



# 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](mailto:hlsa-hawaii@outlook.com) WEBSITE: [www.hlsahawaii.org](http://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.



Kalaupapa Harbor, Island of Mōlokaʻi  
Photo By: Cliff Yim, PLS (HI)



# PRESIDENT'S MESSAGE

BY: VICTOR RASGADO, LPLS

On behalf of the HLSA Board of Directors, I wish you Aloha and Mahalo for your continued support and membership. I would like to send a huge Mahalo, to our sustaining members who have donated to make our annual dinner a success. Your continued support is greatly appreciated. The HLSA board continues to promote and engage our professional interests on many fronts to include working with educational institutions to create survey and geomatics engineering training opportunities, legislative initiatives which includes a new Right of Entry bill for the 2023 legislative sessions, and most important, setting up opportunities for our survey community to once again meet face to face; It was great to be with all of you who attended our first in person event since March of 2020—our Annual Surveyors Dinner was held September 9 at He`eia State Park and it was a great way to say Aloha to the Summer and Fall.

We belong to a unique community of mapping professionals whose work experiences and titles vary from the traditional instrument man & land survey technician to the Licensed Professional Land Surveyor. New positions and responsibilities, such as, UAS pilot, GIS analyst and GeoSpatial Coordinator are also now a growing niche in our geospatial community. It was great hearing about the different projects our members have gotten to participate in over the past summer and the last two and a half years since we last met.

Our local community of survey professionals isn't alone in adapting to changes in our industry, these changes are occurring on the national level as well, so I thought it would be good to remind you that **The Hawaii Land Surveyors Association (HLSA)**, is an affiliate of the **National Society of Professional Surveyors (NSPS)**. The NSPS has an active government affairs program that protects the interests of the surveying and mapping professions in the federal legislative and regulatory arenas. A few of the **NSPS benefits** are as follows: Professional Advocacy Programs, Education programs, Professional Licensing & Standards, Professional Outreach Opportunities, Surveyor Certification Programs, Member Discount Programs, and News and Networking. Please check out the NSPS links for more information.

[National Society of Professional Surveyors \(nspssurveyors.com\)](https://www.nspssurveyors.com)

## **Promoting our Profession**

Whether you call it Land Surveying, Geomatics, GIS, or Geospatial sciences I believe our profession is going through a rapid transformation, I would even say it has the characteristics of a technological revolution which by definition means "When in a short period of time a technology or a set of technologies replaces another technology or a set of technologies" *What is Technological Revolution* | IGI Global (igi-global.com)



# PRESIDENT'S MESSAGE

BY: VICTOR RASGADO, LPLS

But here's the thing, it's a wonderful time to be a land surveyor because the fundamentals of land surveying still serve as the backbone of good 3D data collection and with the rising ubiquity of tools such as Unmanned Aerial Systems (UAS), Terrestrial and Airborne Lidar scanning, GIS Mapping, and CAD drafting of 3D point clouds; surveying and mapping has proven once again to be more vital and needed than ever before in a long and storied history.

[Be a Surveyor https://beasurveyor.com/](https://beasurveyor.com/)

The innovative trends in the geospatial profession that are drastically changing industry workflows provide great job opportunities for any person with the skill sets we now see needed in the field and office where mapping software processes data in 3D and allows us to work globally from our island offices. I'm excited to let you know we are again talking with both Hawaii Community College in Hilo (HawCC) and UH Manoa to provide educational opportunities for those of you interested in taking survey and geomatics engineering courses. Both schools are targeting the Fall of 2023 for class availability.

## **Safeguarding the Public**

To that end, HLSA would like to remind our members to remain aware of the rise in illegal practice of unlicensed surveying and mapping in the State of Hawai'i. Unlicensed practice undermines professional surveying principles and damages the building blocks of geospatial data collection and 3D digital CAD/GIS mapping. The HLSA Board recently voted to take action in the 2023 legislative session to (1) significantly increase the punitive fines for unlicensed survey practice and (2) **affirmatively define what conduct must be completed by a licensed professional surveyor**, including boundary work and setting survey ground controls. The proper establishment and retracement of property boundaries and survey controls underpins every other aspect of geospatial data collection and topographic mapping and must be safeguarded by a community of licensed professionals. [HRS 464 CHAPTER 464 \(hawaii.gov\)](https://hawaii.gov/hlsa/legislation/hrs-464)

It's important to remember although land survey continues to evolve our profession has a long and historic past. Our goal is to help educate the community at large and provide professional standards and career paths to quality (local) geospatial training--in order to protect the health and safety of the general public. Together, we can do great things for local professionals and professionalism in the State of Hawai'i.

