



Mapping Smarter Map More, Move Less

A story about “Adam”



Booth 20

Who is Adam?



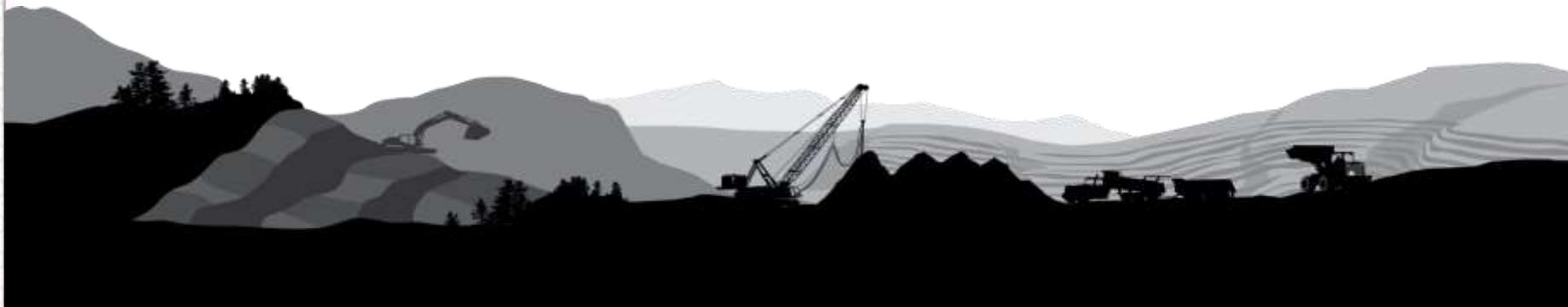
Who is Adam?

Adam is a General Manager at a silica mine in Malaysia.

What are Adam's job responsibilities?

- Measure **stockpiles volumes** of the silica regularly
- Create **maps** of the facilities and surrounding area (aka - determine the location or position of things in relation to other things)
- **Measure** heights, widths, distances, angles, directions, and positions for future project plans

Are you Adam?



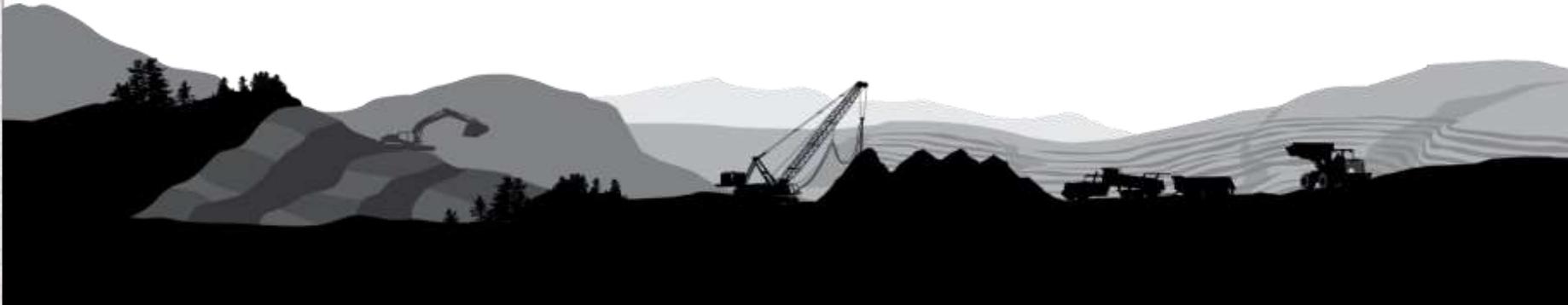


Who is Adam?

What resources does Adam have?

- Small workforce
- Workforce does not include trained surveyors
- Budget is available, but limited
- No Equipment

Are you Adam?

