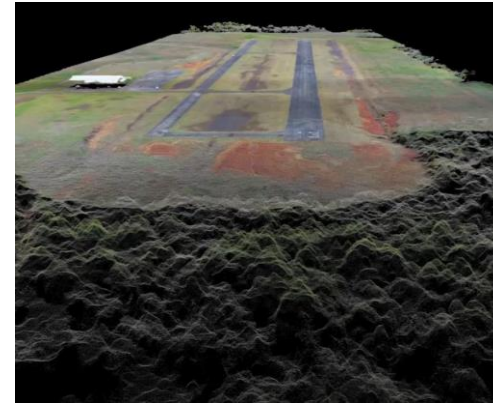


Advancing UAS Technology at ALDOT

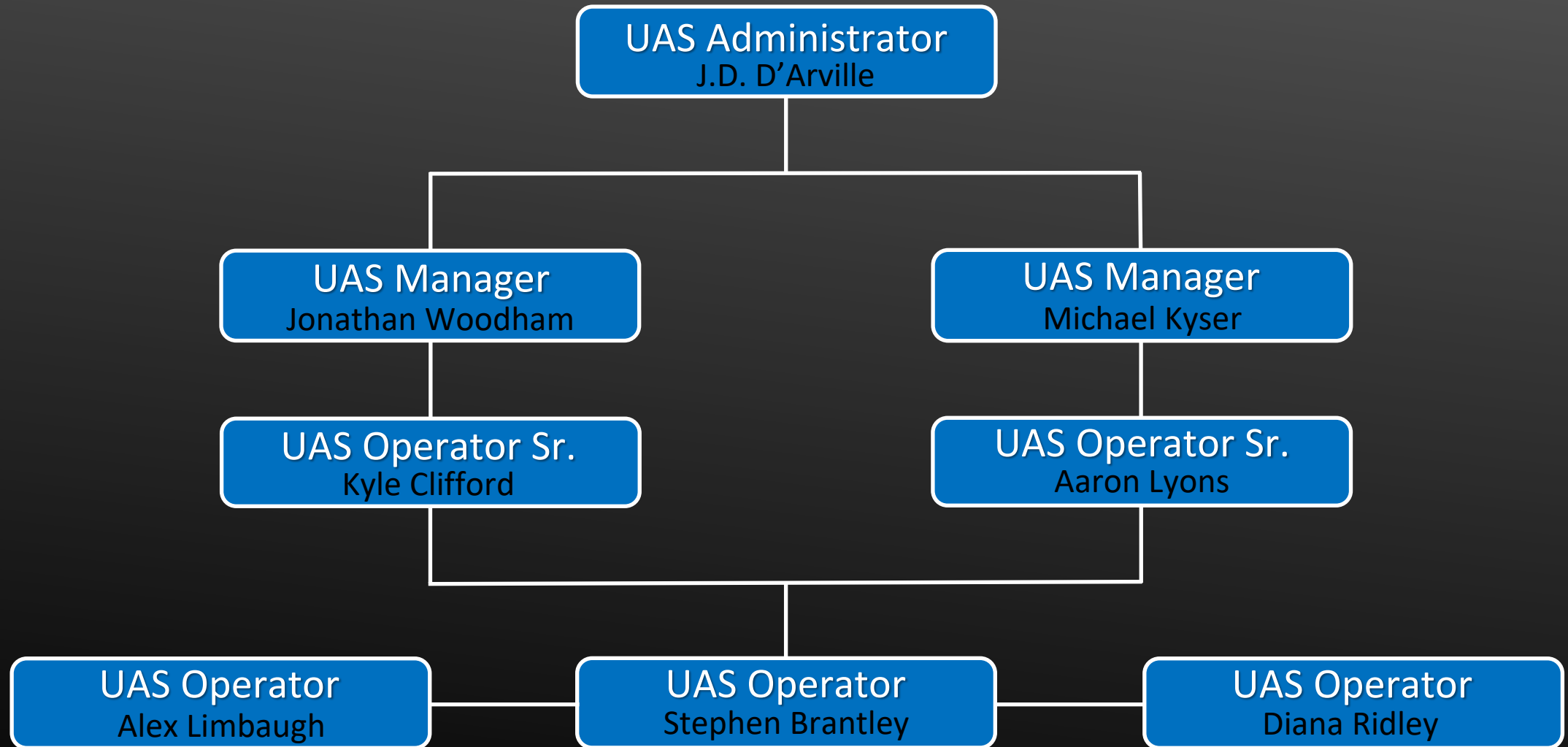




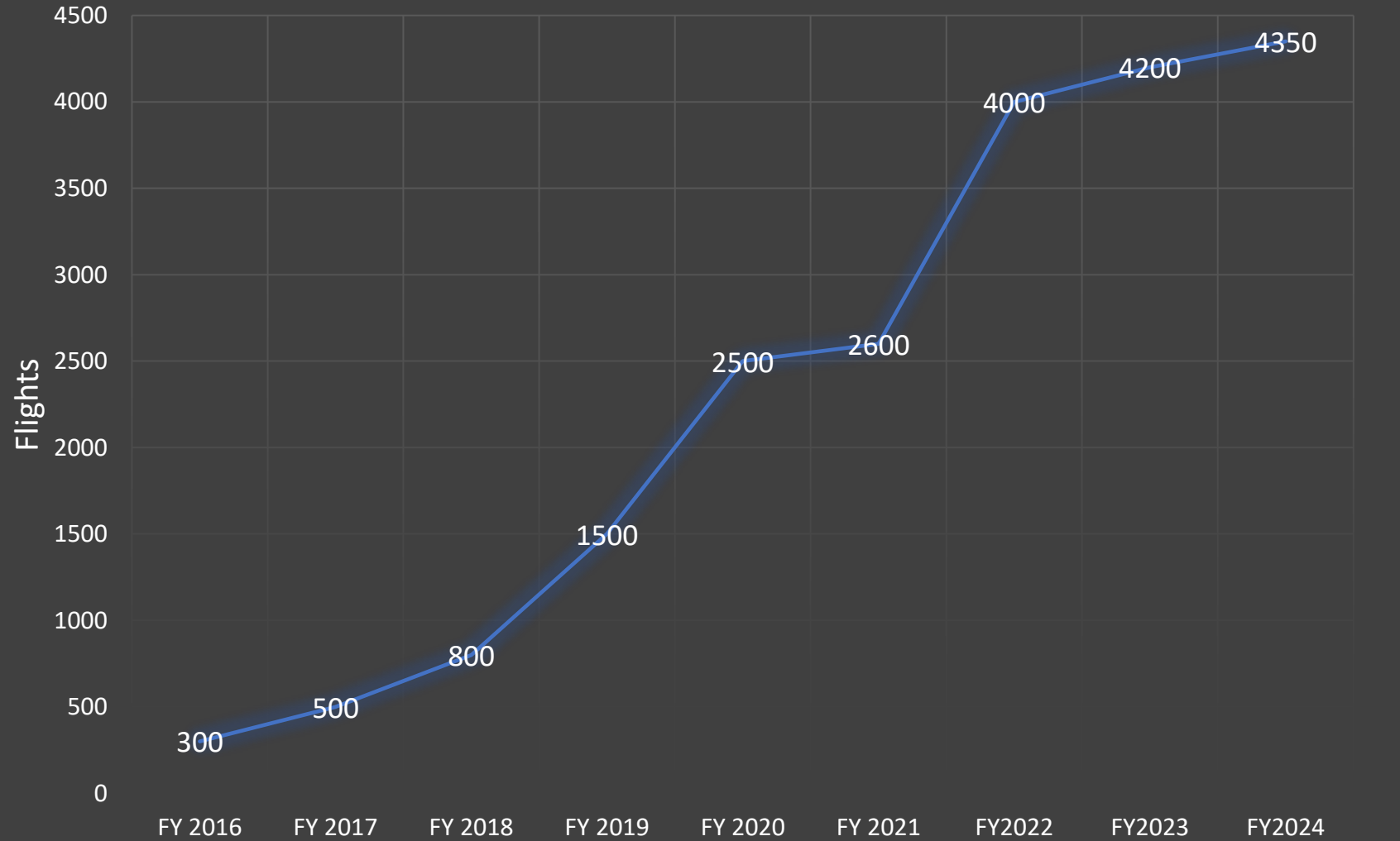
Types of Projects

- Construction Inspection/Progress
- Orthomosaics
- Photography/360 Panoramas
- Videos
- Stockpile Volumes
- Emergency/Disaster
- Bridge & Structure Inspection Assistance
- Point Cloud Data
- 3D Reality Meshes
- Airport Clear Zones and Pavement Analysis
- Time Lapsed Imagery
- LIDAR (Q1 2025)

