohana. Celebration of Life for Pat Cummins will be held Sunday, June 11, 2023 at Kalama Beach Club, 280 N Kalaheo Ave, Kailua, HI 96734; Visitation at 10am, Service at 10:45am. Pat was one of the founding members of HLSA in 1988 when it was formerly known as the Hawaii Association of Land Surveyors (HALS). He was also one of the first Land Surveyors who went to the mainland and represent Hawaii at meetings of the National Society of Professional Land Surveyors (NSPS). This led to what we have today, the complete affiliation of HLSA with NSPS, also having the NSPS Director as an official HLSA Board Director's Position. He was a part of the Standards Committee and helped complete the NSPS Model Standards that was approved by the NSPS Board of Directors in March of 2002. Pat was incredibly knowledgeable about Land Surveying in Hawaii especially when it came to Hawaii Land Matters such as Land Commission Awards, Royal Patents, Fish Ponds, Kuleana Lands, and Ahupuaas. In the later 1990s, Pat even taught Land Surveying on a collegiate level at the University of Hawaii, Manoa, where he mentored many notable individuals who went on to become Licensed Professional Land Surveyors, and leading principals of the Land Surveying Community in Hawaii today; this includes my immediate supervisor, with whom I work and learn from on a day-to-day basis. Pat received the HLSA Surveyor of the Year Award in 2010 and the HLSA Lifetime Achievement Award in 2019. Those of us fortunate to have had the opportunity to attend any of Pat's talks, workshops, or seminars got to learn from his experience, and approach of surveying practice in Hawaii. When I first met Pat years ago (even though I was "young and inexperienced"), he treated me with respect by always being nice, engaging in conversation with me, and remembering my name. Pat had a warm and lively demeanor with a friendly and gregarious personality. I credit his lessons from Hawaii Land Matters towards helping me pass the Hawaii State Exam and ultimately obtaining my license. Pat Cummins: A great professional, a wonderful person; you will truly be missed!

Mahalo Nui Loa,

Alika K. Garo, LPLS

2023 President, Hawaii Land Surveyors Association



CELEBRATING
The life of



The Cummins family will hold a Celebration of Life for Patrick Cummins on
Sunday June 11, 2023

at the Kalama Beach Club located at 280 N. Kalaheo Avenue, Kailua, Oahu, Hawaii

Open at 10 am

Service at 10:45 am

Light refreshments to follow

Parking on site will fit up to 75 cars,

Limited parking on side streets

Mahalo,

Mary & Family



PATRICK M. CUMMINS

the fabric of
Surveying
America
 A series that focuses on unique
 wrinkles in our survey heritage.

Surveying in the Former Kingdom of **HAWAII**

A Brief History
 What is now the 50th State was once the Kingdom of Hawaii. Archaeological studies reveal that the Hawaiian islands have been inhabited since about 400 A.D., having been populated by migrating Polynesians from the western Pacific Ocean. After centuries of isolation, history attributes discovery of these islands to the famous British explorer Captain James Cook who arrived in Hawaii in 1778.

Along with a sophisticated social structure, there was a system of land tenure and resource management in place at the time of Cook's arrival. *Alii'aimoku* or kings were the highest ranking individuals controlling the islands. Their territorial control was dependent on military success and could include portions of islands or entire islands. It was not until the end of the 18th century that the entire Kingdom was united under a single individual sovereign, King Kamehameha I, often referred to as Kamehameha the Great. His legacy was passed down to six more kings and a queen before the ancient system was overthrown and a western styled Republic of Hawaii was formed in 1893. By an Act of the United States Congress on August 12, 1898, Hawaii was annexed to the United States of America and became the Territory of Hawaii. It was in 1959 that Hawaii's citizens chose statehood and Hawaii was welcomed into the Union as the 50th State.

**>> By Patrick M. Cummins, LS
 and Mary M. Cummins, LS**

Maui, Hawaiian Islands. Primary triangulation by W.D. Alexander and S.E. Bishop; topography and boundaries by W.D. Alexander, C.J. Lyons, M.D. Monsarrat, et al; map by F.S. Dodge. Created and published by the Hawaiian Government Survey, 1885. Courtesy The Library of Congress

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**Figure 1 Tax zone map
 Third Div. Zone 5 showing
 ahupua'a configuration for
 North Kohala**

Ancient Land Tenure
 The ancient Hawaiians developed a complex system of managing their land and natural resources. The basic land entities were the *moku*, the *ahupua'a* and the *ili kupono*. *Moku* translates into English as "to cut" and in Hawaiian land terms it means an island, cut off by the surrounding ocean. An *ahupua'a* is often described in various books as typically being a pie-shaped strip of land running from the top of a mountain range to the sea. It is a self-contained community with a forest area with its products, running streams, flat land for crop growing and the beach area for houses and for the sea's bounty. In reality, however, few are pie shaped and many do not reach either the sea or the mountain tops. An *ili kupono* is similar in stature to the *ahupua'a*, but rather than being a contiguous strip of land, it

consists of sections of land unified under a single chief and containing among its scattered sections, called *lele*, all of the necessary resources that *ahupua'a* have. (Figure 1)

There were two main classes of people: the *alii*, or chiefs, and the *maka'ainana*, or commoners. The kings, generals and landlords were all of the *konohiki* *alii* class. All land was under the control of the *alii'aimoku* who was thought to be godlike and the holder of all land and its products in trust for all of the people. The king distributed the *ahupua'a* and *ili kupono* under his control to his loyal chiefs to manage and to provide, in return, tribute in the form of labor, food and other products of the land and sea. These lesser chiefs were known as *konohiki*, or landlords, and they parceled out portions of the *ahupua'a* to the *maka'ainana* who were the commoners

and tenants of the land. It was the *maka'ainana* who grew the crops, caught the fish, raised pigs, cut trees and built canoes, etc. In return for the use of plots of land, they, like the landlord above them, provided labor and tribute in the form of products of their work to the *konohiki*. In addition to managing the tenants use of the land, the *konohiki* also oversaw the use and distribution of water throughout the lands in their charge and designated certain fish to be reserved for the landlord or for the king. After a battle in which a king acquired additional territory, there was a redistribution of the lands among the king's loyal generals.

Oral tradition tells us that the names and boundaries of all of the lands in Hawaii were established about 600 years ago. Each *ahupua'a* had an expert or *kahuna* whose responsibility was to

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know and to preserve the boundaries of the *ahupua'a*. The boundary *kahuna* not only preserved knowledge of the *ahupua'a* boundaries, but passed this information on to a successor. In all, there are approximately 1,800 lands, 1,300 *ahupua'a* and 500 *ili kupono*. *Ahupua'a* and *ili kupono* boundaries often follow natural monuments such as streams, and ridge lines or manmade monuments such as rock walls. Where there were no specific monuments to run along in ancient times, corners and angle points were marked with stone heaps called *ahu* in Hawaiian. These *ahu*, approximately three to five feet in both height and diameter, are still found in many parts of the islands. In later years, *ahu*, were placed atop chiseled "+"s cut in the smooth *pahoehoe* lava for ease of locating them in future surveys.

