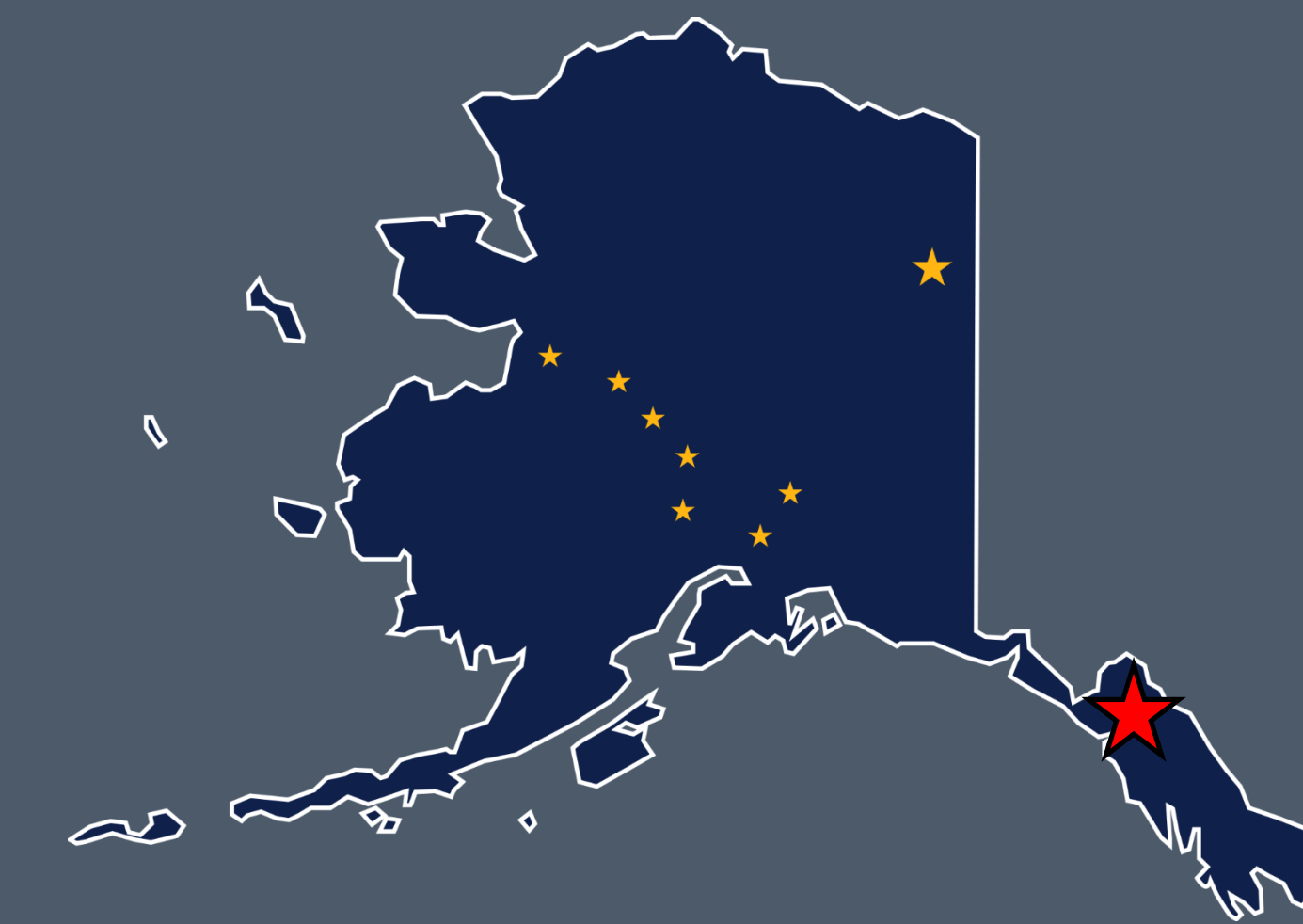# Rite in the Rain to iPhone

## A transition to digital underground data collection at Kensington

ABSTRACT

Yellow Rite in the Rain notebooks have been a ubiquitous part of any geologist's field gear, whether underground or on surface, for decades. While their ruggedness is commendable, the use of notebooks has the potential to introduce errors when transferring data from the book to the digital database and creates inefficiencies in data management. During an average day of underground collection, mainly centered on chip sampling of faces, the Mine Geologists at Kensington were writing and typing the same sample numbers at least four separate times. A goal of 2020 has been to move from pen and paper to digital data collection and management by designing an app to use on an iPhone. The design work was done in house by Kensington's Database Administrator and has been crafted to automatically sync with the database once the iPhone has reconnected to Wi-Fi. In addition, the app allows for digital creation of assay request forms when dropping samples off at the lab and nearly instantaneous generation of the Daily Ore Control Report. The app was created using Microsoft's PowerApps program which had a steep learning curve but allowed for cost savings associated with in-house app creation, continuous updates and future upgrades. While testing is still underway, it is expected that digital data collection will decrease the risk of simple database errors and save the Mine Geologists at least one hour of data entry per day.

ORIGINAL WORKFLOW

Rite in the Rain Notebook + Printouts. Repetitive Data Entry.