Victor M. Rasgado, LPLS

President, Hawaii Land Surveyors Association Board of Directors



# HLSA ANNUAL DINNER

SEPTEMBER 9, 2022::HE`EIA STATE PARK



**SHAKAS AND SMILES  
FROM SOME  
HANDSOME SURVEYORS**



**WHO DIDN'T GET THE  
YELLOW SHIRT MEMO?**



**SURVEYORS SHOWING US  
HOW IT'S DONE!  
(SURVEYORS CHALLENGE)**



# SURVEYOR'S CHALLENGE WINNER



**MIKE MARTIN AND KYLE UYEHARA OF  
KN SURVEYING, LLC**



**EH, MAKE SURE YOU  
WRITE 'EM DOWN!**



**HOLD DA TAPE GOOD!**

**CONGRATS!!**



**WINNER**

**KYLE UYEHARA (ALOHA SHIRT)  
AND MIKE MARTIN (KNS SHIRT)  
DOUBLE CHECK THEIR NUMBERS  
AND CALCULATIONS TO WIN THE  
2022 SURVEYORS CHALLENGE.**



# ANNOUNCEMENTS

**LAND SURVEY AND GEOSPATIAL CONFERENCE**  
**WHEN: MARCH 16 AND 17, 2023**  
**WHERE: ALA MOANA HOTEL**

IN-PERSON CONFERENCE RETURNS FOR 2023 AND WE'RE EXCITED FOR YOU TO BE THERE! TIME TO NETWORK WITH COLLEAGUES IN RELATED FIELDS AND GROW YOUR KNOWLEDGE FROM OTHER PROFESSIONALS!

STAY TUNE FOR MORE DETAILS!

IF YOU'RE INTERESTED IN PARTICIPATING AS A SPEAKER OR VENDOR, IT'S A GREAT TIME TO CONTACT YOUR BOARD OF DIRECTORS.

WE ALSO WOULD LOVE ANY FEEDBACK ON ANY TOPICS YOU WOULD LIKE TO SEE AT THE CONFERENCE.

IF YOU'RE INTERESTED IN BEING ON THE HLSA BOARD FOR 2023, PLEASE CONTACT US. WE LOVE TO SEE NEW FACES. IT IS A GREAT WAY TO CONNECT WITH OTHER SURVEYORS AND MAKE A IMPACT IN YOUR PROFESSION.

EMAIL: [HLSA-HAWAII@OUTLOOK.COM](mailto:HLSA-HAWAII@OUTLOOK.COM)



# EMPLOYMENT OPPORTUNITIES



HAWAII ENGINEERING GROUP, INC.

Hawaii Engineering Group, Inc. is a full-service civil, structural and electrical consulting engineering and land surveying firm that specializes in commercial, industrial and residential projects. With over 25 years of experience in the industry, we recognize that we are only as successful as the people we employ.

## **SURVEY PARTY CHIEF (HONOLULU):**

HAWAII ENGINEERING GROUP, INC. IS LOOKING FOR A SURVEY PARTY CHIEF FOR A LONG-TERM FULL-TIME POSITION.

- PERSON MUST BE DEPENDABLE, HAVE A DRIVER'S LICENSE, BE A U.S. CITIZEN, HAVE NO FELONY CONVICTIONS AND BE ABLE TO TRAVEL.
- EXPERIENCE MUST INCLUDE 5 YEARS FIELD WORK EXPERIENCE IN ALTA, TOPOGRAPHIC, BOUNDARY AND CONSTRUCTION SURVEYS. AUTOCAD AND TDS DATA COLLECTOR EXPERIENCE A PLUS. MUST HAVE EXPERIENCE AS A PARTY CHIEF.
- SEND RESUME TO: [HEGADMIN@HAWAIIENGINEERING.NET](mailto:HEGADMIN@HAWAIIENGINEERING.NET)
- SALARY: NEGOTIABLE WITH EXPERIENCE
- BENEFITS: MEDICAL, 401K, PROFIT SHARING, PAID VACATION & SICK LEAVE

## **Aerial Surveying, Inc.**

Currently looking to fill the following position:

### **SURVEY FIELD TECHNICIAN**

- Drone Pilots License required or willing to obtain one.
- Experience in GPS and field data collection required
- Willing to Travel
- Salary determined by experience

Send resume to [tom@surveyhawaii.com](mailto:tom@surveyhawaii.com)



# EMPLOYMENT OPPORTUNITIES



ParEn, Inc. □ dba **park engineering**

ParEn, Inc. dba Park Engineering is an employee-owned, small business enterprise providing civil engineering and surveying services to clients throughout the State of Hawaii. As one of the leading engineering and surveying firms in Hawaii, Park Engineering has played an important role in the development and growth of our island community for the past 70 years.

