



## Case Study



# One Small Surveying Firm Finds Big Value in Skytec Services

## SERVICES PROVIDED

### PROBLEM

Beginning Point Surveys is working on a project, consisting of 50-60 acres. The area was formerly an industrial site, and presented several unusual problems:

- There were structures that were very tall.
- It is located on the Tennessee River, so the river bank was a consideration.
- Barges came in and out of the site when it was in use, and tied up to poles which were under the water.
- There were also multiple underground structures with tunnels between buildings.

Each of these issues was compounded by the fact that the site had been abandoned 15-20 years prior to the current project, so a great deal of out-of-control vegetative growth covered the area. Simply walking around the site was challenging, and doing a ground survey was out of the question until some of the growth was cleared.

An unmanned aerial survey provided the location of the underwater poles, the details of the bank, as well as a clear idea of the land covered by vegetation. "We needed accurate information and definitely, LiDAR was the way to go with that," said Mario Forte, CEO of Beginning Point Surveys.

Skytec flew the area in 2019, providing a baseline. Later, the developer cleared the buildings, and needed to understand how much earth would need to be moved to prepare for the next phase of the project, calling for a second flight. As the engineers began the final design, one more unmanned flight provided details necessary for that work.

Forte notes that the biggest hurdles in the project haven't been technical or even related to timeline, which is a common concern for contractors and developers. Instead, he says, the difficulty has been in helping his client understand that the end product is worth the cost. "Making our clients understand the quality of the product is key," he says, adding that in some cases his clients don't understand that freely available information isn't always accurate enough for planning something like a subdivision.

Given the complications of a former industrial site, located on a riverbank, with both tall structures and underground structures, LiDAR offered the accuracy necessary for safety and properly planning the future of the site.

**"We needed accurate information and definitely, LiDAR was the way to go with that."**

*-Mario Forte, Owner of Beginning Point Surveys*

## EQUIPMENT USED

In completing this project for Beginning Point Surveys, Skytec used the following equipment:

- Harris H6 UAS
- RIEGL Vux-1 sensor for LiDAR
- Sony A7RIV camera for imagery

## WHY SKYTEC

Forte has a more in-depth understanding of the work involved in unmanned flights as he has a pilot's license himself. "I understand the planning involved when you're working in controlled airspace, what's required to get permits to fly, how difficult it can be to work given weather changes, and so on," he says.

Another reason Forte chose Skytec for this project has to do with mutual understanding.

"We speak the same language," he says simply. The Skytec staff understands what Forte needs to complete the project successfully, and in turn, Forte understands the value of the services that Skytec provides.



**"For a large project like this, field run surveying could not match the price or end product quality."**

*-Mario Forte, Owner of Beginning Point Surveys*

## STATS

**A total of 58 acres**

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**The terrain was mostly flat and graded**

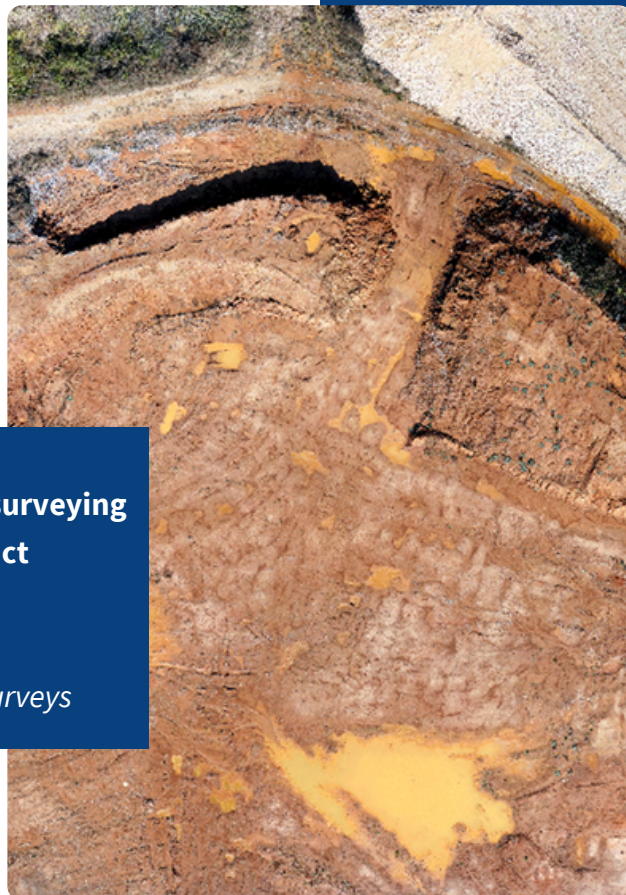
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**3 flights in total, 2 LiDAR, 1 imagery**