Transition to a Western Style of Land Tenure

Kamehameha I died in 1819 and his son, Lihilihi, became King Kamehameha II. Kamehameha II started a series of historical events which led up to the end of the ancient system of land tenure and the advent of a western system of fee simple ownership. The young king and his royal guardian, High Chief

Kaahumanu, decreed the end of the old religion and the *kapu* (taboo) system of restrictions on food and behavior that guided the chiefs and commoners in their daily lives. Old temples and stone idols were destroyed.

This event was followed by the arrival of missionaries from America in April of 1820. A shipload of Calvinists sent by the American Board of Commissioners for Foreign Missions arrived from New England and quickly set about to convert the native population, including many of the highest ranking chiefs and chieftesses. The missionaries were asked by the *alii* to start a school for the chiefs' children so that they might be taught about the world outside of Hawaii and to teach them to learn the basic skills of reading, writing and arithmetic. Up until the arrival of the missionaries, the Hawaiian culture had no written language. All historical information was handed down from generation to generation by word of mouth. At the Chief's Children's School in Honolulu and at Lahainaluna Seminary, another missionary school at Lahaina, Maui, native children were taught basic knowledge and skills including geography and map making.

In 1839, King Kamehameha III declared a Bill of Rights which stated

that nothing could be taken from any individual, including land, except by express provision of the law. In 1840, the King presented the first Constitution creating a Monarchical form of government with a bicameral legislature consisting of a house of Nobles appointed by the King and a House of Representatives elected by the people. In December of 1845, a law was passed entitled "An Act to Reorganize the Executive Branch of Government." This act created a Board of Commissioners to Quiet Land Titles (Land Commission) whose purpose was to receive and adjudicate claims for land. Successful claims were given Land Commission Awards of fee simple title. By the demise of the Land Commission on March 31, 1855, it had dealt with more than 13,000 claims.

First Surveys

One of the requirements for obtaining a Land Commission Award was a survey of the claimed parcel. Since the *konohiki* awards were for *ahupua'a* and *ili kupono*, the survey requirement presented a problem right at the beginning of the process. *Ahupua'a* varied in size from 184,000 acres in the case of the land of Kahuku on the island of Hawaii to 4 acres for the *ahupua'a* of Uhaio in Lahaina on

Maui. On Oahu, the largest *ahupua'a* is Honouliuli with approximately 43,000 acres and the smallest is Kapano with 40 acres. With approximately 1,800 of these *konohiki* lands to survey and several thousand tenant claims, the Land Commission was in a dilemma since there were few qualified individuals available to perform the surveys. In 1852, the legislature passed an act to allow the Land Commission to issue Land Commission Awards to *konohiki* land claims by their land names and ancient boundaries without surveys.

The claims of the *maka'ainana* known as *kuleana* claims consisted of several parts. The average tenant claim had three parts: a house lot limited to 1/4 acre by law, and two other patches limited to what was actually being improved or cultivated. While three parts is the average, some claims had as many as 14 pieces. These were usually a *kalo* (the staple food of the Hawaiians) patch and a patch for dry land crops such as sugar

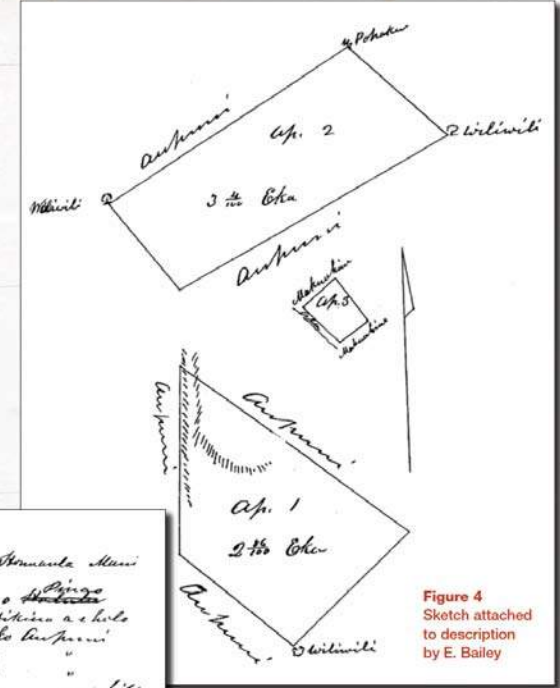
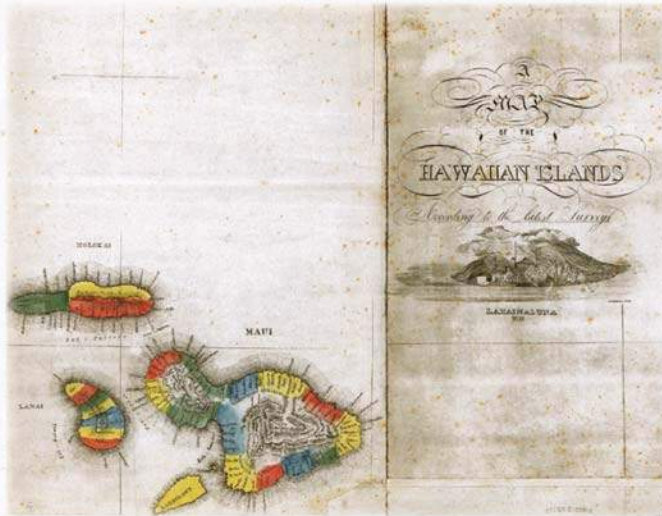


Figure 4 Sketch attached to description by E. Bailey

Figure 2 Portion of 8 panel 1838 map by S.P. Kalam showing *ahupua'a*. Source: Library of Congress