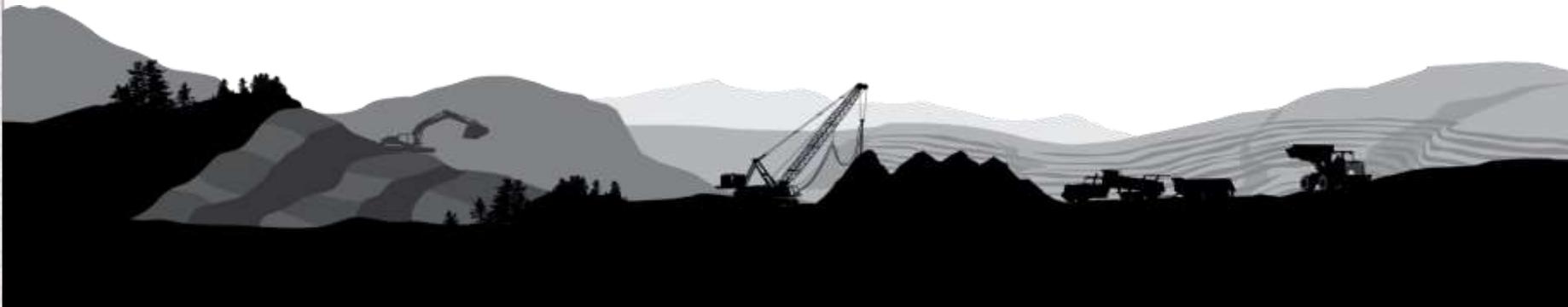




Are You Adam?

Yes, please listen.

No, please stay.



Adam's Heavy Chains

Since his internal workforce did not have trained surveyors or equipment, Adam had to hire outside contractors to do the mapping and volume measurements.

- Aerial Survey - \$\$\$\$, follow pilot's schedule, and wait a few days to a week to process results
- Drone Survey - \$\$\$, need trained drone pilot, special post-processing software, wait a couple days for results
- Contractor using Total Stations – \$\$, follow contractor's schedule, wait several days to a week for results



Adam's Heavy Chains

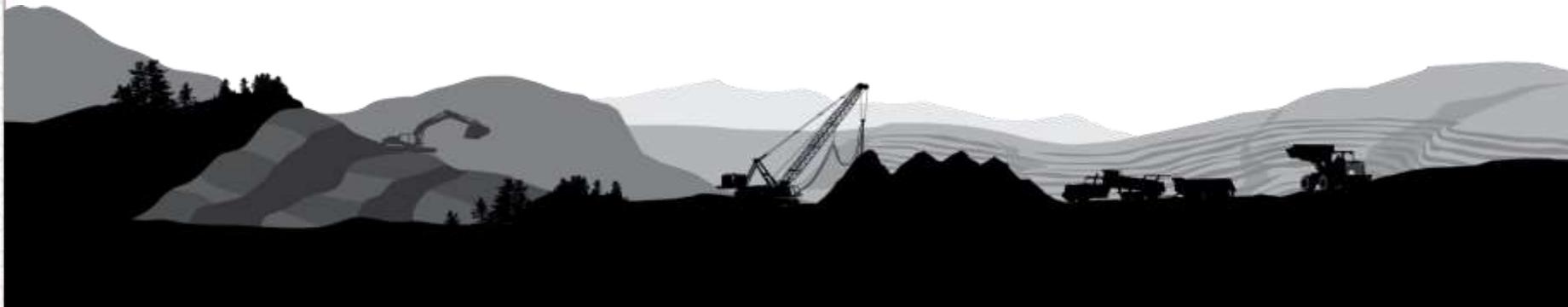
Considered:

- 3D Laser Scanning
- Contractor using GNSS
- 3D Imaging
- Etc.

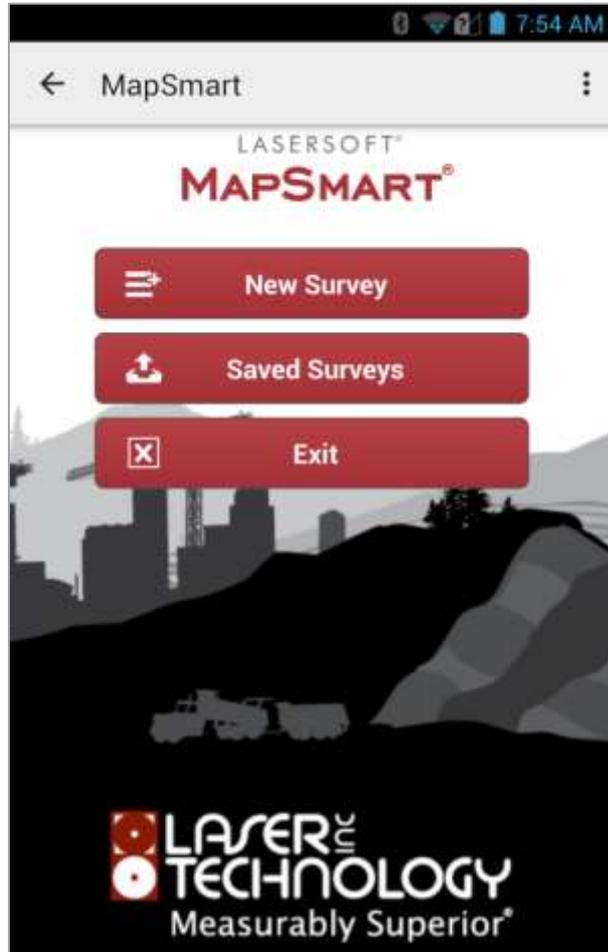


None could satisfy his need for lower costs and timely results.

