NTUA Helps Provide Golden Eagles a New Home at Navajo Nation Zoo with Help of IKE 3* Solution

Customer

Navajo Tribal Utility Authority (NTUA) is a not-for-profit enterprise created in 1959 that oversees and distributes power to residents throughout northern Arizona, northwestern New Mexico and southeastern Utah covering 27,000 square miles, within the Navajo Reservation. Many residents live in rural communities without basic utility infrastructure such as telephones, water, wastewater and natural gas services. NTUA attempts to remedy this challenge through the use of federal loans and grants to help extend the needed infrastructure. It currently manages services for over 39,000 electric and 34,000 water customers.

Challenge

The Navajo Nation Zoo is the only Native American owned and operated zoo in the country. It is located in Window Rock, Arizona, which is the capital of the Navajo Nation, and receives approximately 40,000 visitors per year. It provides a safe habitat for over 50 species that are native to the Navajo Nation. The zoo is in the process of building a new aviary, typically used to house birds that may have been injured or are not capable of surviving in the wild. This particular aviary will be hosting golden eagles, which have a long history with the Navajo culture. The aviary structure will be tall and require the use of a crane during construction. This means the current electrical distribution lines had to be re-routed to accommodate the tall structure.

To further complicate the situation, next to the distribution line is the wolf enclosure. Zoo officials take the health of their animals seriously and always try to avoid any type disruption that may impact the emotional and physical well-being of creatures under their care. It is also important for the NTUA operations team to be in a safe environment when performing its work. The need to design a new distribution route with minimum interruption to the wolves and without exposing the workers to danger would be challenging.

Finally, since NTUA has agreed to provide the needed services pro-bono in support of the Navajo Nation Zoo, they needed to ensure that the project is managed efficiently and done correctly the first time. Any rebuilds would be expensive and directly affect NTUA's bottom-line.

Challenge

- Need to capture measurements with limited interruption to zoo wildlife
- Must keep team members safe while gathering data
- Unleveled terrain requires accurate measurements to ensure compliance with safety regulations

Solution

- One piece of equipment serves many functions
- Ability to capture needed data without affecting zoo habitants

Results

- Accurate GPS capture with images support redesign of distribution lines.
- Field team able to work safely and only required to carry one piece of equipment in Arizona heat.

* IKE 3, *formally branded as GE MapSight™*

Solution

To overcome the logistical challenge of collecting the necessary measurements and geo-location data needed for the design of a new distribution route, Michael Cheromiah, AutoCAD operator with NTUA, used his IKE 3* device to capture the needed information from a distance. IKE is a field data collection tool that integrates a digital camera with a laser rangefinder, compass and inclinometer that is able to produce a calibrated image, which includes measurement and GPS coordinates of a structure. The image can be taken from a remote location yet still capture the measurements needed for engineering services to develop a new overhead distribution line.

Since the zoo land had been donated many years ago with boundaries loosely being identified using rock formations and other structural points, there were no formal GPS coordinates to determine the zoo's property lines. Due to the unavailability of right-of-way coordinates, the IKE Local Point tool was used to help capture coordinates to propose a fence line perimeter.

Measurements were also taken to verify height clearances needed. Since the ground was not level, various elevation measurements of the ground to the top of the pole had to be calculated to ensure ground clearance and any cable sag met safety requirements. Cheromiah used the device to capture images that provided for these measurements.

Finally, Cheromiah again used the Target Position image to capture the GPS coordinates for the proposed new pole locations to aid in proposed line design.

Result

Using IKE's accurate GPS data, NTUA captured the measurement and location information needed for a proposed re-design of electrical distribution system for the zoo with minimal intrusion on its wolf population.

One of the benefits for the NTUA team, was the need to only carry one piece of equipment in the field. In the hot Arizona climate, it is easy to become over-heated with continuous exertion. Prior to using IKE, field teams had to carry multiple pieces of equipment including a GPS device, scale, hot stick, camera and various other items, to acquire the same information that one IKE device can collect.

With the new distribution line in place, the aviary began construction in October 2015 with plans to finish in the spring of 2016 when it will be ready to share the beauty of the golden eagles with zoo visitors.

Learn more about the Navajo Nation Zoo and their support of indigenous wildlife by visiting their website at: www.navajozoo.org

Need more information on the IKE solution? Visit us at: www.ikegps.com

Have additional questions or prefer to see a live demo?

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"IKE is an awesome tool that helps make planning and redesign of distribution lines much easier."

Michael Cheromiah
AutoCAD operator
Navajo Tribal Utility Authority