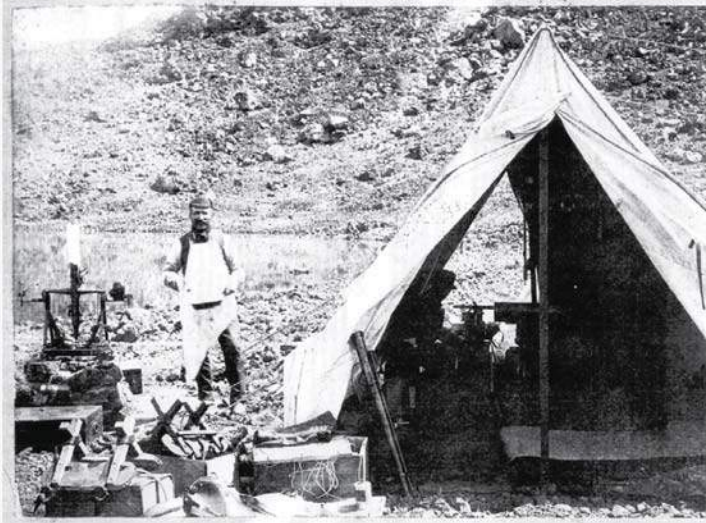
5472 & 9942 Luaha
 Kauhano, Wmuahe Kani
 Ahupua'a 2 Ahua ma ka ili o Pihigo
 Ehoomaha ma ka kiki Ohihi a kolo
 Ah. 466' N. 0.87' S. ma ka Ahupua'a
 N. 85° N. 5.40 " " "
 N. 37° N. 3.50 " " "
 Ah. 612' N. 9.05 " " "
 a kiki ma ka kiki muna = 3' Eka
 Ahupua'a 2 Ahua ma ka ili o Ahululu
 E hoomaha ma ka kiki Ohihi a kolo
 N. 2° N. 5.67' S. ma ka Ahupua'a
 N. 48° N. 4.27 " " "
 Ah. 466' N. 4.50 " " "
 Ah. 574' N. 7.00 " " "
 a kiki ma ka kiki muna = 2' Eka
 E. Bailey
 Mocholua N. 8, 1854 (Mun. Arch. Oahu)
 Ahupua'a 3 Ahua ma ka ili o Paia
 E hoomaha ma ka kiki Ohihi a kolo
 N. 55° N. 1.57' S. ma ka Ahupua'a
 N. 52° N. 1.04 " " "
 Ah. 482' N. 1.57 " " "
 Ah. 50° N. 2.25 " " "
 a kiki ma ka kiki muna = 10' Eka
 306
 27
 279

NOTES OF SURVEY (LCA 5472 & 9942 TO LUAAH)

came, sweet potatoes or melons or for pasturing animals. With around 10,000 of these claims, there were at least 30,000 individual surveys to be made.

Most field surveys were made with compass and chain, independent of any network of survey controls or comprehensive maps of the kingdom. These were the first boundary surveys to be made in Hawaii. Up until this time, the only maps were those made primarily by the ships of discovery for the purpose of charting safe harbors and for general topography. In 1838, S.P. Kalam, a native Hawaiian trained at the missionary school at Lahainaluna made a map in eight panels showing the Hawaiian Islands (Figure 2). It is quite amazing in its scale and orientation given

Figure 3 Original notes & bounds description prepared by Land Commission surveyor E. Bailey.



W.D. Alexander, Surveyor General, at Lake Waiau base camp near the summit of Maunakea, Hawaii, elevation 13,020 feet (circa 1882). Source: Hawaiian Historical Society

the sparse survey information available at the time. It is also the first map to show the names of *ahupua'a* in their respective locations. Because these original surveys were independent of each other, no coordinated effort was made to relate one to another, no standard for performing surveys was made by the Land Commission and very few corners were marked, retracing these surveys remains a challenge to surveyors today. It was soon discovered that some of the compasses used had been out of adjustment. Also, declinations had to be determined in each locale due to the varying influences of the metal contents of the lava which affected the compass readings. Additional challenges included problems arising from the inexperience of many of the ship captains and untrained volunteers performing the ground surveys. A simple explanation of the process involved in the original surveys and awards for all of the *kuleana* lands of Hawaii is as follows: 1) written claim letters were sent to the Land Commission by February 14, 1848 with a general description of the claim and the location; 2) testimony was taken from witnesses to support claim; 3) copies of claim letter

and testimony were sent to surveyors in the field; 4) surveyors met on the ground with the claimant, witnesses and representatives of the *konohiki* of the *ahupua'a* in which the *kuleana* lay and when an agreement was reached, the survey was made; 5) the surveyor prepared "Original Notes of Survey" consisting of a metes and bounds description and a sketch to scale; 6) Land Commission made final determination and issued a Certificate of Award; 7) Claimant was provided with the Award upon payment of costs including the survey, copies, notices and processing fees. *Konohiki* claims did not require testimony, or surveys if by name only. The only proof needed of their claim was their name in the Mahele Book which will be discussed below under ORIGINAL LAND TITLES. In addition, *konohiki* were required to pay a commutation to the government for their *ahupua'a* and *ili kupono* to extinguish any remaining government interest in the lands. This allowed *konohiki* awardees to obtain Royal Patents from the Minister of Interior for their awarded claims. With the exception of awards for houselots and other lands in the districts of Honolulu, Lahaina and Hilo, *kuleana* awardees were exempt by law

from paying this commutation and were issued Royal Patents by simply applying for them. Surveyors of the Land Commission came from all walks of life and included American ship captains, natives trained by the missionaries and European residents. One such individual was Rudolph Wilhelm Meyer, an engineer educated in Germany that stayed in Hawaii on his way to the California gold rush. The "Original Notes of Survey" prepared by the Land Commission Surveyors was based on a format originating in the New England states. It consisted of a title, usually the Claim Number, the land name, district and island, a piece number for claims with multiple parts, a descriptive call as to the type of parcel, such as house lot or taro patch, a point of beginning and courses listed by compass bearing, distance in chains, links or decimal of chains, and a call for adjoining claimant or monument or both, dosing statement and area. The sketches accompanying the description are typical of this era. This description format survives to the present (Figures 3 & 4). Award and Grant documents were in the Hawaiian language if the recipient was a native and in English if it was a foreigner.

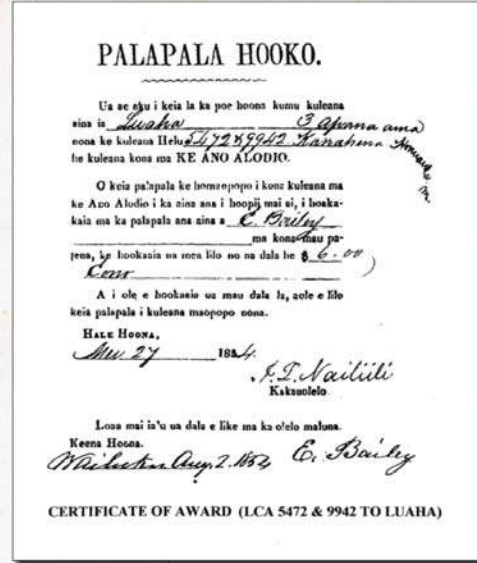


Figure 5 Original Land Commission Certificate of Award document

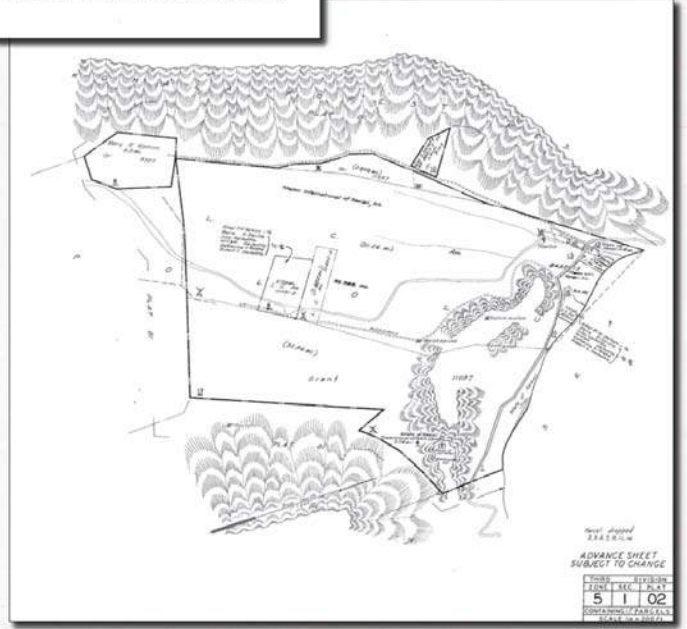


Figure 6 Tax parcel map Third Div. 5-1-02 showing Land Commission Awards and Government Grants based on Hawaiian Government Survey data