That's when I met Adam.



About MapSmart Android



LTI's MapSmart field data collection software is designed for anyone who needs to quickly and accurately create a map of anything. Other features include measuring stockpile volumes and the addition of GPS coordinates to your data sets.

- Works on Android
- Simple workflow
- Map with point, line, spline, and area feature types
- Build custom notes, categories, and subcategories
- Assign height and missing line values to data points
- Include Photos with Measurement Data
- Perform calculations (including volume) and get instant results
- Multiple report formats (DXF, CSV, GPX, PDF and more)

Map Your Way

Choose from 4 different MapSmart mapping methods

Radial with Angle

Map points from one position with one shot



TruPoint 300



TruPulse 200X
+ TruAngle

Radial with Azimuth

Map points from one position with one shot



TruPulse 360R



TruPulse 360B

Range Triangulation

Map points by standing at the target and shooting to two control points



TruPulse 200X



TruPulse 200B

Baseline Offset

Map points along a baseline by shooting once to the Origin and once to the target



TruPulse 200X

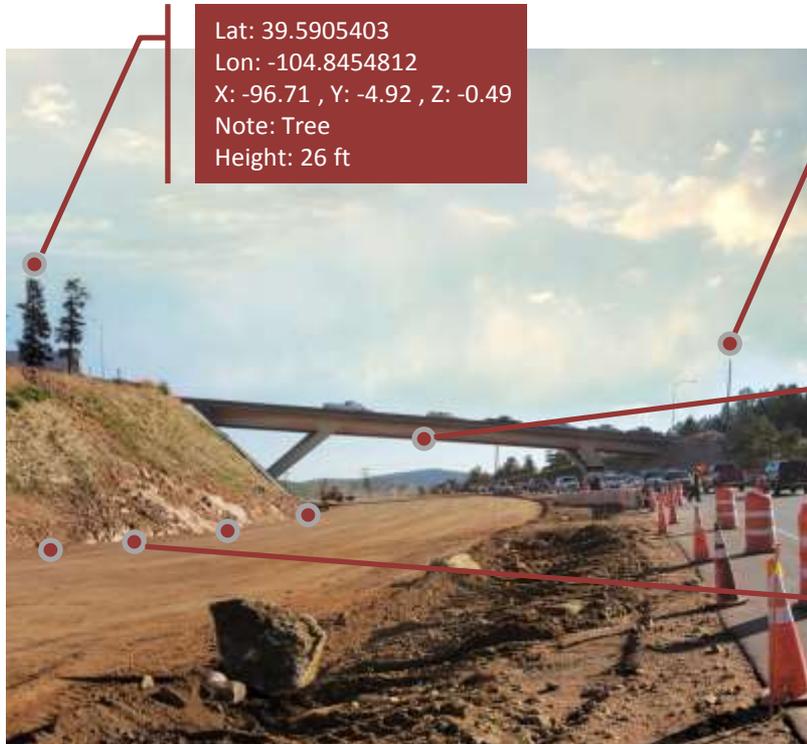


TruPulse 200B



Map, Measure, & Position Smarter

Collect field measurements & map with or without GPS coordinates

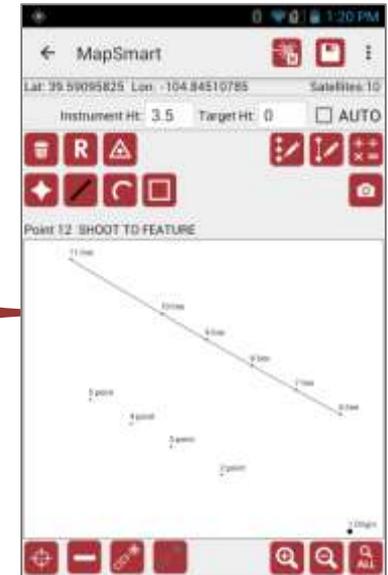


Lat: 39.5905403
Lon: -104.8454812
X: -96.71 , Y: -4.92 , Z: -0.49
Note: Tree
Height: 26 ft

Lat: 39.5907057
Lon: -104.8454759
X: -95.22 , Y: 16.06 , Z: -2.32
Note: Tower 15A92
Cat: Status
Sub Cat: Good – No Maint
Height: 35.5 ft