- Record data underground in notebook or on Chip Sampling Sheets
- Record sample numbers at assay lab on paper forms
- Enter data into AcQuire Database
- Create Daily Ore Control Report in Excel
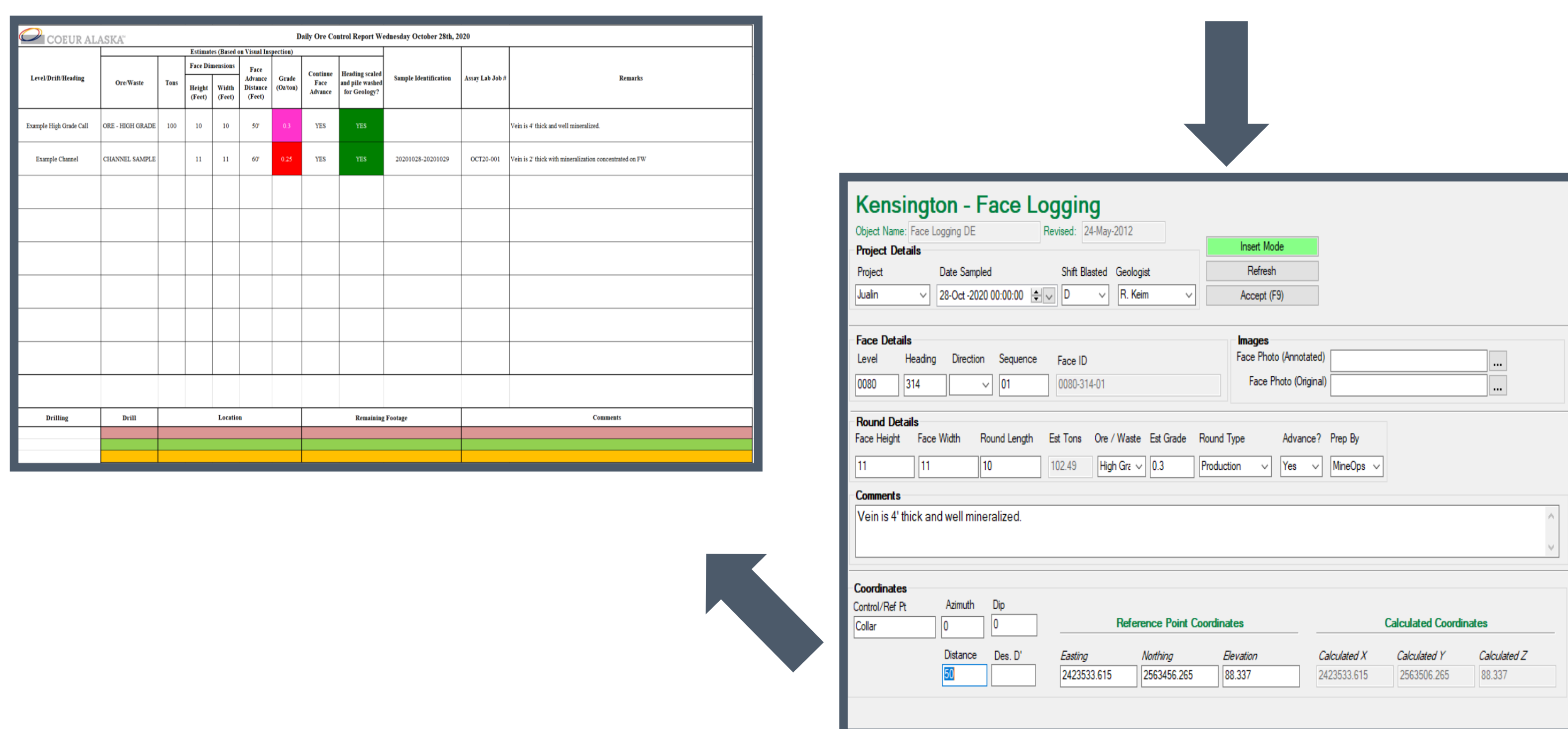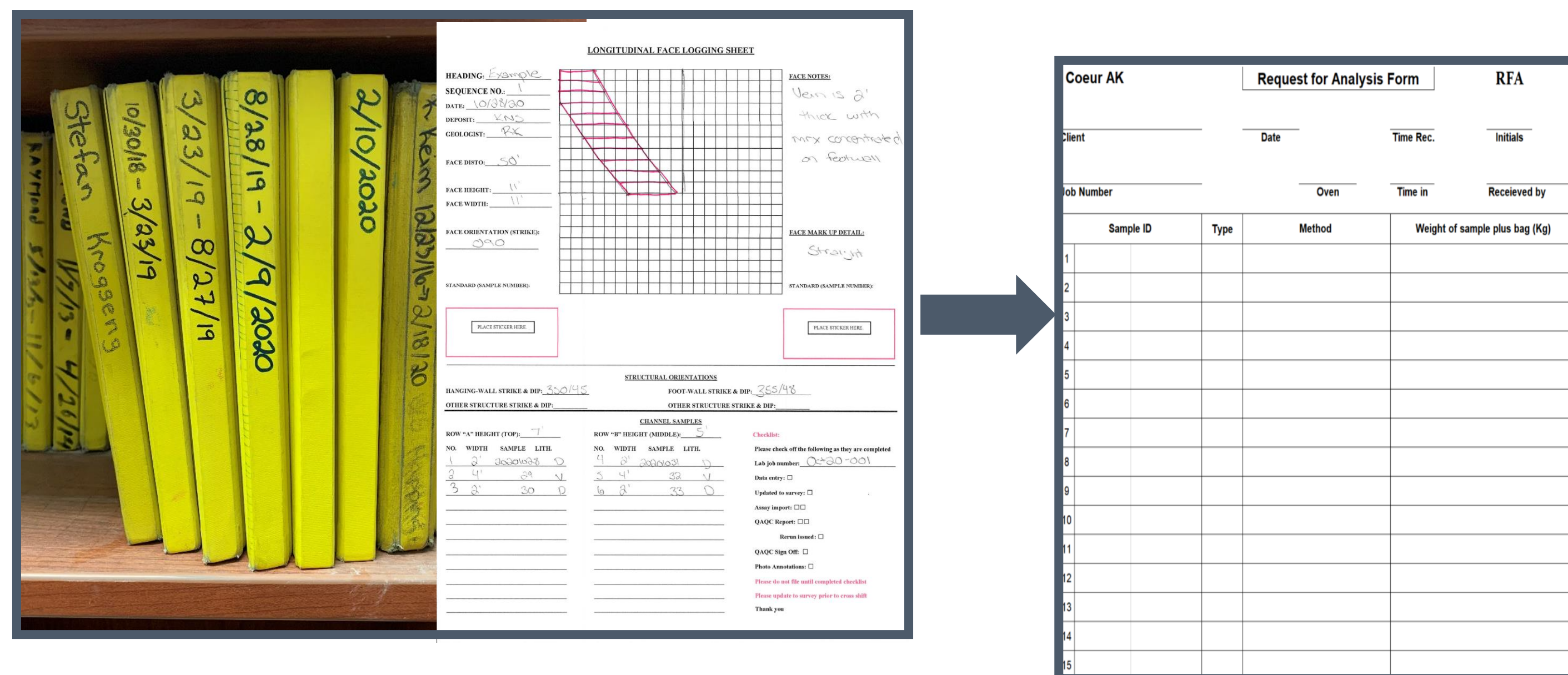
SEARCH FOR A SOLUTION

- **Scope and Requirements**

  A gap had to be bridged between our desired outcome versus what was practically achievable in our current context. This involved choosing to scope our project solely for data entry and photo collection rather than attempting to incorporate an underground digital mapping solution concurrently.