When the original Notes of Survey were received by the Land Commission, they were copied into large volumes or copy books. Those that had been prepared in English were translated into Hawaiian by clerks in the Land Office, depending on the nationality of the awardee or grantee as explained above. **Original Land Titles** Before the Land Commission could begin adjudicating land claims, it had to determine who had an interest in the land. It determined that the King should retain all of his private lands as his own personal property. One third of the remaining lands should be set aside as the property of the Hawaiian Government, one third to the chiefs and *konohiki* and the remaining third to the tenants. The first step taken to separate these interests was called the Great

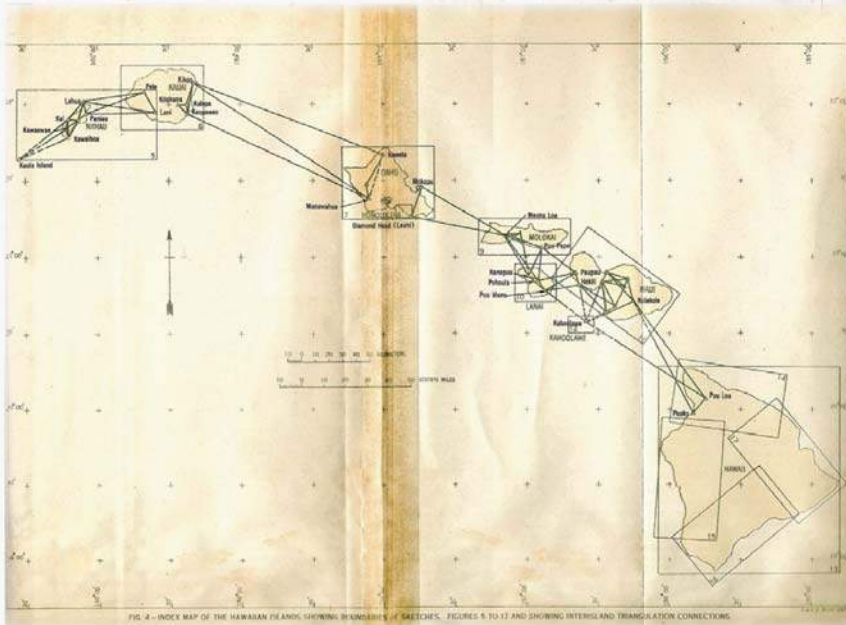


Figure 7 USC&GS triangulation network from U.S. Publication No. 156 dated 1930

Mahele or Division. In early 1848, the King sat down with his chiefs, approximately 240 of them, and redistributed all of the lands of Hawaii. It was the aforementioned S.P. Kalamā that assisted the King in the *Mahele*. Each chief came to the table with the lands he or she possessed. The King and chief agreed upon a redistribution, the King taking certain lands from the chiefs list with the remaining lands being left to the chief. These agreed upon redistributions took the form of quit claim deeds and were written into a ledger known as the "*Mahele Book*."

Once this process was completed, the King took the lands he had just obtained from his chiefs and after keeping his personal lands for himself, his heirs and assigns, he gave the vast majority of them to his people in the form of government lands. This act of the King became known as the "Second *Mahele*." The Land Commission could now begin the process of determining claims

for *konohiki* lands. Both of these acts of division by the King were ratified by an act of the legislature on June 7, 1848.

A law passed just four weeks before the Kuleana Act, made it legal for foreign-born residents to own land. The Kuleana Act of 1850 authorized the Land Commission to issue awards for *kuleana* claims and as a result of the "Second *Mahele*," the government now had a list of lands to sell to those that did not otherwise have land and to generate income for the treasury to operate the government. All title to the lands of Hawaii originate with one of the following sources: 1) King Kamehameha Deeds for properties that were sold from the King's personal lands; 2) Land Commission Awards (Figure 5); and 3) Government Grants. The government land sales were by Royal Patent Grants. After the overthrow of the monarchy and up to the present, these government conveyances are made by Land Patent Grants.

The Hawaiian Gov't Survey

By 1870, not having any maps of the kingdom and not having any idea where the *kuleana*, *ahupua'a*, and government land sales were located, there was no way for the government to know how much government land remained, if any. The Minister of the Interior petitioned the legislature to fund a survey to map and inventory all of the lands of the kingdom. Known as the Hawaiian Government Survey and using instruments and equipment borrowed from the United States Coast and Geodetic Survey, a comprehensive ground survey began in 1871. The Survey's mission was threefold: 1) to establish a survey control network across the entire island nation; 2) locate topographic features such as roads, shoreline, ridges, streams and evidence of occupation such as walls, fences, houses, and evidence of Land Commission Awards, government grants and *ahupua'a* boundaries; and 3) to plot all of this information on maps

Kauai Island

Station	Latitude and longitude	Benchmarks in meters	Azimuth	Sight-sight	To station	Distance		
						Lat	Meters	Feet
Kauai Island, highest point, 1891	21 22 30 N 155 22 30 W	1, 151.1	212.0	212.0	Laysan..... Kauai..... Oahu.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511

Oahu Island

Station	Latitude and longitude	Benchmarks in meters	Azimuth	Sight-sight	To station	Distance		
						Lat	Meters	Feet
Diamond Head (Land), 1872-1887	21 15 48.0 N 157 49 52.1 W	1, 438.4	207.44	207.44	Diamond Head..... Tapehiki..... Diamond Head.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511
Waialeale, 1872-1887	21 22 30 N 155 22 30 W	1, 151.1	212.0	212.0	Waialeale..... Waialeale..... Waialeale.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511
Kapuni, 1872-1887	21 22 30 N 155 22 30 W	1, 151.1	212.0	212.0	Kapuni..... Kapuni..... Kapuni.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511
Waialeale, 1872-1887	21 22 30 N 155 22 30 W	1, 151.1	212.0	212.0	Waialeale..... Waialeale..... Waialeale.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511
Mauka Oahu, 1872-1887	21 22 30 N 155 22 30 W	1, 151.1	212.0	212.0	Mauka Oahu..... Mauka Oahu..... Mauka Oahu.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511
Station 2, 1872-1887	21 22 30 N 155 22 30 W	1, 151.1	212.0	212.0	Station 2..... Station 2..... Station 2.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511
Schuchert west base, 1897	21 22 30 N 155 22 30 W	1, 151.1	212.0	212.0	Schuchert west base..... Schuchert west base..... Schuchert west base.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511
Schuchert east base, 1897	21 22 30 N 155 22 30 W	1, 151.1	212.0	212.0	Schuchert east base..... Schuchert east base..... Schuchert east base.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511