Lat: 39.5907057
Lon: -104.845468
X: -92.99 , Y: 55.32 , Z: -1.93
Note: Bridge Clearance
Height: 20 ft

Lat: 39.5907508
Lon: -104.8454639
X: -91.82 , Y: 71.75 , Z: -1.79
Note: Edge of Pavement



View & Edit

See updates in real time and make changes as necessary with MapSmart

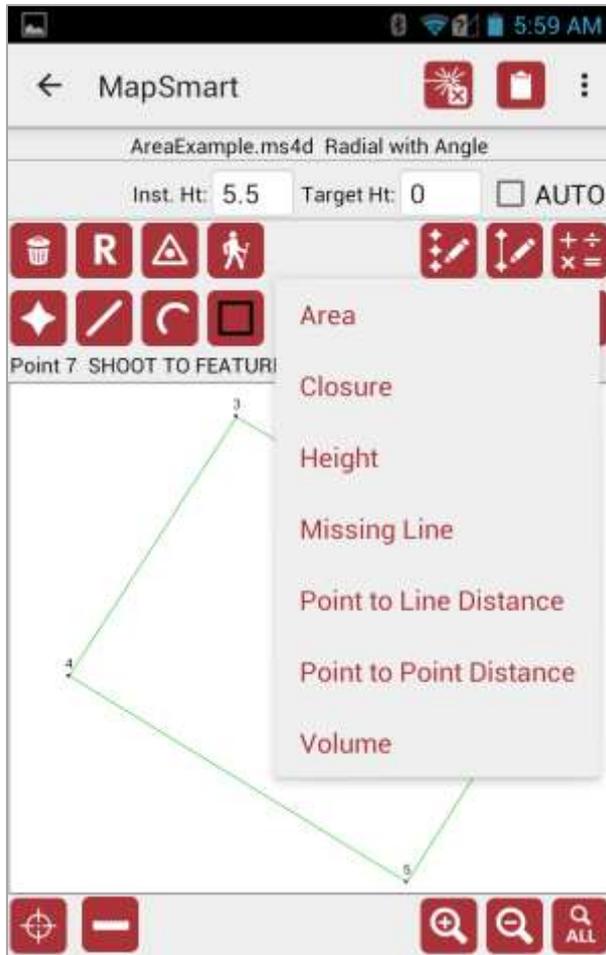
Get Field Measurements

Use a TruPoint or TruPulse laser to map in what's important to you



Get Instant Field Calculations

Find out measurement values between points, closures, and volume results



- Area
- Open or Closed Traverse Results
- Point to Line Distance
- Point to Point Distance
- Volume Results



The Easiest Volume Routine Ever

In the history of ever



Base/Toe



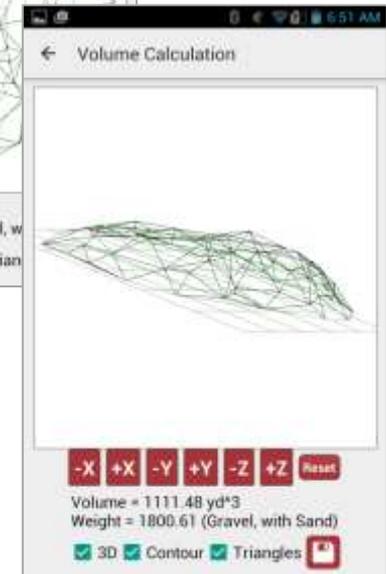
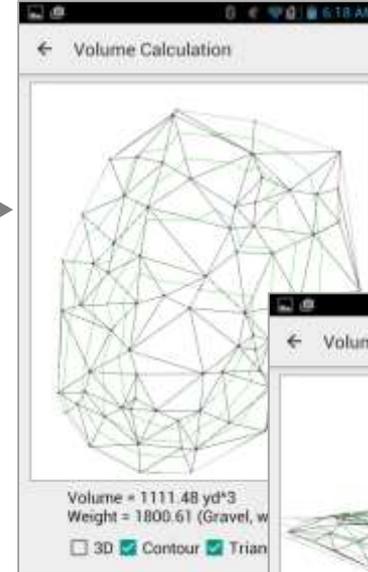
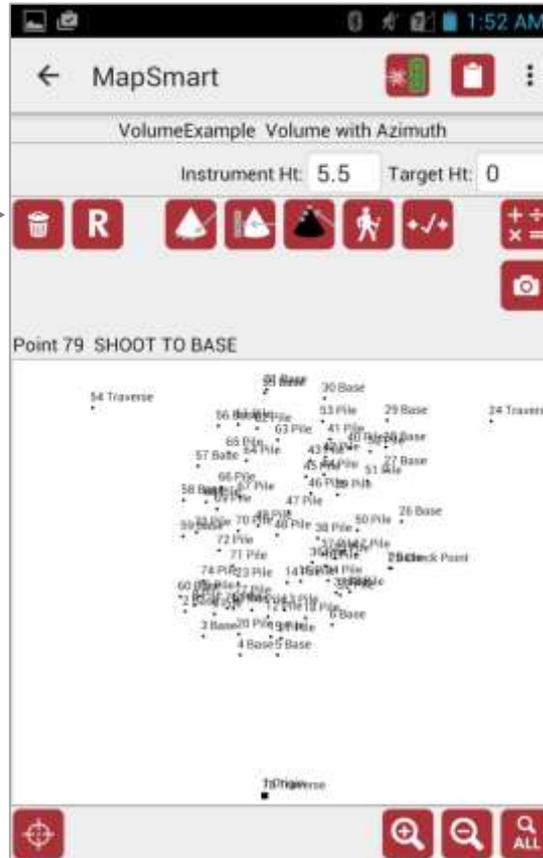
Pile