## Land Surveying Field Technician: Rodman (Full-Time)

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](mailto:wteruya@pareninc.com)



# EMPLOYMENT OPPORTUNITIES



## **WES THOMAS ASSOCIATES**

*-Land Surveyors-*

75-5749 Kalawa Street, Suite 201, Kailua-Kona, Hawaii 96740

Phone: 808.329.2353 - Fax: 808.329.5334

[surveys@wtahawaii.com](mailto:surveys@wtahawaii.com) - [www.wtahawaii.com](http://www.wtahawaii.com)

*Wes Thomas Associates has been surveying in Hawai'i since 1975. This has allowed us the luxury of dedicating our staff, equipment, and facilities to this single specialized profession.*

*Our office is conveniently located in Kailua-Kona on the Big Island of Hawai'i and is managed by our President and Chief Surveyor, Chrystal Thomas Yamasaki, LPLS. Our staff has an aggregate experience of over 100 years of providing professional land surveying services in Hawai'i. Surveying is the primary focus of the firm, and we have completed thousands of individual survey projects since our inception.*

### **POSITION AVAILABLE: SURVEY PROJECT MANAGER (KONA, BIG ISLAND)**

#### Position Summary:

- Full-time position available for experienced survey project manager.
- You will be working closely with land surveyors, other project managers and CAD personnel.
- Expectations include: acquisition of field data, analysis of research and field data, preparation of project computations for use by CAD personnel and ultimately delivery of a final product for the client.
- Pay will depend on level of experience, certifications and licenses, if any.
- Our firm offers Medical, Dental and Paid Vacation and Sick Leave (at anniversary date)
- Inquire for more information/Send Resume to: [surveys@wtahawaii.com](mailto:surveys@wtahawaii.com) or call **(808) 329-2353**



## podcasts for the surveying profession



Please check out Mentoring Mondays for informational presentations to help build our knowledge in this profession.

[WWW.MENTORINGMONDAYS.XYZ](http://WWW.MENTORINGMONDAYS.XYZ)



## surveyor says THE NSPS PODCAST

Want to hear from the movers and shakers of the surveying profession? Each week, NSPS brings you conversations with the trendsetters and difference-makers that are helping to shape the world of surveying. Your hosts, NSPS Executive Director Curt Sumner and NSPS President-Elect Tim Burch sit down with various personalities to discuss all things surveying, all bundled in a 30-minute conversation.

Download episodes of "Surveyor Says! - The NSPS Podcast" from your favorite streaming providers or find them at our podcast hosting site, Podbean. Watch our social media outlets for upcoming episode news and contests/giveaways on special occasions.

And remember - "It's a great day to be a surveyor."

[HTTPS://SURVEYORSAYS.PODBEAN.COM/](https://surveyorsays.podbean.com/)



## 2022 SUSTAINING MEMBERS

AUSTIN, TSUTSUMI & ASSOCIATES, INC.

CARLSON SOFTWARE

CONTROLPOINT SURVEYING, INC.

DUDEK

ENGINEERS SURVEYORS HAWAII

ESAKI SURVEYING AND MAPPING, INC.

FRONTIER PRECISION

HAWAII ENGINEERING GROUP, INC.

HUBS HAWAII

KN SURVEYING, LLC

PAREN, INC. DBA PARK ENGINEERING

R. M. TOWILL CORPORATION

SAM O. HIROTA, INC.

STANTEC

SURVEYOR'S SUPPLY CO., INC.

WES THOMAS & ASSOCIATES, INC.

## 2022 OUTER ISLAND LIAISONS

BIG ISLAND :

VICTOR RASGADO

[VICTOR.RASGADO@STANTEC.COM](mailto:VICTOR.RASGADO@STANTEC.COM)

MAUI:

DUDLEY DEPONTE

[DUDLEY@AKAMAISURVEY.COM](mailto:DUDLEY@AKAMAISURVEY.COM)

KAUAI:

DENNIS ESAKI

[DENNIS@ESAKIMAP.COM](mailto:DENNIS@ESAKIMAP.COM)

## 2022 BOARD OF DIRECTORS

PRESIDENT: VICTOR RASGADO

EMAIL: [VICTOR.RASGADO@STANTEC.COM](mailto:VICTOR.RASGADO@STANTEC.COM)