Maui, 1872-1887

Station	Latitude and longitude	Benchmarks in meters	Azimuth	Sight-sight	To station	Distance		
						Lat	Meters	Feet
Maui, 1872-1887	21 15 48.0 N 157 49 52.1 W	1, 438.4	207.44	207.44	Maui..... Maui..... Maui.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511

Hawaii, 1872-1887

Station	Latitude and longitude	Benchmarks in meters	Azimuth	Sight-sight	To station	Distance		
						Lat	Meters	Feet
Hawaii, 1872-1887	21 15 48.0 N 157 49 52.1 W	1, 438.4	207.44	207.44	Hawaii..... Hawaii..... Hawaii.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511

Honolulu, 1872-1887

Station	Latitude and longitude	Benchmarks in meters	Azimuth	Sight-sight	To station	Distance		
						Lat	Meters	Feet
Honolulu, 1872-1887	21 15 48.0 N 157 49 52.1 W	1, 438.4	207.44	207.44	Honolulu..... Honolulu..... Honolulu.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511

Pearl and Hermes, 1872-1887

Station	Latitude and longitude	Benchmarks in meters	Azimuth	Sight-sight	To station	Distance		
						Lat	Meters	Feet
Pearl and Hermes, 1872-1887	21 15 48.0 N 157 49 52.1 W	1, 438.4	207.44	207.44	Pearl and Hermes..... Pearl and Hermes..... Pearl and Hermes.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511

Laysan, 1872-1887

Station	Latitude and longitude	Benchmarks in meters	Azimuth	Sight-sight	To station	Distance		
						Lat	Meters	Feet
Laysan, 1872-1887	21 22 30 N 155 22 30 W	1, 151.1	212.0	212.0	Laysan..... Laysan..... Laysan.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511

Nihoa, 1872-1887

Station	Latitude and longitude	Benchmarks in meters	Azimuth	Sight-sight	To station	Distance		
						Lat	Meters	Feet
Nihoa, 1872-1887	21 22 30 N 155 22 30 W	1, 151.1	212.0	212.0	Nihoa..... Nihoa..... Nihoa.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511

Kauai, 1872-1887

Station	Latitude and longitude	Benchmarks in meters	Azimuth	Sight-sight	To station	Distance		
						Lat	Meters	Feet
Kauai, 1872-1887	21 22 30 N 155 22 30 W	1, 151.1	212.0	212.0	Kauai..... Kauai..... Kauai.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511

Oahu, 1872-1887

Station	Latitude and longitude	Benchmarks in meters	Azimuth	Sight-sight	To station	Distance		
						Lat	Meters	Feet
Oahu, 1872-1887	21 22 30 N 155 22 30 W	1, 151.1	212.0	212.0	Oahu..... Oahu..... Oahu.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511

Maui, 1872-1887

Station	Latitude and longitude	Benchmarks in meters	Azimuth	Sight-sight	To station	Distance		
						Lat	Meters	Feet
Maui, 1872-1887	21 15 48.0 N 157 49 52.1 W	1, 438.4	207.44	207.44	Maui..... Maui..... Maui.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511

Hawaii, 1872-1887

Station	Latitude and longitude	Benchmarks in meters	Azimuth	Sight-sight	To station	Distance		
						Lat	Meters	Feet
Hawaii, 1872-1887	21 15 48.0 N 157 49 52.1 W	1, 438.4	207.44	207.44	Hawaii..... Hawaii..... Hawaii.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511

Honolulu, 1872-1887

Station	Latitude and longitude	Benchmarks in meters	Azimuth	Sight-sight	To station	Distance		
						Lat	Meters	Feet
Honolulu, 1872-1887	21 15 48.0 N 157 49 52.1 W	1, 438.4	207.44	207.44	Honolulu..... Honolulu..... Honolulu.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511

Pearl and Hermes, 1872-1887

Station	Latitude and longitude	Benchmarks in meters	Azimuth	Sight-sight	To station	Distance		
						Lat	Meters	Feet
Pearl and Hermes, 1872-1887	21 15 48.0 N 157 49 52.1 W	1, 438.4	207.44	207.44	Pearl and Hermes..... Pearl and Hermes..... Pearl and Hermes.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511

Laysan, 1872-1887

Station	Latitude and longitude	Benchmarks in meters	Azimuth	Sight-sight	To station	Distance		
						Lat	Meters	Feet
Laysan, 1872-1887	21 22 30 N 155 22 30 W	1, 151.1	212.0	212.0	Laysan..... Laysan..... Laysan.....	4, 903.0 4, 903.0 4, 903.0	41, 000 41, 000 41, 000	134, 511 134, 511 134, 511

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Oahu, 1872-1887

Station	Latitude and longitude	Benchmarks in meters	Azimuth	Sight-sight	To station	Distance		
						Lat	Meters	

LEGISLATIVE

Aloha!

Thanks largely to the effort of the HLSA membership and the direction of the HLSA Presidents, Victor Rasgado (2022) and Alike Garo (2023), SB 1468 Relating to Right of Entry for Professional Surveyors has passed its final reading in the legislature and is on its way to the Governor's desk for signing!

Mahalo nui to the HLSA Legislative Committee who met with legislators, emailed the membership and kept on top of the process the whole way. In addition, many thanks to our legislative consultant, Jon Okudara with Okudara and Associates, who guided us through it all.

In summary, the Bill:

- Protects surveyors from criminal trespass while surveying on private land, and
- Provides surveyors with a right of entry subject to notice, objection and identification requirements.

HLSA will keep an eye on the Bill once it hits the governor's desk. As long as he does not veto it, the Bill will become law and we will be the first to let you know when that happens.

Aloha no and mahalo to you, the members, for your continued support of the HLSA Board!

The HLSA Board of Directors



LEGISLATIVE



Proclamation

WHEREAS, professional surveyors across Hawai'i will be gathering this third week of March along with surveyors across the nation to observe the duty, contribution, and promise of the surveying profession; and

WHEREAS, the role of the surveyor has been and remains of vital importance to the history, mapping and development of the State of Hawai'i and this nation; and

WHEREAS, notable surveyors of the past include George Washington, Thomas Jefferson, and Abraham Lincoln; and

WHEREAS, professional surveyors from around the State of Hawai'i have endeavored to safeguard the original land titles established by the Kingdom of Hawai'i to protect the property rights of its citizens; and

WHEREAS, the Hawai'i Land Surveyors Association strives to hold its membership to the highest of ethical standards and provides invaluable opportunities for collaboration and education through its workshops and conferences; and

WHEREAS, the Hawai'i Land Surveyors Association maintains a watchful eye to protect the land we love and serve the community needs of an ever-changing world; now, therefore,

I, **Josh Green, M.D.**, Governor of the State of Hawai'i, do hereby proclaim March 19 - 25, 2023 as

"NATIONAL SURVEYORS WEEK"

in Hawai'i and ask the people of the Aloha State to join me in recognizing the value, expertise and contributions of professional surveyors and their role in protecting private and public properties and natural resources.