UAS Team Members



ALDOT UAS Program History



Current Assets

- DJI Mavic 3E (6)
- DJI Mavic 3 Pro Cine
- DJI Mavic 2 Pro (2)
- DJI Phantom 4 Pro (2)
- DJI Mavic Mini 2
- DJI Goggles (2)
- Wintra One Gen II
- Skydio S2+
- Skydio X2E Color/Thermal
- Plum Case (2)
- Skydio X10
- Apache 3 Pro



Software & Apps

Interstate 10/SR 181



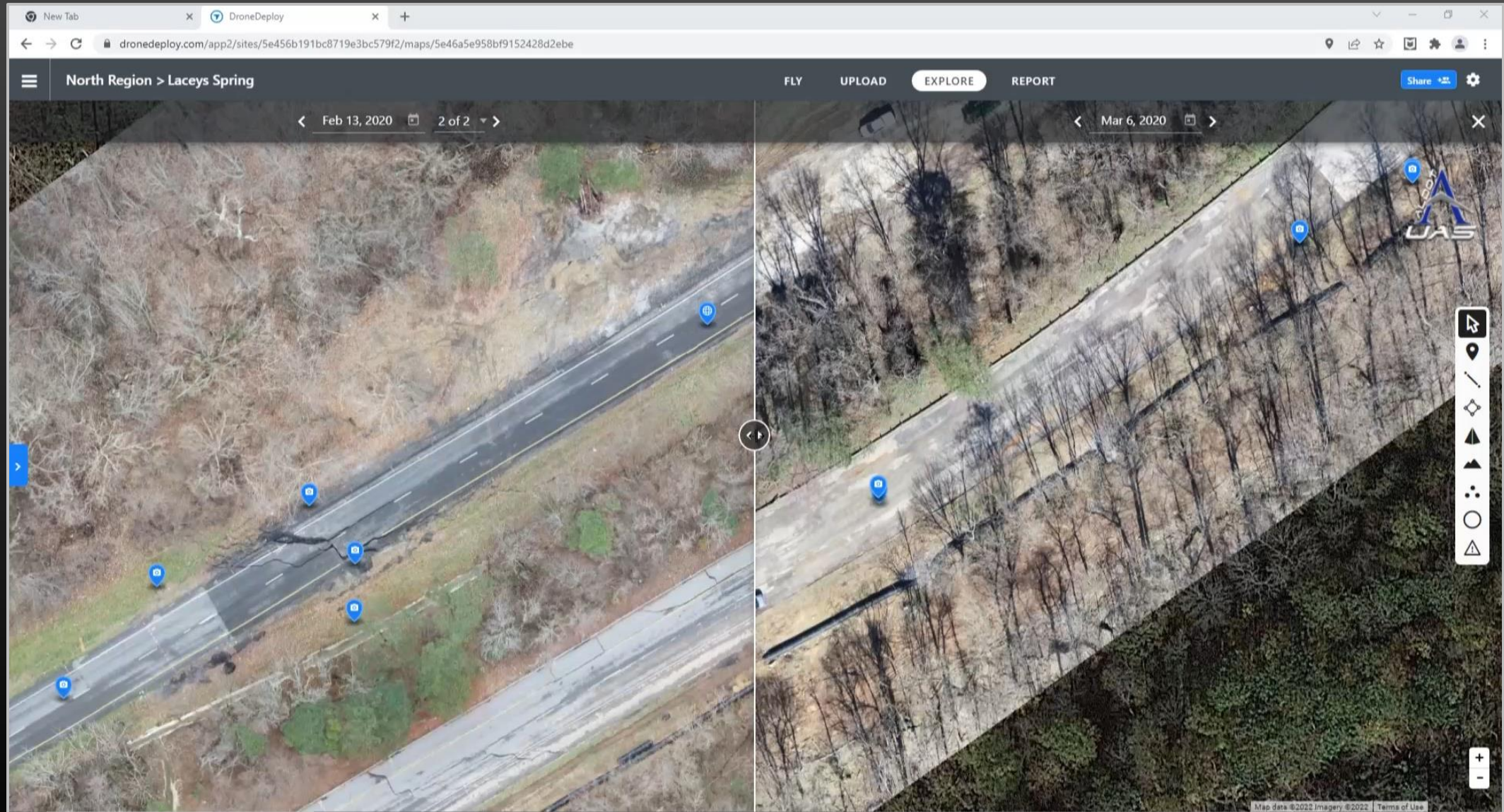
Pre-Flight and Missions

- Drone Deploy
- Skydio 3D Scan
- Pix4D Capture
- DJI Fly
- ESRI Site Scan
- Wingtra Pilot

Post Processing

- Drone Deploy
- gNext
- Context Capture
- Simactive/Correlator3D
- ESRI Site Scan
- Wingtra Hub
- Virtual Processing Farm

Drone Deploy



WingtraOne GEN II

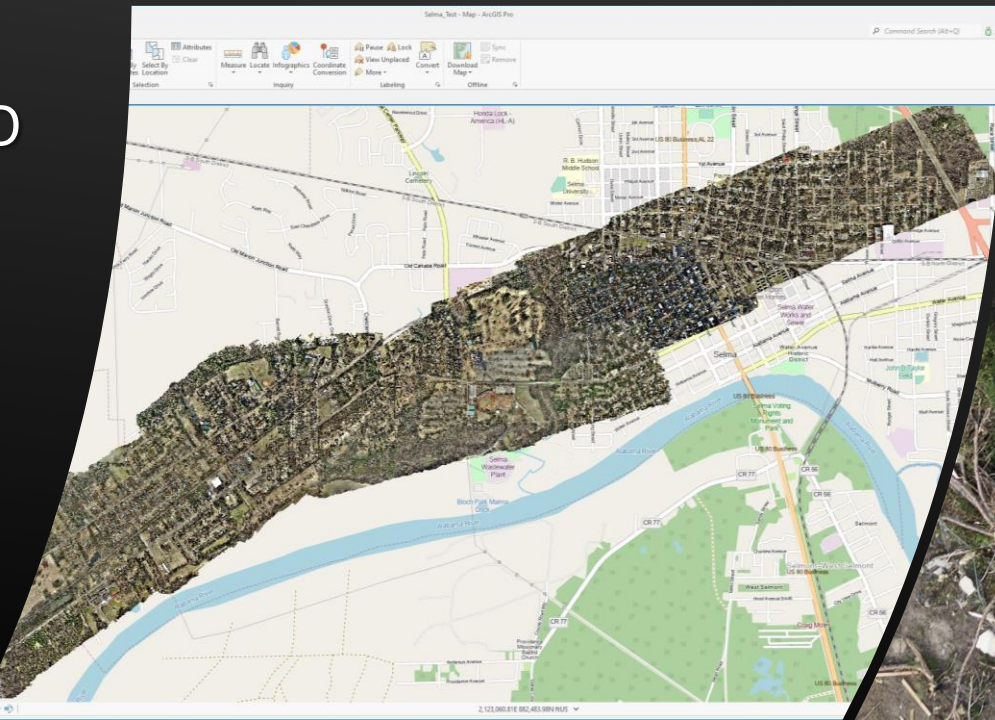
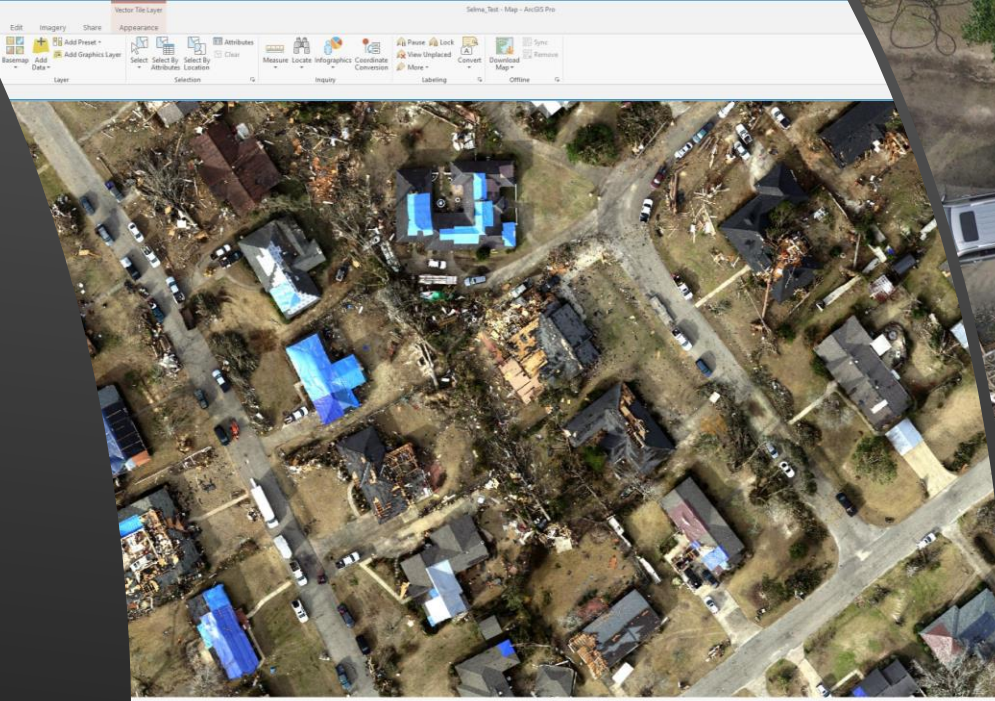
42MP Sony RX1R II Payload (NADIR)
24MP Sony A6100 Payload (Oblique)
Sony MAP 61 Payload
Flight Time – 55 Minutes