VICE PRESIDENT: CLIFF YIM

EMAIL: [CLIFFYIM@OUTLOOK.COM](mailto:CLIFFYIM@OUTLOOK.COM)

TREASURER: ALIKA GARO

PHONE: 808-237-3223

SECRETARY: BRETT ETHEREDGE

EMAIL: [BRETT.ETHEREDGE@STANTEC.COM](mailto:BRETT.ETHEREDGE@STANTEC.COM)

DIRECTOR: ERICK WENCESLAO

EMAIL: [EWENCESLAO@DUDEK.COM](mailto:EWENCESLAO@DUDEK.COM)

DIRECTOR: MEYER CUMMINS

EMAIL: [MEYERCUMMINS@HLCSURVEY.COM](mailto:MEYERCUMMINS@HLCSURVEY.COM)

DIRECTOR: DUDLEY DEPONTE

EMAIL: [DUDLEY@AKAMAISURVEY.COM](mailto:DUDLEY@AKAMAISURVEY.COM)

DIRECTOR: LAUTISHA MCKINNEY

NSPS DIRECTOR: JOANNE WILLIAMSON

PHONE: 808-543-7881

PAST PRESIDENT: CHRISTINA VILLA

NEWSLETTER EDITOR: CHRISTINA VILLA

## Benefiting Members and the Surveying Profession

The National Society of Professional Surveyors has an active government affairs program that protects the interests of the surveying and mapping professions in the federal legislative and regulatory arenas. Working with a government affairs consultant, NSPS monitors federal government activities that may be of interest and concern to our members. The consultant works closely with members of the NSPS Government Affairs Committee and our Executive Director to represent members' interests before Congress and Executive Branch Agencies.

**Plus, we offer members these professional benefits:**

### Advocacy Programs

- Political Action Committee Jefferson Club (contact NSPS to learn more)
- Assistance on state-specific matters
- Other geospatial organizations, such as the International Federation of Surveyors (FIG) and the Coalition of Geospatial Organizations (COGO)

### Education

- ABET-Lead Society for surveying/geomatics program evaluation for accreditation
- Scholarship Program: 15 annual awards

### Licensing / Standards

- NCEES – Participating Organizations Liaisons Council
- ALTA/NSPS Land Title Survey Requirements
- NSPS Model Standards

### Outreach Opportunities

- Trig-Star
- Boy Scouts Surveying Merit Badge
- National Surveyors Week
- Getkidsintosurvey.com
- Beasurveyor.com

### Certification Programs

- Certified Survey Technician Program
- Hydrographic Certification opportunities
- Certified Floodplain Surveyor
- Certified Federal Surveyor

## News and Networking

### Check Out the NSPS Newsletter and Podcast

Sign up for the weekly email newsletter by visiting [multibriefs.com/briefs/NSPS](http://multibriefs.com/briefs/NSPS) and clicking "subscribe." Listen to the Surveyor Says! podcast on Spotify, iTunes, and Google Play, or by going to [surveyorsays.podbean.com](http://surveyorsays.podbean.com).

### Follow Us on Social Media



## Member Discount Programs



### Apparel

Buy NSPS apparel through Lands' End, including tops, bottoms, outerwear and accessories.

- [business.landsend.com/store/npsinc](http://business.landsend.com/store/npsinc)

### Insurance

#### NSPS Endorsed Program

Assurance Risk Managers

- 888-454-9562
- [arm-i.com/nps.html](http://arm-i.com/nps.html)



#### Individual Life & Health Insurance

Mercer Consumer

- 800-424-9883
- [nps.insurancetrustsite.com](http://nps.insurancetrustsite.com)

#### Group Health

Mass Marketing Insurance Consultants

- 800-349-1039
- [mmicinsurance.com/NSPS](http://mmicinsurance.com/NSPS)

### Dell Computers

Get 40% off computer products, electronics and accessories.

- [nps.us.com/page/Dell](http://nps.us.com/page/Dell)

### Travel Discounts

NSPS members qualify for a Member Travel Discount Program through Localhospitality, which applies to hotels and car rentals.

- Go to: [nps.us.com](http://nps.us.com)
- Click "Membership"
- Click "Member Travel Discounts"
- You must sign in to search

### PerksConnect Program

PerksConnect saves you money on dining, retail, auto and home services, pet needs, health, fitness, recreation, entertainment and more. To sign up, go to:

- [Discounts.perksconnection.com](http://Discounts.perksconnection.com)
- Click "Activate account now"
- Use group code: NSPS

### Tire Discounts

Save 10% on your order! Go to [tirebuyer.com/nps](http://tirebuyer.com/nps) and apply the coupon code that appears in the pop-up window.