- **Commercial vs. Custom**

  Industry best practices warn against building custom solutions from scratch due to personnel turn-over. As a result, it is common practice to look for turnkey solutions developed by a commercial entity. The problem with many of these is there can be inflexibility and difficulties integrating with solutions which are already in production.

- **Hybrid!**

  In our search for solutions, we were introduced to the **Microsoft Power Platform** of tools. In this we found a hybrid solution incorporating new low-code development technology where we could develop a custom solution which was also supported by a major commercial entity ensuring longevity of the solution and a plentiful source of consultants for future customizations and development should personnel turnover become an issue.

DATA FLOW DIAGRAM
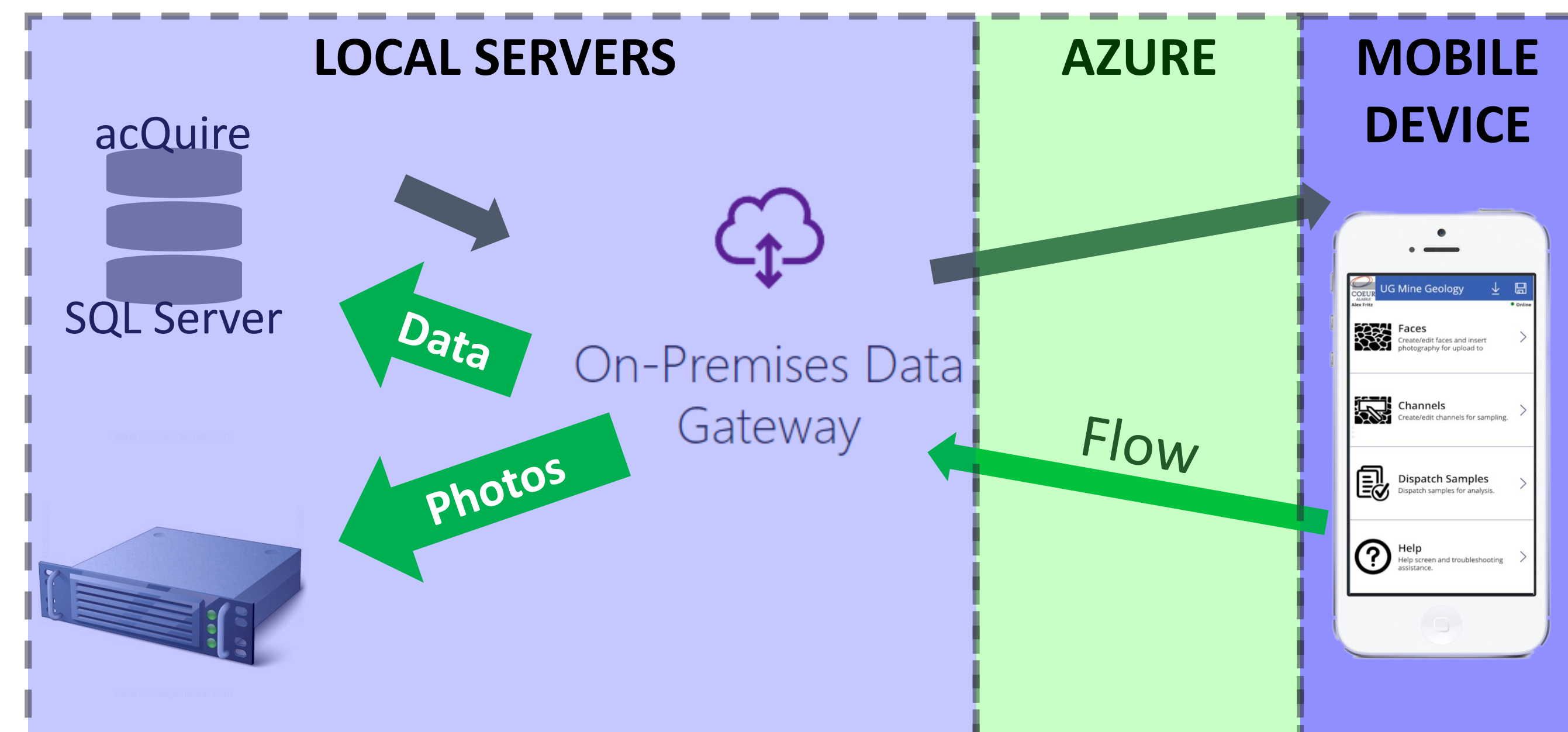
## PROS AND CONS

- **PROS**

  - Business Intelligence Pros are more commonly skilled in Power Platform.
  - Customizable by in-house staff or by consultant
  - Supported by Microsoft Corporation
  - Integration and Automation with numerous technologies (e.g. MS O365, AzureDB, SQL Server, Outlook, Teams, Sharepoint, PowerBI, Dynamics 365)
  - Ability to develop customized integrations and automation (Custom APIs)

- **CONS**

  - Standard connectors have some limitations.
  - Example: SQL Server Connector will not allow insertion into tables which use triggers and transfer of Blob data is limited in size.
  - Offline application functionality requires building custom Canvas applications.