Done at the State Capitol in the Executive Chambers, Honolulu, State of Hawai'i, this 19th day of March, 2023.

A handwritten signature in black ink that reads "Josh Green".

Josh Green, M.D.
Governor, State of Hawai'i

SCHOLARSHIPS

HIGICC SCHOLARSHIP INSTRUCTIONS & APPLICATION

The Mark Lierman Memorial Scholarship is a \$1,000 scholarship that recognizes deserving students who have demonstrated an understanding of geospatial data and geographic information systems (GIS).

The applicant must be

- enrolled at an accredited college or university for fall 2024
- graduated from a high school in Hawaii or be attending school in Hawaii.
- studying geospatial data or using GIS as a major component in their projects
- pursuing a bachelors, masters or PhD degree.

Please compile the following items:

- **Resume:** Include work, education, and volunteer history, including honors and certifications.
- **An essay,** no longer than 500 words in length, describing your experience with geospatial data, either academically, professionally, or personally, and how you hope to use geospatial data to achieve your future goals. Please provide examples of products you have worked on such as maps, analysis, screen captures of web tools, etc.
- **Two letters of recommendation,** at least one from an instructor who gave a grade to applicant.
- **Transcripts** current to time of application (photocopies or unofficial transcripts are acceptable).

Please include all application materials in a single pdf document with the following naming convention:

LASTNAME_FIRSTNAME_HIGICC_SCHOLARSHIP.pdf

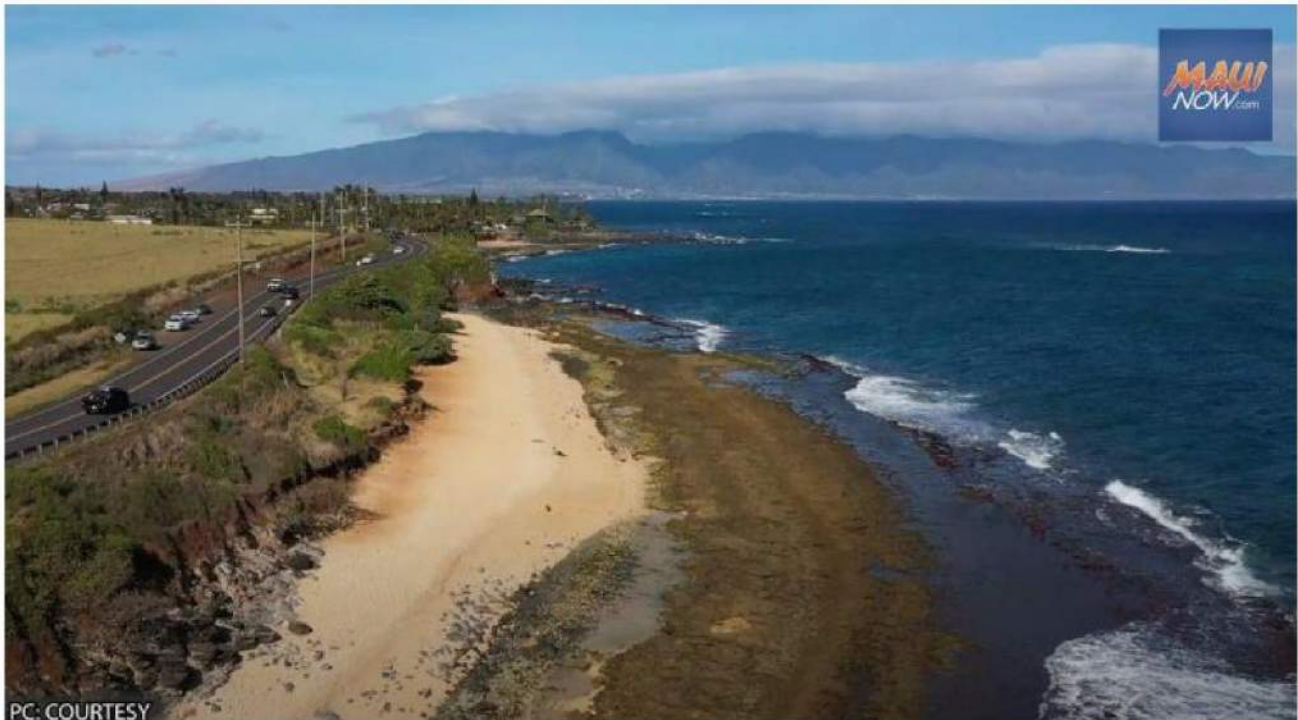
**Submit your application via this survey no later than
June 14th, 2023 at 5:00 pm HST.**

If you have questions please reach out to scholarship@higicc.org

Publications on HIGICC Website: Submitted essays, presentations, photographs and / or documents may be published in an HIGICC newsletter, email, and/or website.

Maui Planning Commission gives unanimous approval to new SMA and Shoreline Rules

April 14, 2023 · 9:31 AM HST



PC: COURTESY

Shoreline west of Ho'okipa Beach. PC: County of Maui / Shane Tegarden

The Maui Planning Commission unanimously approved updates to Special Management Area and Shoreline Rules in an 8-0 vote on March 28.

After more than a decade of collaboration between the community and the county, the key updates were made. The newly approved updates bring more balance and flexibility for homeowners while improving coastal resilience for the environment, according to a County issued press release.

Maui's original SMA and Shoreline Rules were created in the early 1970s to establish shoreline building setbacks in sensitive coastal areas. The County's latest revision to the SMA and Shoreline Rules is the second major update since 2003.

"The new rules reflect many years of work from the Maui County Planning Department, the Maui Planning Commission and community working groups," Planning Director Kathleen Ross Aoki said in the release. "The updated SMA and Shoreline Rules are more balanced and flexible for homeowners, and incorporate the best available science on sea level rise to bolster coastal resilience."

The Maui News

Maui County adopts updated special management area and shoreline rules

APR 15, 2023

Updated special management area and shoreline rules were approved by the Maui Planning Commission last month, bringing “more balance and flexibility for homeowners while improving coastal resilience for the environment,” the county announced Friday.

“The new rules reflect many years of work from the Maui County Planning Department, the Maui Planning Commission and community working groups,” Maui County Planning Director Kathleen Ross Aoki said in a news release “The updated SMA and Shoreline rules are more balanced and flexible for homeowners, and incorporate the best available science on sea level rise to bolster coastal resilience.”