### NSPS Career Center

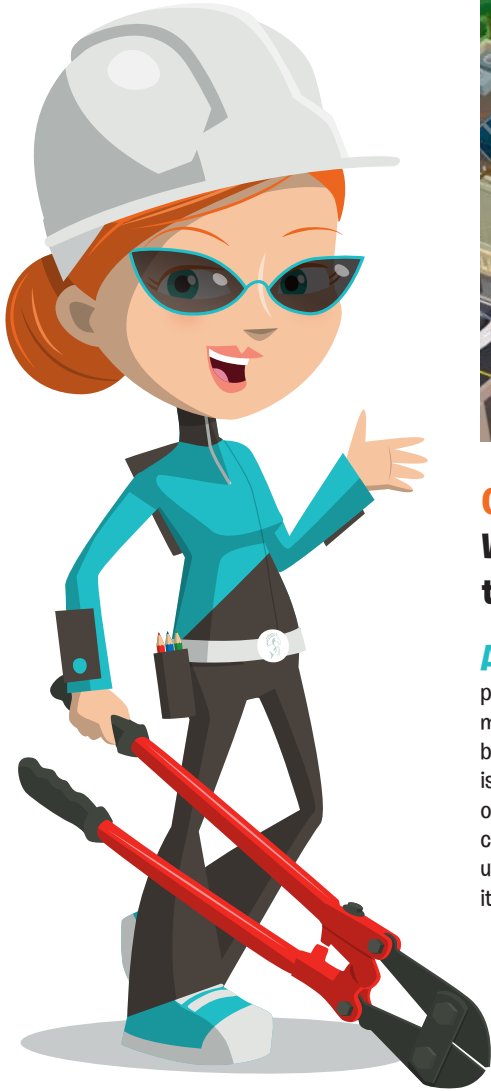
Find qualified job applicants or search for a new position, free!

- [careercenter.nps.us.com](http://careercenter.nps.us.com)



# Q&A

## UTILITIES (US)



**Q1: The team outside the Survey HQ are mapping utilities. Why do you think it would be important to know where things like underground water pipes and power lines are?**

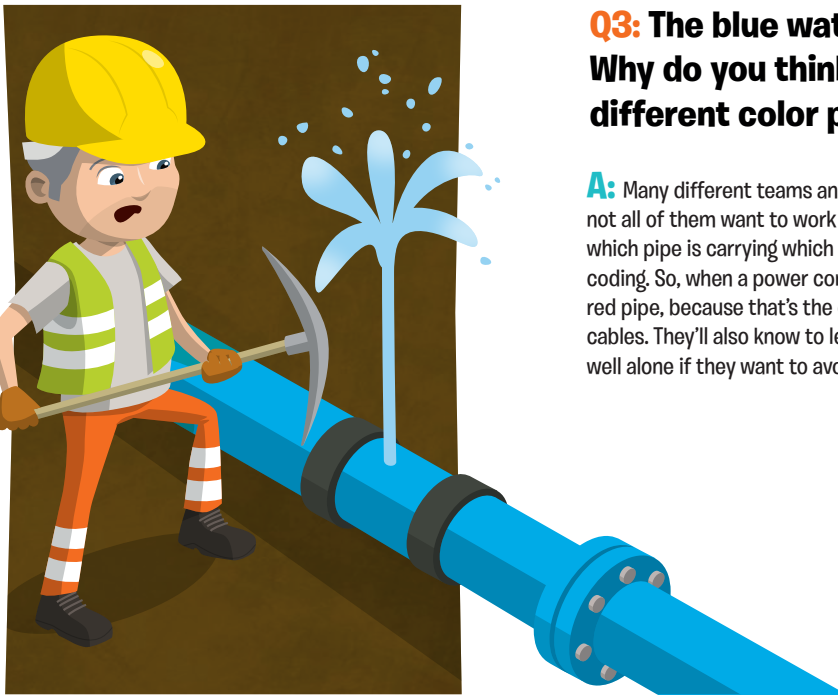
**A:** Utility mapping involves locating and labelling public utility mains, and underground utility mapping means to detect, position and identify buried pipes and cables beneath the ground. It is important to know the location and direction of these utilities in order to keep them working correctly. That might mean making sure that new utilities aren't installed anywhere hazardous, or it might mean protecting the safety of existing

utilities - for example, if building work was being carried out nearby, it would be good to know where power, gas and water lines were, so that none of them were accidentally dug up or damaged! Unfortunately, it looks like it's a bit late for the clumsy worker in (F,2)! Someone fetch a bucket... and a really big band-aid!

