"Past success with Dwyka Mining Technology Platforms, meant that investing in new technology was an easy decision. Once again, delivery was exceptional!"

-Chansa Chisimba/Mwila Chikonda

SKYCATCH HIGHWALL SCANNING AT BARRICK LUMWANA MINE IN ZAMBIA

MINE/PROJECT LOCATION:
Zambia - Africa

YEAR OF PROJECT:
2025

CLIENT:
Barrick Lumwana

CONTRIBUTORS
Chansa Chisimba; Mwila Chikonda

BARRICK

SKYCATCH

OBJECTIVE

Improve visibility on the Highwall by scanning using the Skycatch Highwall Workflow

CHALLENGES WITH TRADITIONAL METHODS:

- Terrestrial LiDAR Scanning: Though accurate, these systems are expensive, require high technical skill, and often produce incomplete data with shadows or gaps in point clouds. Surveyors must also get dangerously close to unstable highwalls— a critical safety risk.
- Manual Surveying: Slow, hazardous, and often prevented near highwalls due to instability concerns.

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SOLUTION: SKYCATCH HIGHWALL DRONE SCANNING

Technology Overview:

- Platform: DJI M350
- Payload: Zenmuse P1
- Navigation: RTK GPS for precise georeferencing.
- Control System: Remote control – Autonomous in mission.

IMPLEMETATION

Phase 1 – Site Assessment & Planning

- Conducted initial planning to determine areas of interest and where development was taking place.

Phase 2 – Survey Deployment

- Planned and executed Skycatch Terrain Following flight.
- Planned highwall scanning mission on the recent DSM flight.
- Executed final highwall scanning mission.
- Automated Flight Planning: The app uses pre-loaded Digital Surface Models (DSMs) to enable terrain-following flight paths and dynamic gimbal control—ensuring the camera always faces the wall at optimal angles, with no manual adjustment needed.

Phase 3 – Data Processing & Analysis

- Processing of data handled in the Cloud via Datahub
- Once data has been processed, outputs are available to download/share.
- Data kept on secure server and can be accessed when needed.

RESULT

- Improved visual accuracy.
- Datasets ready for Geotechnical Analysis.
- Enhanced safety: Scans can be done out of the pit, thus minimising risk of running into implements/trucks etc.

SUMMARY

Barrick Lumwana's adoption of Skycatch technology demonstrates a compelling shift in highwall mapping: from expensive, labor-intensive, and dangerous methods to efficient, safe, and highly accurate drone-based workflows. Their case proves drones aren't just a futuristic idea—they're now a critical tool for optimizing geotechnical monitoring and decision-making in mining.

CONCLUSION

Tangible Benefits

- **Safety:** Surveyors stay away from unstable highwalls.
- **Speed & Efficiency:** Highwall mapping conducted significantly faster than laser scanning. Future operations benefit from frequent, easy deployments.
- **Accuracy:** Achieved accuracy within 5 cm.
- **Cost Savings:** Drone and software system cost up to 10× less than traditional laser scanners ($100k–$250k+).
- **Operational Insight**: Enables early detection of highwall deformation (e.g., bulges), reducing potential revenue loss or emergencies.