RESULTS

- All data collection done underground on iPhone 11, including photos. Much better photo quality than using digital camera.
- Create assay dispatch on iPhone and send email to laboratory technicians
- Data automatically syncs with AcQuire database upon return to network connectivity
- File hazards, near misses, and perform investigations on phone utilizing health and safety reporting application such as Intelex
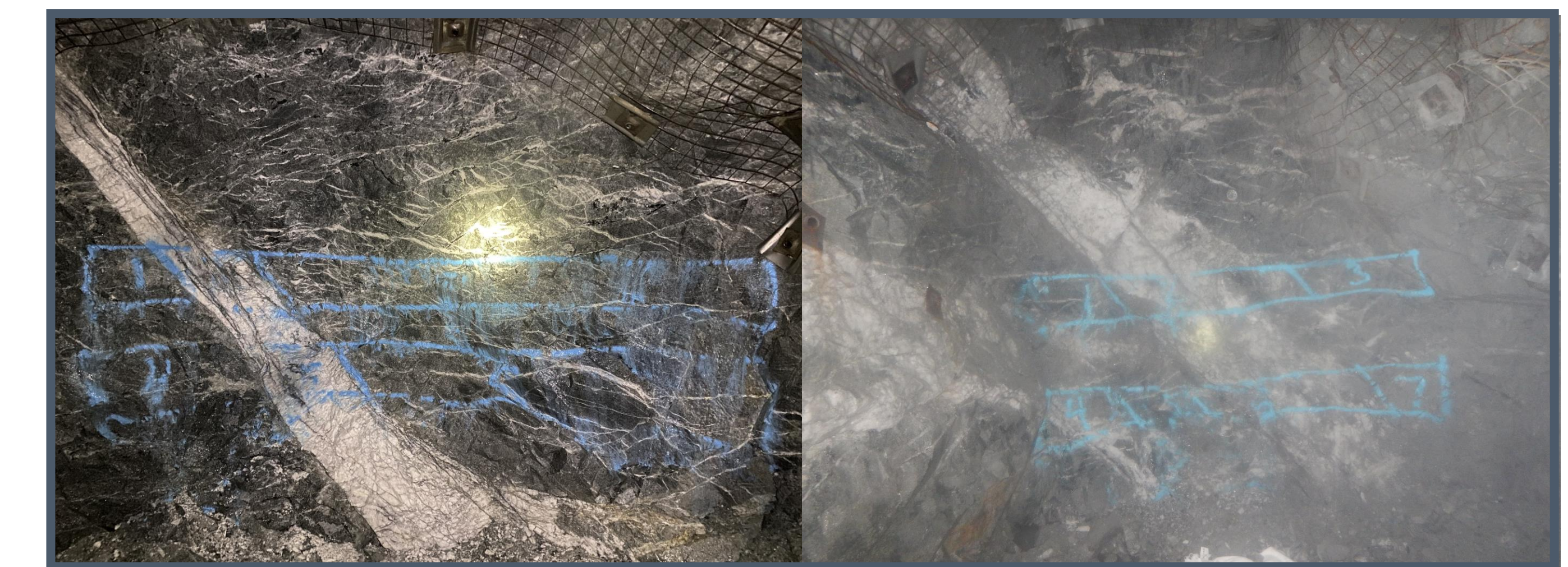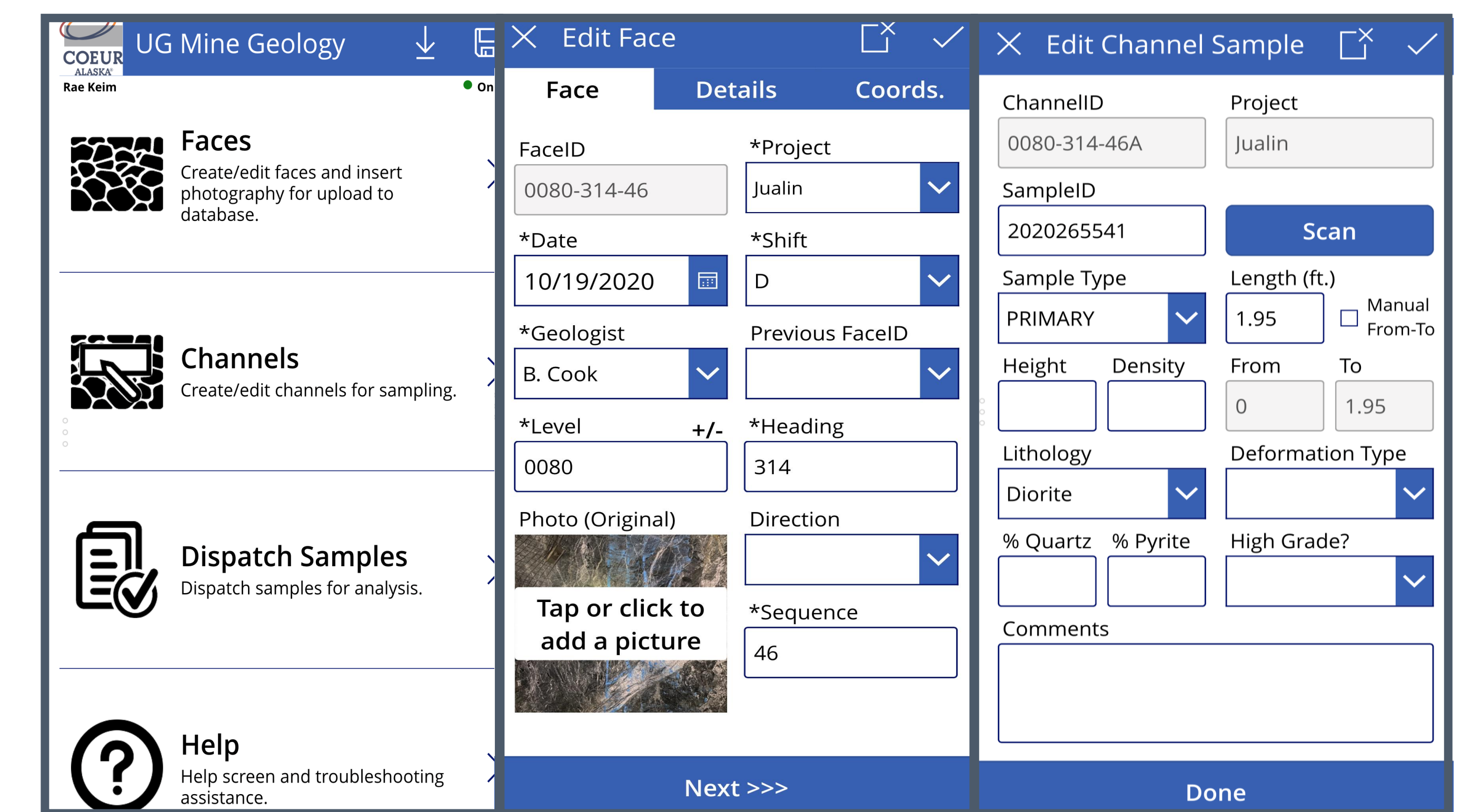
iPhone 11 (left), Digital Camera (right)

FUTURE WORK

- Create Daily Report template in AcQuire for one click creation
- Utilize StereonetMobile app for collection of orientations. Export database for use in geologic modeling.