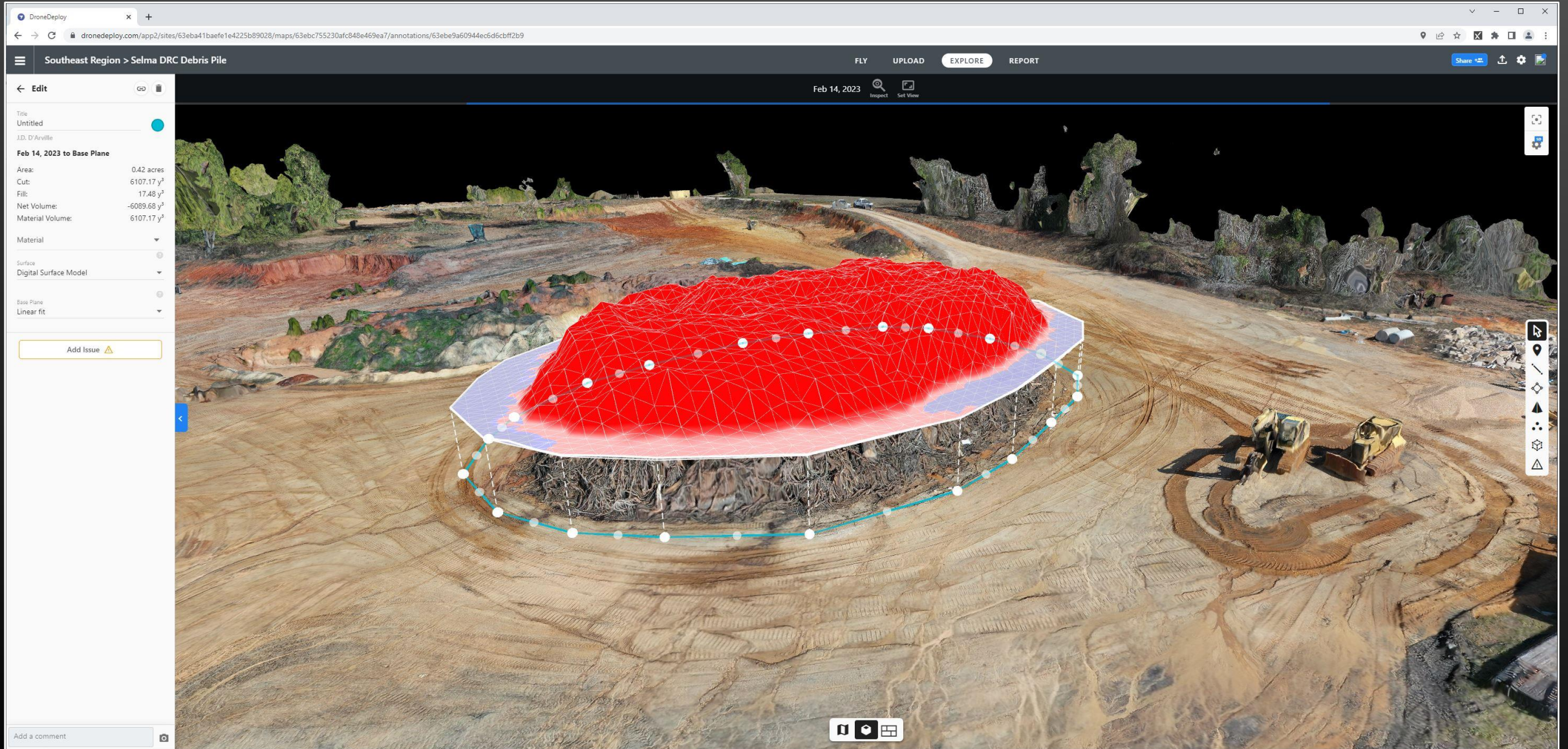


2023 Selma Tornado

- 2,900 Acres
- 13 WingtraOne Flights
- 17,000 Images
- 5 Days to Fly/Deliver



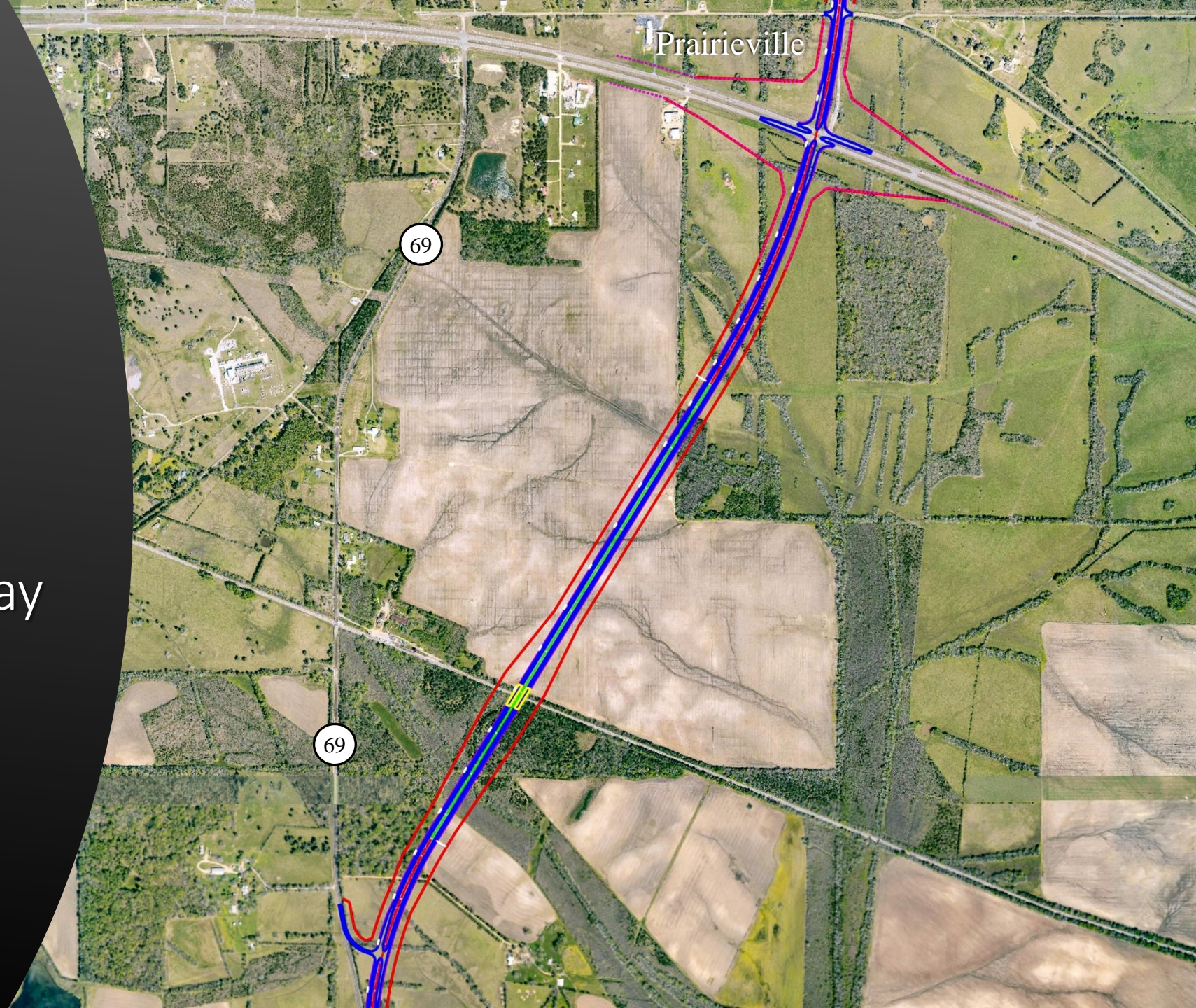
Selma Tornado Debris Stockpile





West Alabama Highway

- 75 Mile Corridor
- 42 WingtraOne Flights
- 500+ Flight Line Miles
- 3.5 Days to Complete



ROW Parcel Map GIS Application

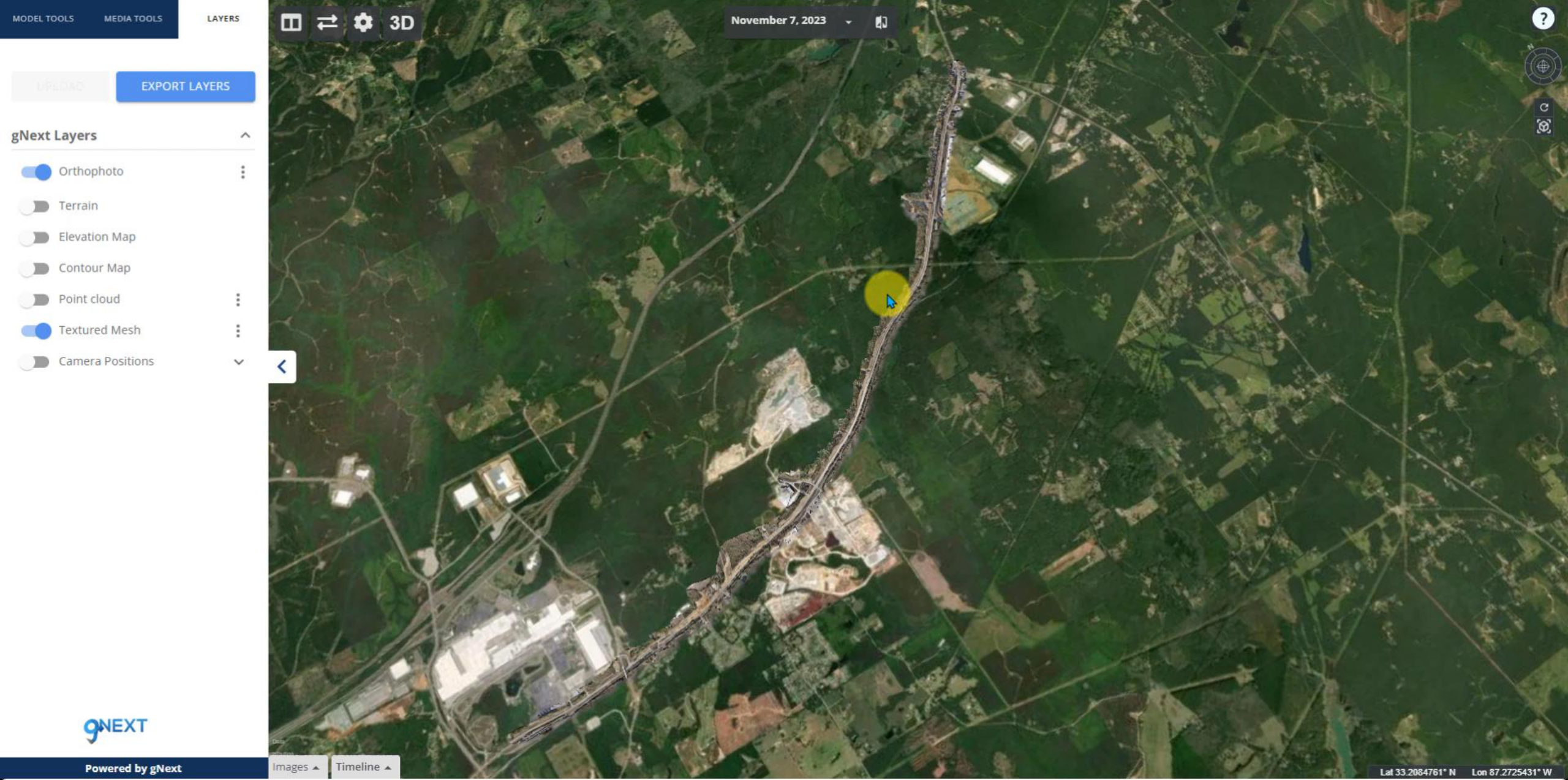
The screenshot displays the 'Parcel Information Map' application interface. The main map shows an aerial view of a rural area with yellow grid lines and colored overlays representing different project statuses. A 'Zoom To' popup window is open, displaying the following information:

Parcel Information	
Status	Ready for Construction
Tract	491
Tract Owner	Gallion Place Inc.
Parcel #	1
Total Parcels	3
Tract Type	PAR
Relocation	
Appraiser Assigned	2/25/2022

On the left side of the map, there is a 'WAH Tract Overview' panel with the following data:

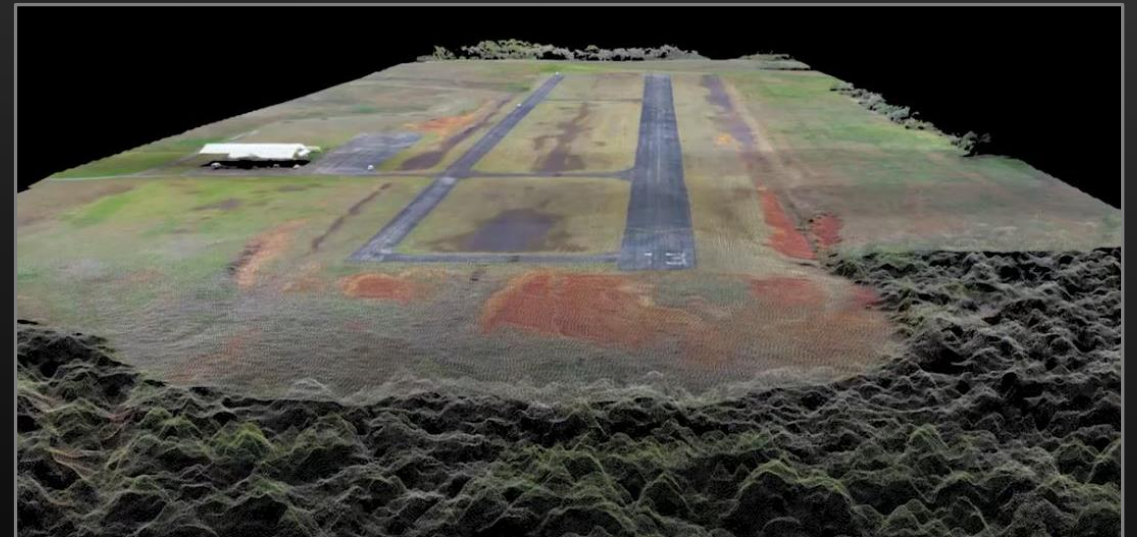
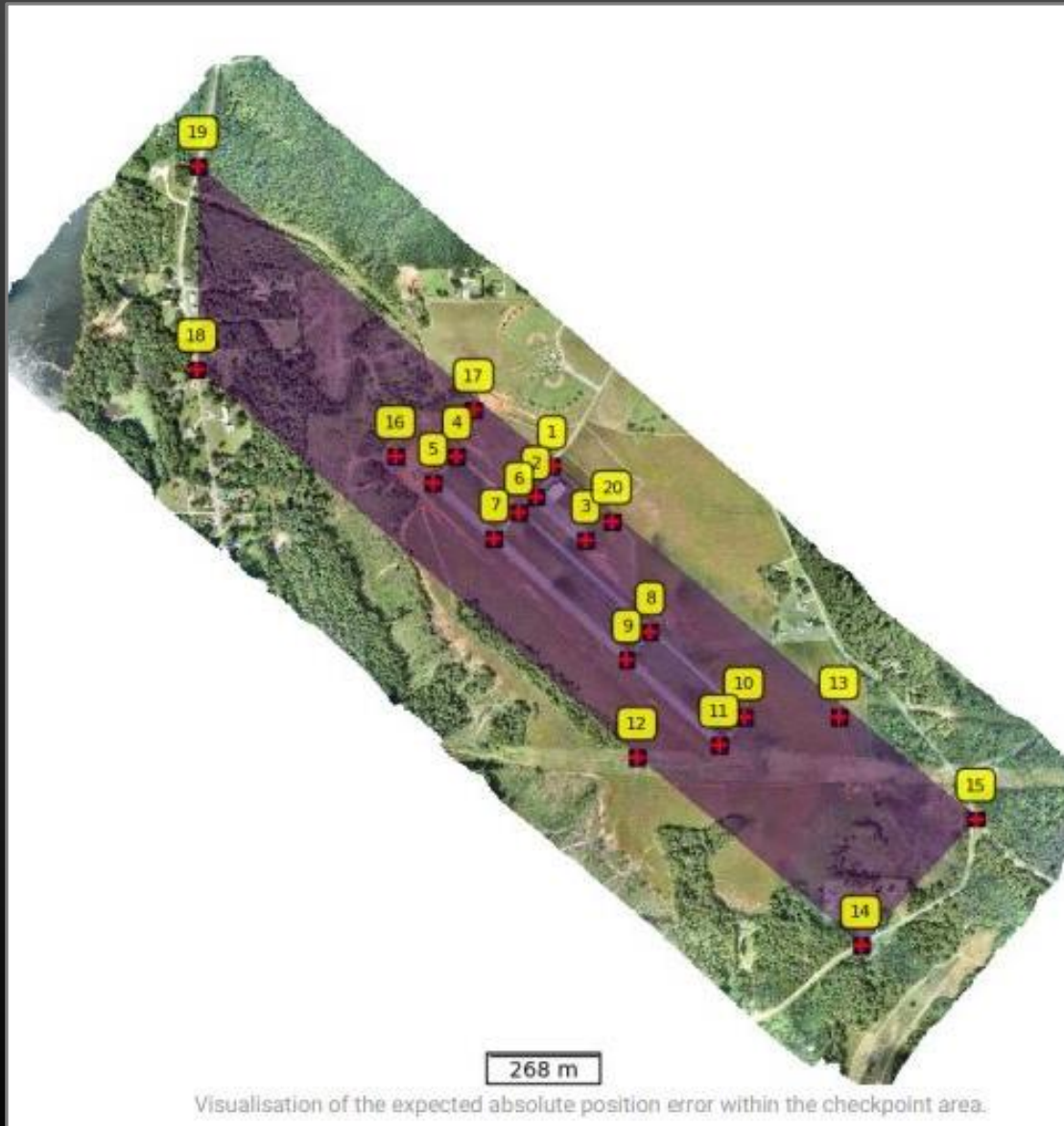
WAH Tract Overview	
Total Feature Count:	15
Status	
Show All	
Zoom To	
Not Started	0
Appraiser Assigned	0
In Negotiations	7
Condemnation	5
Relocation	0

The map includes labels for 'US Highway 80', 'Gallion Rd', 'Prairieville', 'Gallion', and 'Black Belt Nature and Heritage Trail'. The application is powered by Esri and includes a footer with the text: 'Maxar | ALDOT UAS and John Russell | Esri Community Maps Contributors, CONANP, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA'.