The updated SMA and shoreline rules — along with an important map that will help landowners find whether the shoreline setback line applies to their properties — are being processed by the Planning Department. In about 45 days, the map and the adopted rules will go to the County Clerk’s Office. Thirty days after they’re submitted, the rules will take effect.

Several highlights of the new rules include:

- Creating categorical exemptions, which allow people to bypass submitting an SMA assessment or permit application if proposed work has minimal to no environmental impact. For example, repairs and upgrades to the interior of homes, with a valuation of less than \$500,000 in any 24-month period, within the special management area including the shoreline area, are allowed, unless they are seeking expansion or intensifying the use.
- Removing the mandatory requirement of certified shoreline surveys, which cost thousands of dollars, and instead leaving the decision to the discretion of the department.
- Reducing the permitting burden for state-required conversion of cesspools.
- Requiring hazard mitigation plans that consider realignment of structures away from the shoreline if existing structures are exposed to coastal hazards.

Maui County’s latest revision to the SMA and shoreline rules is the second major update since 2003. Every decade, the guidelines will to be reassessed based on erosion rates and the best science available, the news release said.

When the new rules take effect, the public will be able to access the shoreline map on the Planning Department’s website. Also, the department will conduct public outreach to inform and to train residents on the changes.

The updated SMA and Shoreline Rules are being processed by the Planning Department. The map will help landowners find whether the shoreline setback line applies to their properties.

According to the announcement, the map and adopted rules will head to the County Clerk's Office in about 45 days. Then, 30 days after they are submitted, the rules will take effect.

Highlights of the new rules outlined by the County include the following:

Creates categorical exemptions, which allows people to bypass submitting an SMA assessment or permit application if proposed work has minimal to no environmental impact. For example, repairs and upgrades to the interior of homes, with a valuation of less than \$500,000 in any 24-month period, within the special management area including the shoreline area are allowed, unless they are seeking expansion or intensifying the use.

Removes the mandatory requirement of certified shoreline surveys, which cost thousands of dollars, and instead leaves the decision to the discretion of the department.

Reduces the permitting burden for state-required conversion of cesspools.

Requires hazard mitigation plans that consider realignment of structures away from the shoreline if existing structures are exposed to coastal hazards.

In 2003, Maui County established shoreline building setbacks based on erosion rates.

"This policy has been successful in siting new development away from the shoreline for hazard protection and improved community and ecosystem resilience. However, the existing setback formula only considers historical erosion and does not factor in worsening conditions due to sea level rise," according to the news release.

Hawai'i Sea Level Rise Vulnerability and Adaptation Report, a 2017 guiding document for coastal planning around the state, urges people to plan for 3.2 feet of sea level rise now and adjust the projection upward in years to come.

Maui Planning Commissioner Kimberly Thayer thanked those who testified as well as working groups for their efforts. "This was a monumental team effort, truly a team effort, by a significant portion of the community. There was a lot of compromise that happened, which means that everybody got their voices heard and something down in these rules. This is a step forward and a foundation for more," she said during the recent meeting.



EMPLOYMENT OPPORTUNITIES



HAWAII ENGINEERING GROUP, INC.

Consulting Civil Engineers, Structural Engineers & Land Surveyors US (SBA) SDB & DBE Certified

CAD OPERATOR

Hawaii Engineering Group is looking for a CAD operator for a long-term full-time position for its Land Survey Department. Candidate should be proficient in the use of various CAD software, and basic sheet/map layout. Experience with the following is desirable:

Fundamental Responsibilities:

- Current versions of AutoCAD
- Current versions of Carlson Civil Suite
- Trimble Business Center (TBC)
- Microsoft Word and Excel
- Experience in creating various survey drawings to include Topographic, Boundary, ALTA, Subdivision, and Easement maps
- Ability to multi-task on multiple assigned projects

Other Responsibilities:

- Perform routine administrative and clerical tasks assigned
- Upkeep of personal workspace and assist with upkeep of office space
- Assist with keeping log of material and equipment
- Perform similar and incidental duties as required

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Benefits: Medical, 401K, Profit Sharing, Paid Vacation & Sick Leave



EMPLOYMENT OPPORTUNITIES



HAWAII ENGINEERING GROUP, INC.

Consulting Civil Engineers, Structural Engineers & Land Surveyors US (SBA) SDB & DBE Certified

SURVEY TECHNICIAN

Hawaii Engineering Group is looking for a Survey Technician for a long-term full-time position for its Land Survey Department to perform sub-professional work in land surveying that involve land boundaries, topographic surveys, ALTA surveys, construction stakeouts, establish vertical and horizontal controls and other related HAWAII ENGINEERING GROUP surveying services.

Fundamental Responsibilities:

- Establish survey control stations, traverse stations, benchmarks, and boundary markers/monuments.
- Operate and maintain surveying equipment used in the performance of surveying measurements to include but not limited to level rod, prism, GPS receivers and equipment as may become available.
- Cut underbrush, clears vegetation and debris using various tools such as cane knife, sickle, machete and/or chainsaw, etc.
- Search and/or dig to locate boundary monuments and control points.
- Knowledge of geometry and trigonometry to perform basic surveying computations.
- Be able to carry surveying equipment, tools, and field supplies.
- Makes simple worksheets using current CAD and Survey software.
- Be physically able to perform work assignments located in undeveloped mountainous terrain and hazardous environments. Work in weather conditions ranging from hot, humid, windy, and rainy.
- Assists Survey Party Chief by performing land title and other legal land document searching tasks.
- Be able to work for extended periods of standing, walking, and hiking.

Other Responsibilities:

- Assist in operating and maintaining high precision measuring and scanning equipment.
- Perform routine administrative and clerical tasks assigned. Knowledge of current computer operating system required.
- Performs similar and incidental duties as required.
- Operates company vehicle as required.
- Inventory field supplies and notify Project Land Surveyor when supplies need to be reordered.
- Inventory and stock equipment in field vehicle to ensure adequate items are on hand to perform survey work.

Send resume to: HEGADMIN@HAWAIIENGINEERING.NET

Salary negotiable with experience

Benefits: Medical, 401K, Profit Sharing, Paid Vacation & Sick Leave



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The Survey Rodman will be responsible for assisting the Party Chief in the performance of field work on all types of surveying projects.

General Responsibilities:

- Transporting and setting up equipment and instruments necessary for the survey.
- Preparing the job site for a survey, such as, clearing out the areas of vegetation or debris.
- Holding the prism staff and using of all tools necessary to complete the survey.
- Keep the company vehicle, tools and equipment clean and orderly.
- Inform the Party Chief or management of any safety concerns.
- Comply with all safety requirements.
- Able to take instructions from the Party Chief and work with others.

Requirements:

- High School Diploma or GED preferred.
- Maintain a valid driver's license.
- Work in various work environments.
- Able to lift up to 50-lbs.
- Knowledge with basic mathematics and reading numerals.

Advancement opportunities are available.

