

UAS Aerial Observation to Support Oil & Gas Pipeline

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Objective

- Utilize unmanned aerial systems to conduct aerial/visual data collection of oil & gas pipeline construction.
- Identify potential areas of slumping, erosion, vegetation, moisture change & identification of wildlife habitat.
- Provide a proactive opportunity to identify and remedy issues that may impact appropriate and effective post construction restoration efforts with dated GPS data points.



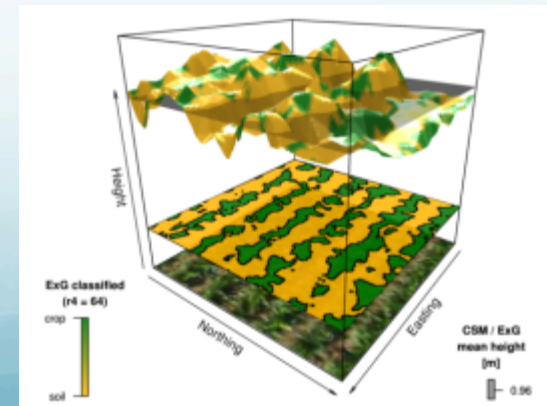
Objective

- Provide high fidelity images for use in developing signature image library of potential problem areas for use in restoration activities.
- Initial flights will capitalize on existing ground surveys and manned flights as a baseline.
- Ongoing flights will be conducted over a three month period to provide change detection and provide framework for post reclamation monitoring and planning.



Methodology

- ISight will use enhanced (4k) optical imaging, near infrared, thermal and NDVI imaging systems to develop image library.
- Results will be used in conjunction with existing soil surveys and environmental assessment to complete digital surface mapping, wildlife habitat, topsoil and vegetation index identification.
- Review and assess in conjunction with existing soil surveys and engineering data.



Standards of Success

- Development of “signatures” of obstacles and challenges to be contrasted with existing baseline data already completed by ONEOK.
- For land owners, will have dated, accurate, high quality imagery while using leading edge UAS technology.
- For Oil & gas, reduced costs and validation of ongoing restoration and remediation efforts with better Data.
- Oil & Gas and engineering firms, use this project and related data for future monitoring and planning efforts.

Anticipated Results

- High quality data for our partners, State of North Dakota and land owners.
- Cost effective way using leading edge technology.
- GPS, time stamped images for historical data needs.

Management

- Isight will work with ONEOK and Barr to ensure new data will correspond with existing baseline data.
- Ground points will tie into existing waypoints (conducted as part of environmental assessment) to correspond with ground truth validated data.
- This effort can be replicated for other similar projects.
- Interim reports are scheduled monthly to ensure timely output and verifiable data.

Timetable

- 3 month timetable (can be extended with no cost if required).
- 6 flights, 2 per month.
- Stitching and ortho mosaic – 48 hour turnaround from each flight.
- Collaboration with oil & gas and engineering after each flight.
- Interim reports monthly.



Project Partners

- ISight RPV Services provides UAS/imaging flight operations for critical infrastructure clients.
- Unmanned Applications Institute (UAI) provides UAS R&D, consulting, flight training, and project management.
- ONEOK owns one of the nation's premier natural gas liquids (NGL) systems, connecting NGL supply and is a leader in the gathering, processing, storage and transportation of natural gas in the U.S.
- Barr provides engineering and environmental consulting services to clients across the Midwest, throughout the Americas, and around the world. Barr serves the power, mining, and fuels industries, natural-resource-management organizations.

Questions?