SR-7 Vance, Alabama

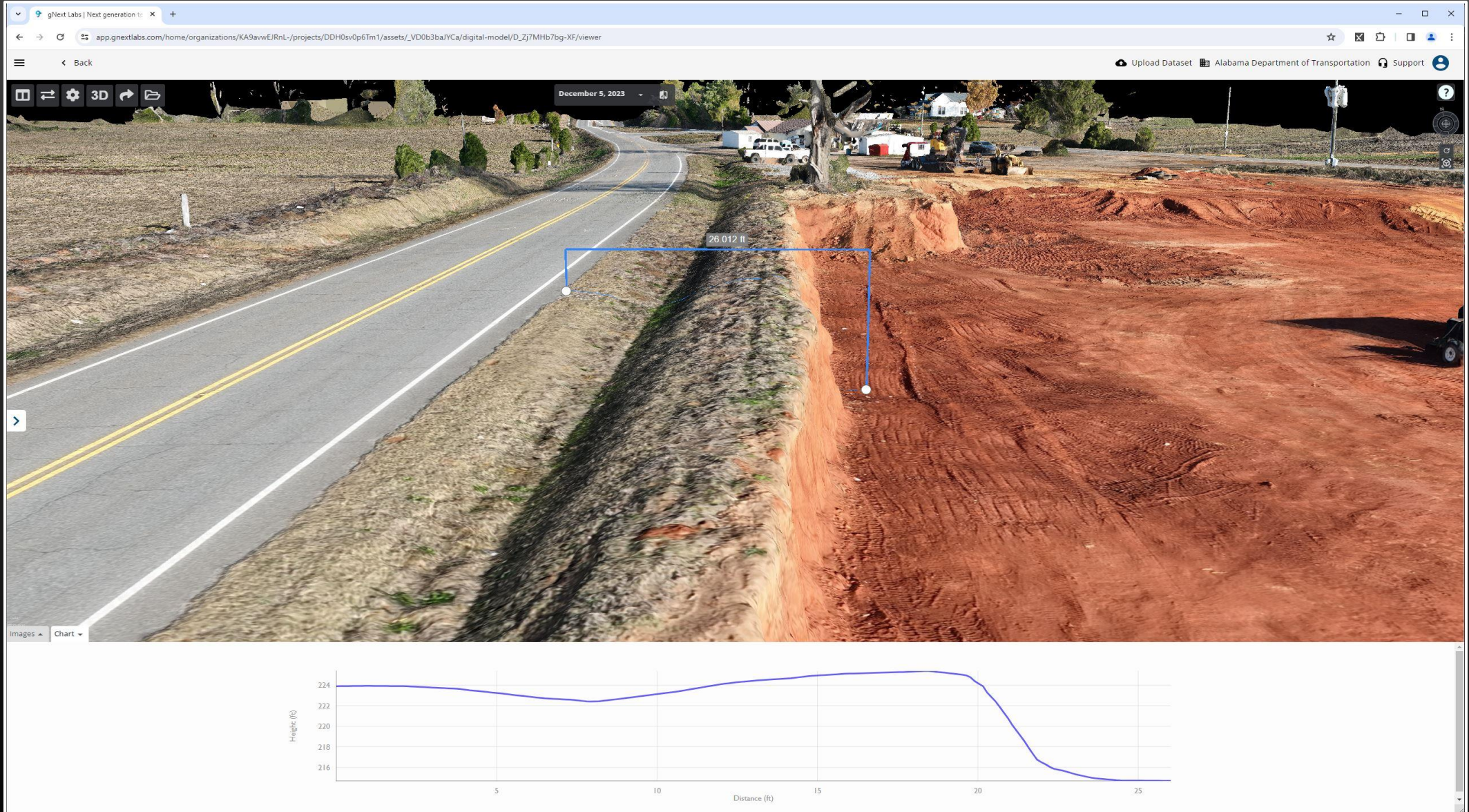
2020 Airport Clear Zones



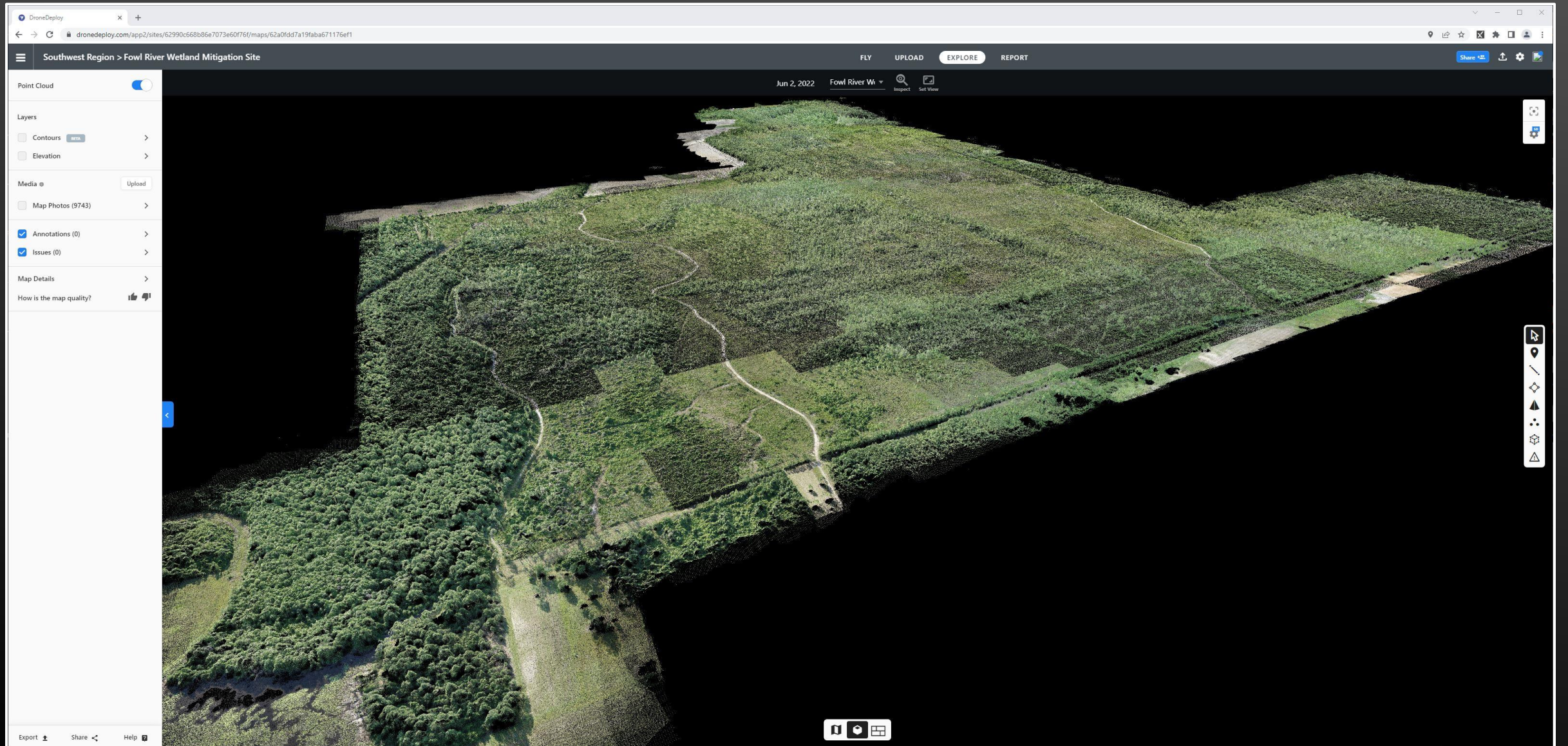
Havana Junction



Havana Junction



Fowl River Wetland Mitigation Site

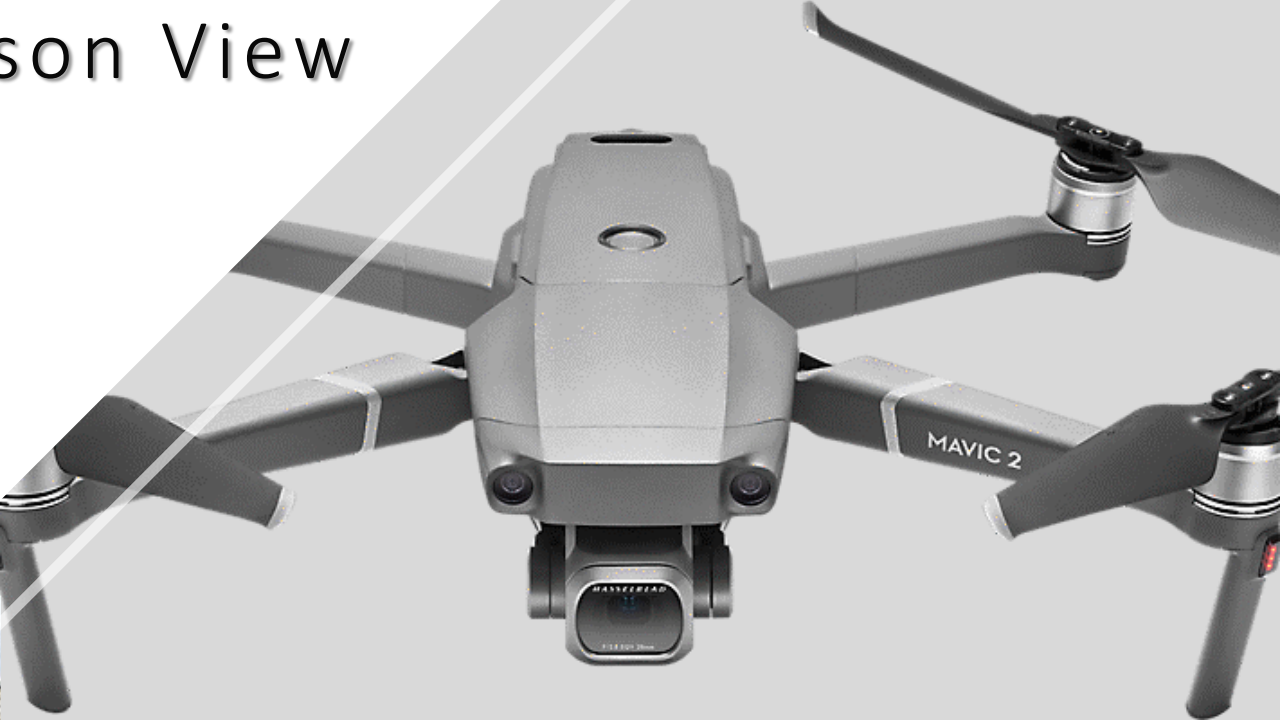


Bridge and Structure Capabilities





DJI Goggles First Person View



Skydio S2+

3D Scan



2D Scan



Wetumpka Bridge Context Capture Model



Wetumpka Bridge HoloLens 2 Model



Skydio 3D Scan

S2+



X2 Color/Thermal



X10



New Technologies



LIDAR



GPS Targets



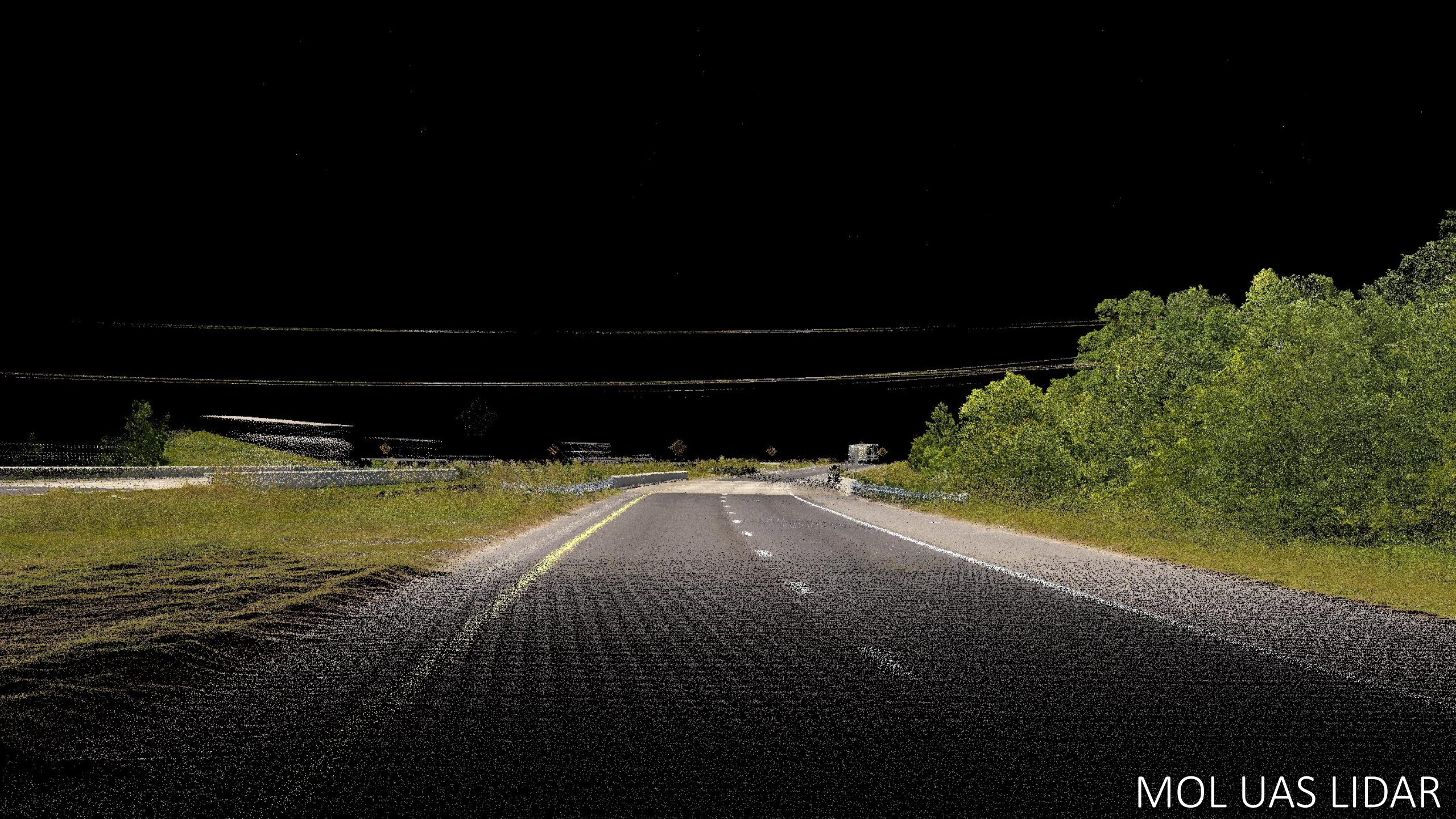
Skydio X10



Apache 3 Pro

UAS LIDAR Solutions





MOL UAS LIDAR

What are we looking for in a UAS LIDAR System?