Email Resume: wteruya@pareninc.com



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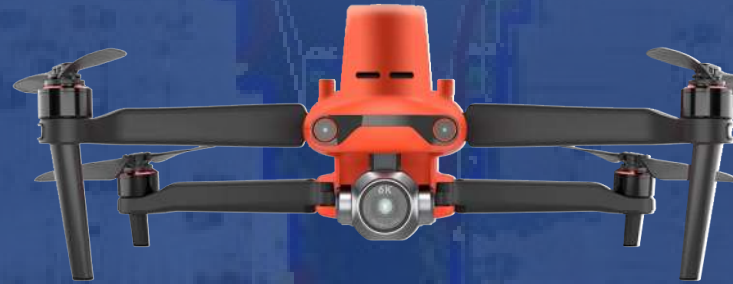
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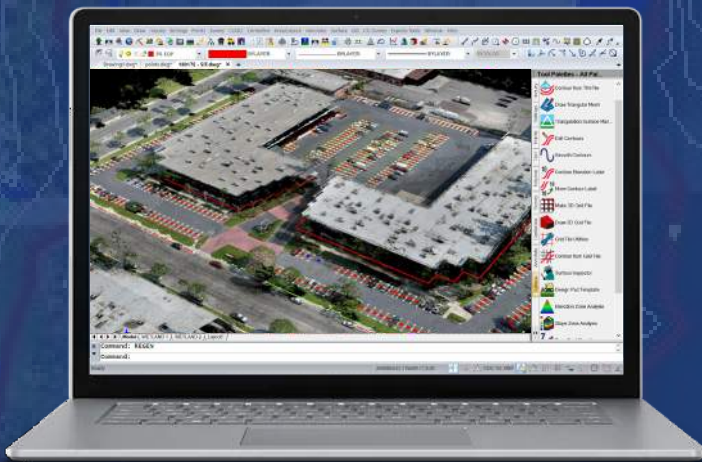
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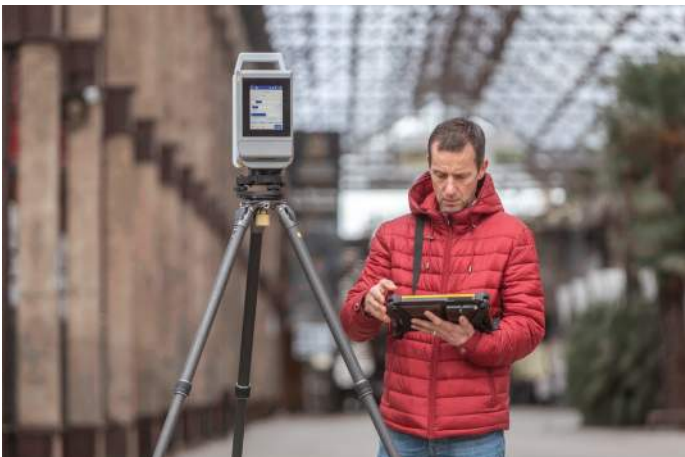
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UAS remote pilot certified (Part 107)

High Definition Laserscanning

Exploring the World in Three Dimensions

Laser scanning lets us measure and collect data from small objects to large landscapes using point cloud data.

Accurate real time data can help drive your decision making, expedite projects, reduce site visits, and prevent rework.



Capabilities

Using time-of-flight and phase-based laser scanning instruments, we provide public and private sector clients with a variety of 3DLS services. We use terrestrial laser scanning techniques to provide a total solution of 3D-mapped interior and exterior as-built environments. 3DLS collects millions of 3D points that are analyzed and processed to create highly accurate and visually engaging products.

Utilizing specialized software, we process the 3DLS data and create deliverables that are compatible with a variety of design and analysis programs. Our modeling teams have developed workflow systems to provide a practical interface solution—merging 3DLS point cloud data into industry standard drafting, modeling, and Building Information Modeling (BIM) programs.

Benefits

3DLS offers many benefits, including accurately gathering more data in less time than traditional surveying techniques, added safety, and reduced facility downtime.

Other benefits include:

- **Flexibility.** Systems can be mounted to vehicles to cover vast landscapes, roads, or rail systems quickly.
- **Safety.** Laser scanning allows the machine to collect the information rather than putting teams of in tight spots.
- **Site Sensitive.** Drone mounted 3D scanning supports access to historic sites, preserves history, and supports national defense.
- **Reduced Time.** Just in time data eliminates the need to schedule crews weeks in advance and saves data calibration and consolidate time.
- **Accuracy.** As-built data is readily available for future modifications and improvements.

Applications

Clients are moving to BIM modeling for accuracy

We employ 3DLS on projects that require high definition and precision using rapid data collection techniques. Examples include as-builts, roadways, bridges, airports, historical buildings, forensics, power generation, environmental, industrial inventories, and more.





The 2023 Pacific Rim Geospatial Conference was our first in-person conference since 2020. The conference took place at Ala Moana Hotel, Honolulu, Hawaii and was also hosted virtually.

The joint conference consisted of Hawaii Land Surveyors Association, Alaska Society of Professional Land Surveyors and Hawaii Geographic Information Coordinating Council





Esaki Surveying and Mapping, Inc. flew in from the Island of Kauai to attend this year's Pacific Rim Conference.





Happy and smiley DUDEK representatives!





Our very own board of director, Erick Wenceslao manning the DUDEK vendor booth. What's in the flask, Erick?!



Everyone awaiting raffle prize giveaways during pau hana hour.





Our President, Alika Garo giving away a raffle prize. What a lucky guy, what was in the bag?

I think Erick had some funny drink in his flask...what is on your head?!





Ed Carlson presented Hawaii Vertical Datums, Modernization, and Hawaii's new RTK Network.





We had a Special Surprise Award during the banquet where Past President, Victor Rasgado, presented a Presidential Citation to "Meyer A. Cummins, LPLS for his advocacy on legislative matters and continuing to educational workshops in support of the Land Surveyors in the State of Hawaii". Congratulations Meyer and Thank You for everything you do for the Land Surveyors in Hawaii!





On March 16, 2023; HLSA held the 2023 Installation Banquet at Jade Dynasty Seafood Restaurant. It has been nearly three years since we all came together for this banquet which used to be celebrated annually. It was wonderful seeing many familiar faces from the very close-knit Land Surveying Community we have here in Hawaii. I appreciate all who came out to celebrate the Installation of 2023 Board of Directors, along with the Newly Licensed Surveyors in the State of Hawaii for 2020, 2021, and 2022.



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VICTOR RASGADO
BIGISLAND@HLSAHAWAII.ORG
MAUI:
DUDLEY DEPONTE
MAUI@HLSAHAWAII.ORG
KAUAI:
DENNIS ESAKI
KAUAI@HLSAHAWAII.ORG

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LIAISONS

LEGISLATIVE: MEYER CUMMINS
EMAIL: LEGISLATIVE@HLSAHAWAII.ORG
NEWSLETTER EDITOR: CHRISTINA VILLA
EMAIL: NEWSLETTER@HLSAHAWAII.ORG