



FLEIS & VANDENBRINK

DESIGN. BUILD. OPERATE.

REVOLUTIONIZING LAND SURVEYS WITH LIDAR DRONE INNOVATION

In 2025, the Survey Group at Fleis & VandenBrink (F&V) expanded its capabilities by purchasing a Light Detection and Ranging (LiDAR) sensor for its drone, an investment aimed at improving efficiency on large-scale surveying projects. While traditional surveying remains essential, pairing a drone with a LiDAR sensor allows the team to collect high-quality data much faster, especially on large sites. What once required days of on-foot mapping can now be completed in just a few hours.

A LiDAR-equipped drone scans the ground while in flight, shooting millions of laser points per second and capturing hundreds of data points per square meter. Traditionally, a surveyor would walk and map a grid at 50-foot intervals, noting the high and low points along the way, a much more time-consuming process.

With the speed, accuracy, and precision provided by the LiDAR sensor, mapping heavily wooded sites no longer requires our surveyors to trudge through thick brush. The LiDAR detects gaps in the tree canopy, allowing the laser to reach the ground and capture precise horizontal and vertical data. After the flight, specialized software processes the data into a detailed 3D point cloud that reveals terrain, buildings, vegetation, and other site features with exceptional clarity. This gives the survey team highly accurate information to support their reports.

Large sites can often be flown within just a few hours, giving the team more time to analyze data and less time navigating rugged terrain.

Recently, F&V was hired to complete a Phase 1 Environmental Site Assessment, Wetland Delineation, Traffic Evaluation, and an ALTA/NSPS Land Title Survey for four parcels slated for land development in Lapeer, Michigan.

This 72-acre, heavily wooded site posed significant accessibility challenges, which F&V overcame by using the new LiDAR sensor. This approach enabled rapid, high-accuracy mapping and the identification of critical site features such as waterways, pavement, and structures. In addition to LiDAR data, the survey included aerial videos and photographs of the wooded parcels, providing environmental insights that traditional on-foot surveying could not achieve. By reducing the need for manual data collection, the drone saved substantial field time while improving

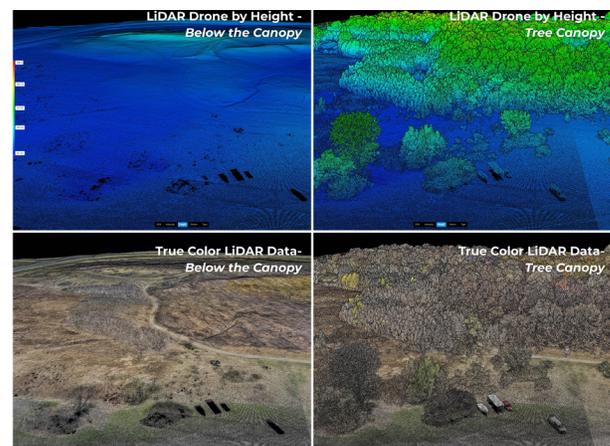
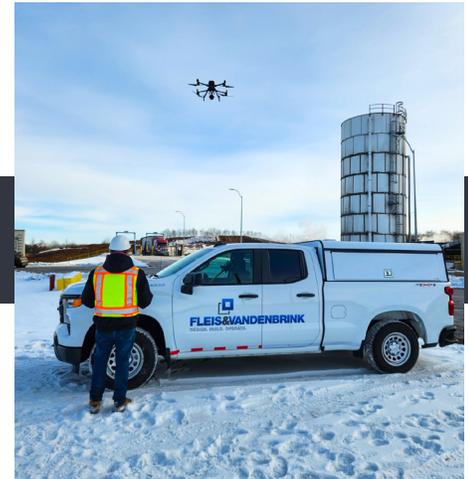
safety, data quality, and the client's overall understanding of the project area.

"LiDAR made it possible to complete the Lapeer project efficiently, otherwise, we would have spent a month on site just traversing the area," said Jon Robison, PS, Survey Project Manager at F&V. "Plus, if something is missed, the data is already captured, allowing us to review and analyze it in the office instead of sending a surveyor back to the site."

F&V can apply their LiDAR-equipped drone to an expanding range of large-scale, data-intensive projects, including:

- Site development on large acreage
- Dense or heavily wooded sites
- Volume surveys
- Landfills
- Large roadway projects
- Cemetery mapping

The time savings can be significant. "When we conduct volume surveys for power plants, we can complete all the field work in just a few hours," said Sam Lipscomb, F&V's Senior GIS Technician and Drone Pilot. "The drone flight itself only takes about 10 minutes, whereas traditional methods might have taken days."



To learn more about how your community can benefit from F&V's survey expertise and LiDAR drone capabilities, contact Sam Lipscomb at 616.965.8764 or email slipscomb@fveng.com.

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