Sensor

Vertical and Horizontal Accuracy

Multiple Returns

Point Density

Operational Range

Field of View

User Interface

Automated Features

Software Integration

Weight and Size

Technical Support

UAS

Ease of Operation

Payload Capacity

Multiple Payload Options

Flight Time

Accuracy and Precision

Redundant Systems

FAA Regulatory Compliance

Portability and Deployment

Technical Support

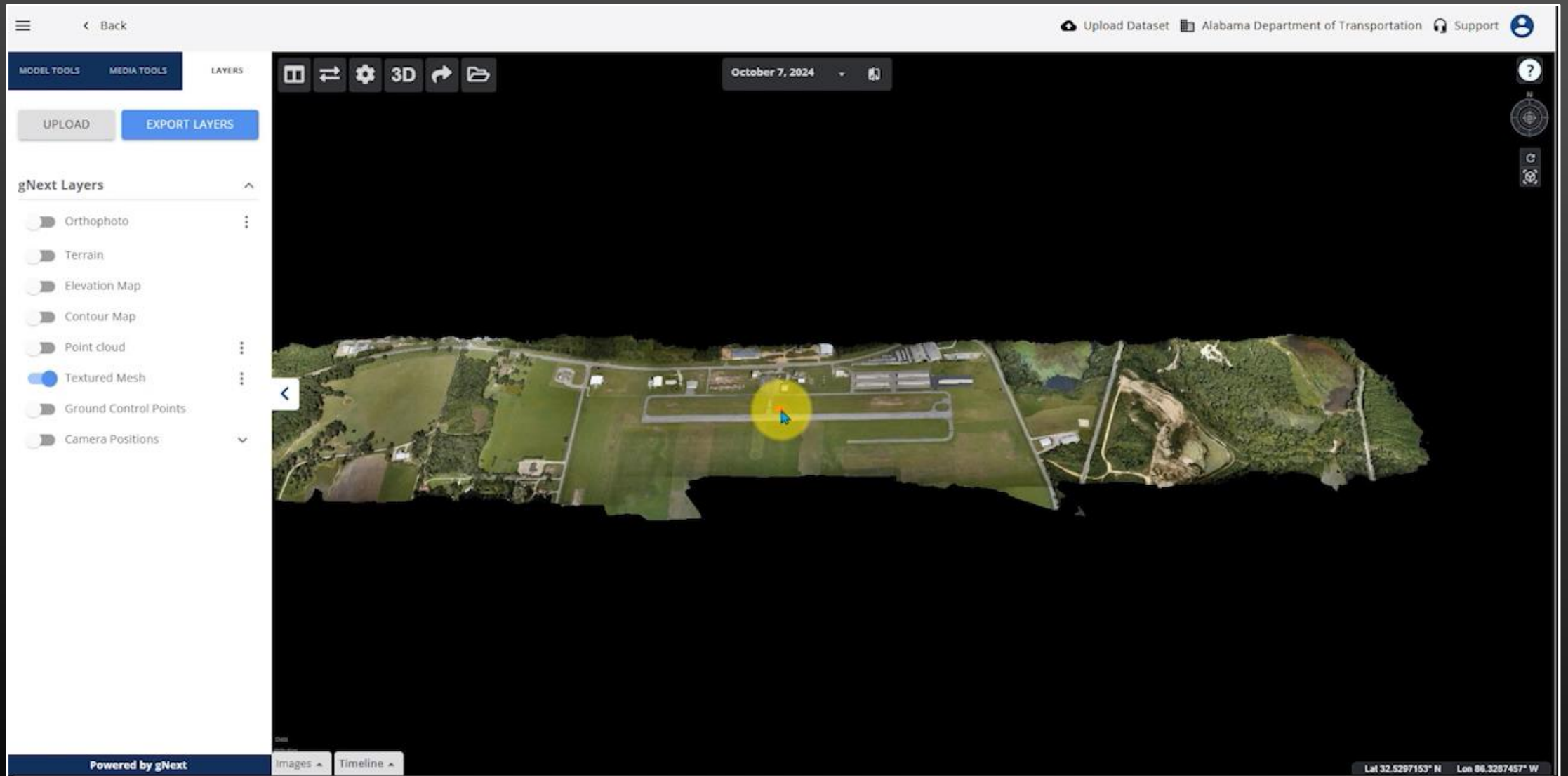
The Solution for GCPs

InTerra **SmartTarget**

- ✓ GPS Enabled Ground Control Point
- ✓ Solution, same day as flight
- ✓ Reduce costs
- ✓ Increase efficiency
- ✓ Improves accuracy
- ✓ Simplifies workflow