**Q2: Can you spot the different types of survey equipment used to detect the position of the utilities underground?**

**A:** While a few surveyors are using Total Station scanners on yellow tripods to scan the surface of the dig sites, those can only 'see' what's above ground. The piece of technology that can scan through solid surfaces is called a Ground Penetrating Radar, or GPR for short. It pushes powerful sound waves deep underground, then measures the echoes as the sounds bounce back off solid objects, like water and gas pipes. There's a surveyor using a GPR unit in (G,2) - it looks like a big yellow lawn mower!





**Q3: The blue water main has sprung a leak! Why do you think it's important to have different color pipes for each utility?**

**A:** Many different teams and companies work on underground utilities - but not all of them want to work on the same lines! As such, it's important to know which pipe is carrying which utility, and the easiest way to do this is by colour coding. So, when a power company digs below ground, they'll be looking for the red pipe, because that's the one that carries electric power lines, conduits and cables. They'll also know to leave the blue pipe (which carries drinking water) well alone if they want to avoid a shocking surprise!

**Q4: If drinking water pipes are color-coded blue, and electric power lines are red, can you guess what the other color pipes in grid (F,2) might be carrying?**

**A:** Here's the color coding guide for all the major utilities lines; it helps anyone working below ground to identify exactly what each pipe is carrying:



**Electric power lines, conduit and cables.**

**Telecommunication, alarm or signal lines.**

**Gas, oil, steam, petroleum, or other flammable material.**

**Sewage and drain lines.**



**Drinking water.**

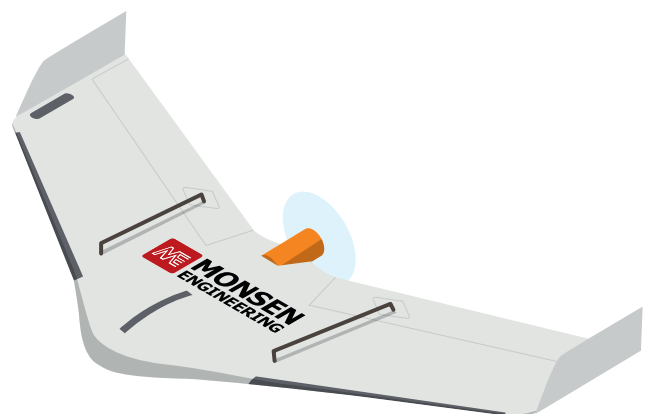
**Reclaimed water, irrigation, and slurry lines.**

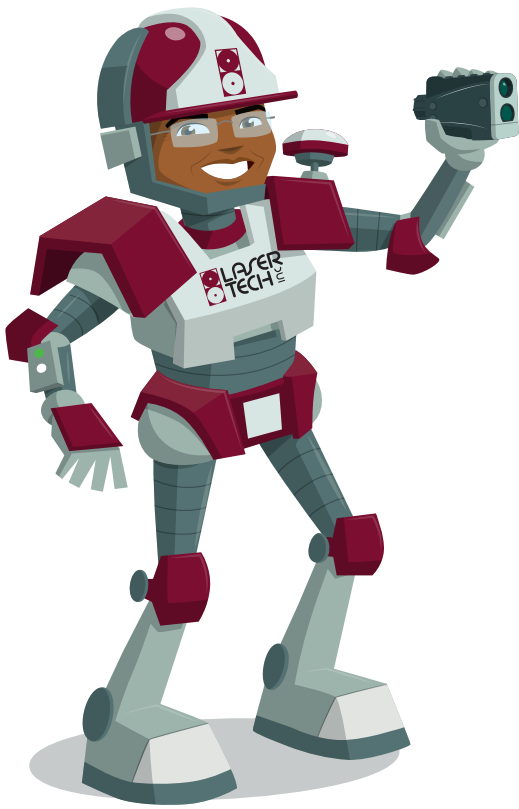
**Temporary survey markings.**

**Proposed excavation limits or route.**

**Q5: Can you spot the Monsen Engineering drone? What do you think it might be surveying?**

**A:** The Monsen drone is soaring through grid (D,3), flying over the above-ground utilities (in this case, the power lines) to check them for sags, wear and tear, and what surveyors call encroachment - where trees might have fallen onto the lines. It might also be showing off its impressive wingspan to all the birds that have parked their feathery behinds on the power lines!