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**Altitude: 200 feet in Class C airspace, requiring approval to fly**

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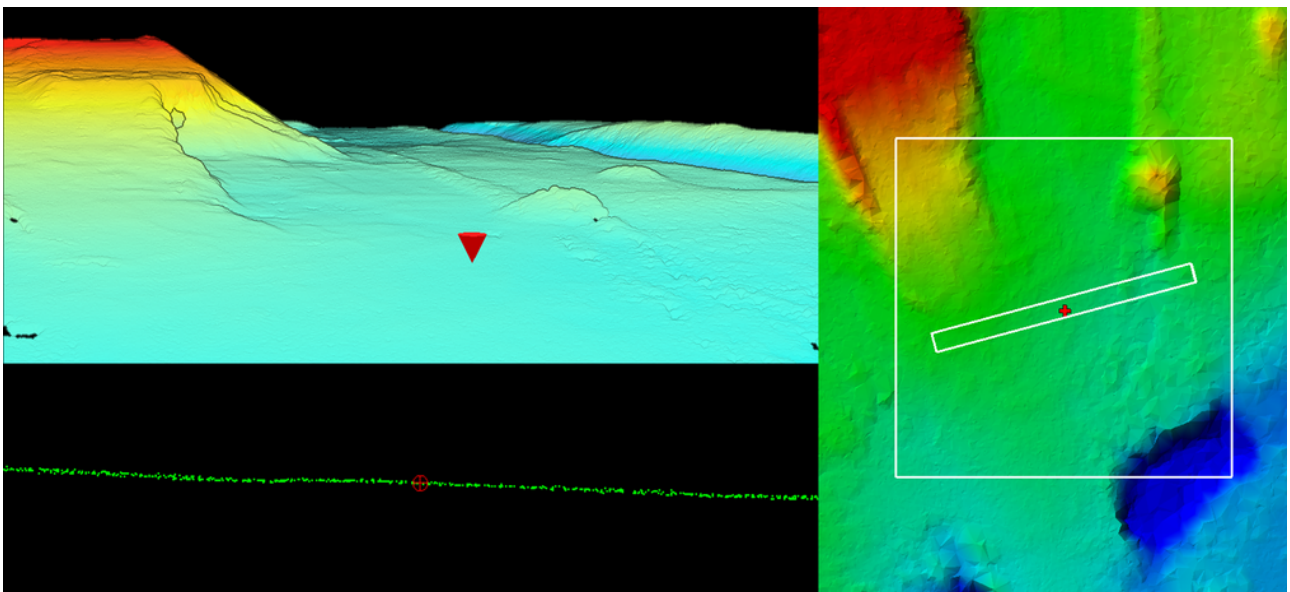
## OUTCOME

Skytec provided Beginning Point Surveys with a collection of high accuracy terrain surfaces, imagery, and map products. These products provided the detail and coverage required to expedite Forte's work, quantify volumes, and characterize site conditions, all meeting high accuracy and documented control and error reporting requirements of professional land survey work.

The project isn't fully completed. "I suspect we will be using Skytec at least one more time before development fully commences in about 18 months time," says Forte. However, some conclusions are already obvious:

- The detailed information from Skytec resulted in savings for the end client. "For a large project like this," says Forte, "field run surveying could not match the price or end product quality."
- The additional information about the riverbank allowed the design engineers to provide more options to present the client with designs.
- The accuracy of the volume calculations for earth moving from LiDAR mapping helped keep the project on budget.

Even though the project isn't completed, the use of Skytec's unmanned services has contributed to the success of each phase to this point. Further, Forte plans to continue engaging Skytec, saying, "I'm looking forward to our continued collaboration and partnership on this project."



*Vertical accuracy represented by referencing the elevation of a ground control point to the LiDAR-derived elevation surface shown in 3D, 2D profile view, and 2D map view.*