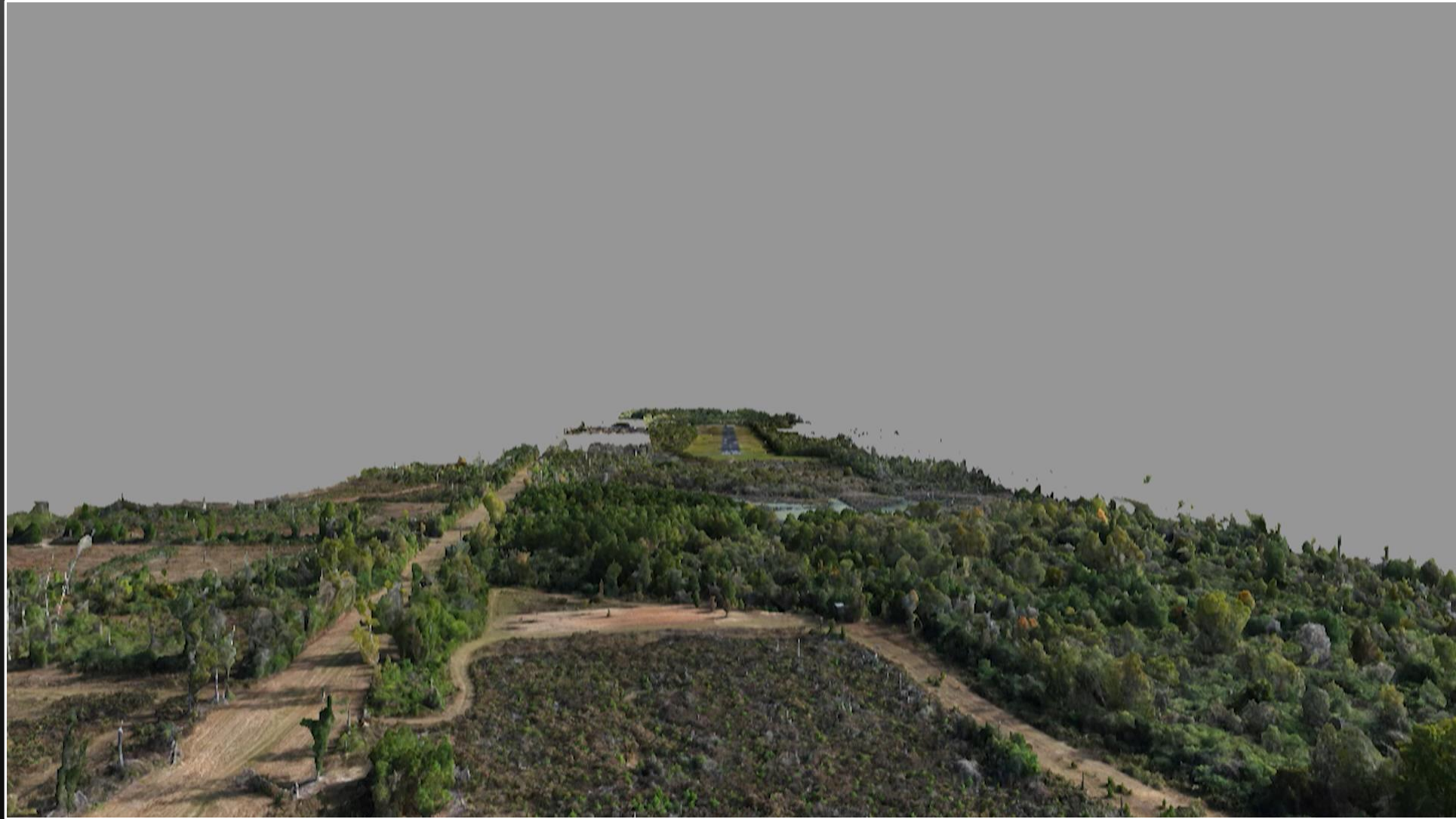
Airport Pavement Analysis



Wetumpka Airport - Flythrough



2024 Airport Clear Zones





Livestream Video

San Diego
Las Vegas
St. Louis
Long Island
Tampa

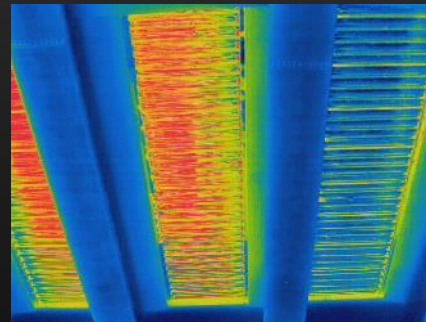
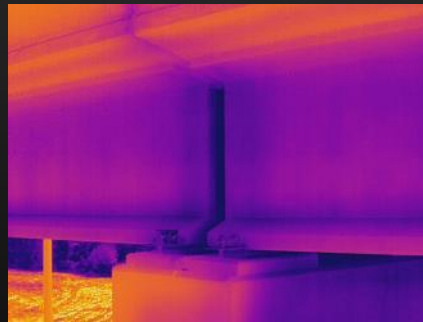




Skydio X10



- 64 MP Narrow Camera
- 50 MP Wide Angle Camera
- 640x512 Thermal Camera



Mobile River Bridge/Skydio X10 Dock?



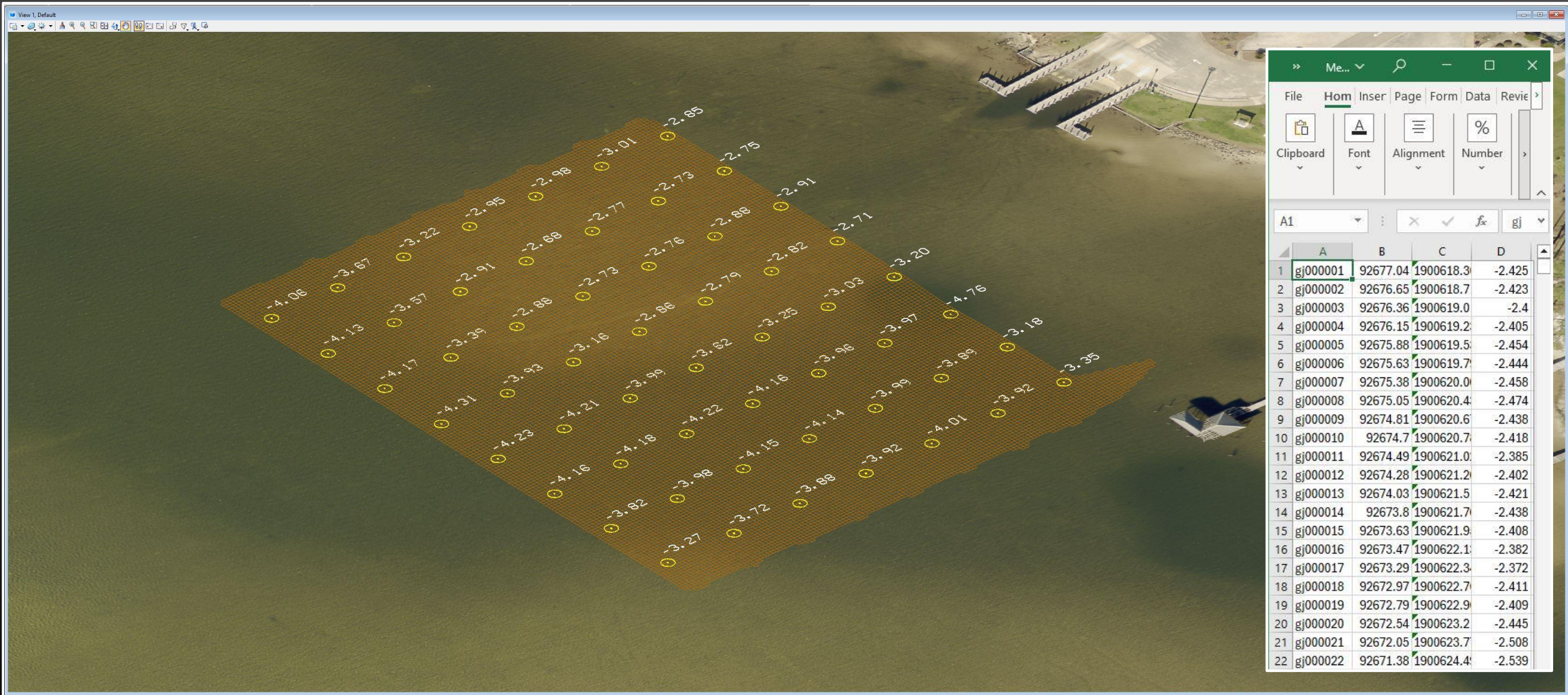


Apache 3 Pro Hydrographic USV





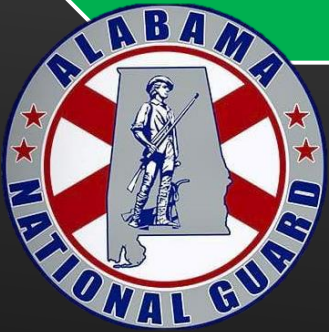
Apache 3 Pro DTM





117 IS UAS Multi-Agency Operations Pre/During Incident

Common Operating Area - Information Sharing





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UAS PROGRAM ADMINISTRATOR
DARVILLEJ@DOT.STATE.AL.US