**Q6: What is Robo Roosevelt showing the kids in grid (E,5)?**

**A:** When Robo Roosevelt goes binocular shopping, he has to find a pair that matches his style - sleek, smart and loaded with tech! He's treated himself to a Laser Tech TruPulse 360 Rangefinder, which not only allows Robo Roosevelt to see things at great distances, but it also helps him to make measurements of heights, widths, and degree of slopes, all while adapting to harsh light and adverse weather conditions. It's definitely his new favorite toy!

**Q7: Can you spot Bengal Cat? He's using his Carlson Rover (a piece of technology that tells the surveyor their precise location) to do a very important job: marking utility easements. Can you find out what this means?**

**A:** Utility Easement happens when public utility lines, like water pipes and power cables, pass through land that is not publicly owned. This usually happens when the safest and most sensible path for a utility line is across privately owned land - and in that situation, an agreement has to be made between the utility companies and the land owners for access. Surveyors help to make sure the

utilities are positioned correctly and are carefully maintained. They use markers in the ground, called monuments to help with this. That's what Bengal Cat is doing - using his satellite-guided positioning technology to locate monument markers and work out the exact site of the easement.



# GET IT DONE

With Carlson



**AUTEL**  
ROBOTICS

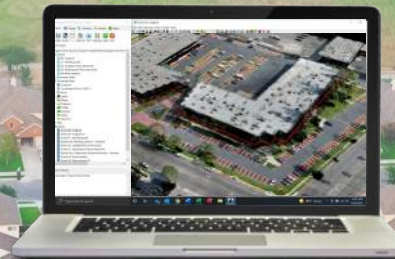
Fly with the Autel EVO II  
Pro RTK UAV



Set your ground control  
points and create an RTK  
base with the Carlson  
BRx7



Create point clouds,  
orthoimages, surfaces,  
and more with Carlson  
PhotoCapture



Filter to bare earth,  
extract features, create  
linework and more with  
Carlson Point Cloud

# From Flight to Finish, Carlson Has the Solution

Contact Your Carlson Dealer or Regional Director to Learn More

Luis Rojas | Regional Sales Director  
859-568-8429 | lrojas@carlsonsw.com

Dave Wilmarth | Surveyors Supply Company  
808-753-0985 | sales@surveyorshawaii.com

[www.carlsonsw.com](http://www.carlsonsw.com)

# Quantum-Systems Trinity F90+ UAS



**LiDAR**  
Now Available!

## Starting at \$19,500

Package Includes:

- Trinity F90+ UAV
- iBase GNSS Reference Station (PPK)
- QBase Mission Planning Software
- Remote Controller
- Battery Pack & Charger
- Transport Case

Features:

- Vertical Take-Off & Landing (VTOL)
- 90+ Minutes<sup>1</sup> of Flight Time
- PPK Capability
- 1.54 lb. Max Payload Capacity
- Wind Resistance up to 12 m/s
- Wide Variety of Payload Options

## Rentals<sup>2</sup> & Services

Rent-First Day	\$700
Rent-Add'l Days	\$170
Rent-Monthly	\$3,500
Training/Project Day	\$1,900

<sup>1</sup> Maximum flight time in optimal conditions  
<sup>2</sup> FAA Section 333 or Part 107 AND 1 Training Day  
required prior to rental



David Wilmarth  
davew@surveyorshawaii.com  
(808) 342-4393

Surveyors Supply Company, Inc.  
94-356 Uke'e St #A, Waipahu, HI 96797  
www.surveyorshawaii.com  
(808) 676-7944



**Surveyors,  
Contractors,  
& Drafting  
Supplies**

**Instrument  
Rental & Repair**

*"With recent changes of Trimble's distribution in the Pacific region, Hubs Hawaii Inc. would like to announce our new Trimble relationship with Frontier Precision Inc. to provide the best customer experience when purchasing Trimble equipment in Hawaii."*

*"Hubs Hawaii Inc. is a locally owned and operated company since 1987 and will continue to serve the state of Hawaii with surveying equipment, supplies, accessories, rentals, and repairs."*



**Hubs Hawaii Inc.**

85 Po'okela Street  
Hilo, HI 96720

**Phone: (808) 961-3223**

Email: [hubs1@hawaiiantel.net](mailto:hubs1@hawaiiantel.net)

Website: [www.hubshawaii.com](http://www.hubshawaii.com)

*The Spectra Geospatial®SP85 is a next generation GNSS receiver that combines decades of GNSS RTK technology with revolutionary new GNSS processing. Featuring the new 600-channel "7G" chipset combined with the patented Z-Blade™ technology, the SP85 system is optimized for tracking and processing signals from all GNSS constellations in challenging environments.*



Frontier Precision helps you re-imagine what's possible. With the NEW Trimble® SX12 Scanning Total Station – working harder has never been easier. It combines innovative technology with simple and intuitive functionality to help you save time, maximize efficiency, and get more done in the field.

To get started, visit: [www.frontierprecision.com/trimble-sx12](http://www.frontierprecision.com/trimble-sx12).

# TRIMBLE SX12 SCANNING TOTAL STATION

BUILT FOR SEAMLESS WORKFLOW INTEGRATION AND BETTER, FASTER RESULTS – IN EVERY FIELD.

**Want more information? Contact:**

Brennan O'Neill | Geospatial Sales Representative  
[brennan@frontierprecision.com](mailto:brennan@frontierprecision.com)  
808.465.3900 | 808.824.0336 Direct / Cell

**Frontier Precision**  
2144 Auiki Street  
Honolulu, HI 96819



# Technology

Unmanned Aerial Systems (UAS) cover larger areas in less time than traditional ground surveying—saving costs on surveys up to 300 acres.



## How does it work?

Automated flight software on our UAS makes all the difference. The mission area is programmed into a mapping interface that calculates how the UAS should fly to collect the area of information needed. This route is uploaded to the UAS which flies the entire mission in a fully automated pattern—flying, capturing images, and landing all on its own.

## What can it do?

The UAS platform carries a sensor; determining the required sensor to capture the data is key. From an RGB camera to infrared, multispectral, gas, and thermal sensors, UAS captures everything from high resolution oblique imagery or HD video to leak and heat detection. With new sensors hitting the market, more doors are opening for new data collection methods.

# Design with community in mind

We're active members of the communities we serve. That's why at Stantec, we always design with community in mind.

The Stantec community unites approximately 22,000 employees working in more than 400 locations across six continents. Our work—from initial project concept and planning through design, construction, and commissioning—begins at the intersection of community, creativity, and client relationships. With long-term commitment to the people and places we serve, Stantec has the unique ability to connect to projects on a personal level and advance the quality of life in communities across the globe. Visit us at [stantec.com](http://stantec.com) or contact us below for your Unmanned Aerial System (UAS) Survey needs.

**Victor M. Rasgado, LPLS (Hawaii)**  
(808) 208-2837  
[Victor.Rasgado@stantec.com](mailto:Victor.Rasgado@stantec.com)

**Matthew J. Vernon, PLS (California)**  
(805) 377-9156  
[Matthew.Vernon@stantec.com](mailto:Matthew.Vernon@stantec.com)

**Ray Mansur, PLS (US West)**  
(949) 293-2318  
[Ray.Mansur@stantec.com](mailto:Ray.Mansur@stantec.com)



## Geomatics takes flight

Unmanned Aerial System (UAS)



## Capabilities

Collecting data is our specialty. We have the right tools to deliver accurate information.

In addition to UAS, our arsenal includes levels, total stations, GPS, and laser scanning. Next up is integrating UAS on project sites like landfills, gravel pits, plant sites, or even undeveloped land to deliver high resolution imagery and topographic data.

### Our UAS capabilities include:

- High resolution orthomosaics/ortho photography
- Classified point clouds
- Digital surface models (DSM)
- Digital terrain models (DTM)
- Contours
- GIS data
- Photo stills
- HD Videos
- 3D point cloud data

## Benefits

UAS keeps us safe while collecting data in remote locations.

When we're inspecting the underside of a bridge or the top of a building, not only can the task be difficult and costly—it comes with some risks. By deploying a UAS, we can assess a structure or project site's condition remotely and without the need for scaffolding, cranes, or harnesses.

### Our UAS benefits include:

- Safety
- 3D Modeling over a large area
- Access to remote areas
- High resolution photography
- Integration with ground laser scanning
- Integration with ground photography
- Multiple data format exports
- Quick response time
- Cost savings

### Drones aren't for everyone.

FAA Part 107 guidelines and restrictions govern commercial UAS operations in the United States. These restrictions identify where commercial UAS flights can legally operate, at what height, and for what distance. We've got California, Hawaii, and the Western States covered with pilots certified to legally operate UAS for commercial use.

## Applications

The sky's the limit with UAS! This technology isn't just for one type of industry, it can be utilized for a variety of sectors and uses.

→ With the same amount of field time, we capture roughly 1000 times more data points than traditional survey methods.