Projected Base

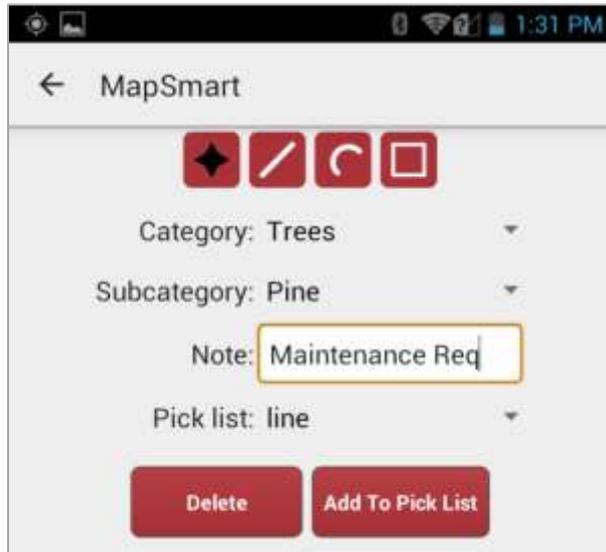


Move/Traverse



Organize & Classify Your Data

Ease the process of decrypting field measurements at your desk



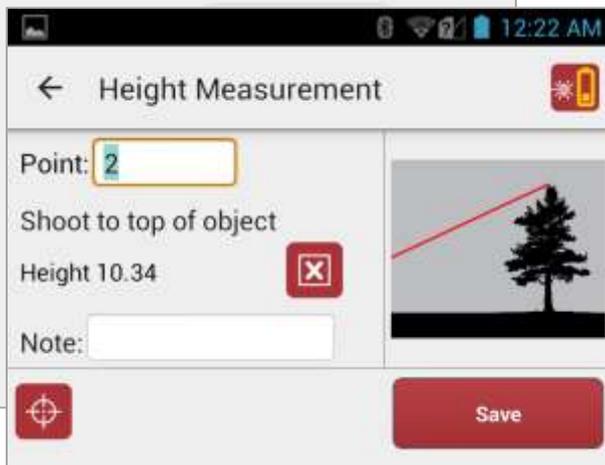
A screenshot of the MapSmart app interface. At the top, there's a back arrow and the text 'MapSmart'. Below that are four red icons: a compass, a pencil, a circular arrow, and a square. The main area contains several dropdown menus: 'Category: Trees', 'Subcategory: Pine', and 'Pick list: line'. A text input field labeled 'Note:' contains the text 'Maintenance Req'. At the bottom, there are two red buttons: 'Delete' and 'Add To Pick List'.

Custom Categories and Subcategories

Can be pre-built for quick classification of measurements

Add A Note

Unique to each individual measurement that can be picked from a list



A screenshot of the MapSmart app interface for height measurement. At the top, there's a back arrow and the text 'Height Measurement'. Below that are two red icons: a compass and a mobile phone. The main area contains several input fields: 'Point:' with the value '2', 'Shoot to top of object', 'Height 10.34', and 'Note:'. A red 'X' icon is next to the height field. To the right, there's a small image of a tree with a red line indicating the height measurement. At the bottom, there are two red buttons: a compass icon and 'Save'.

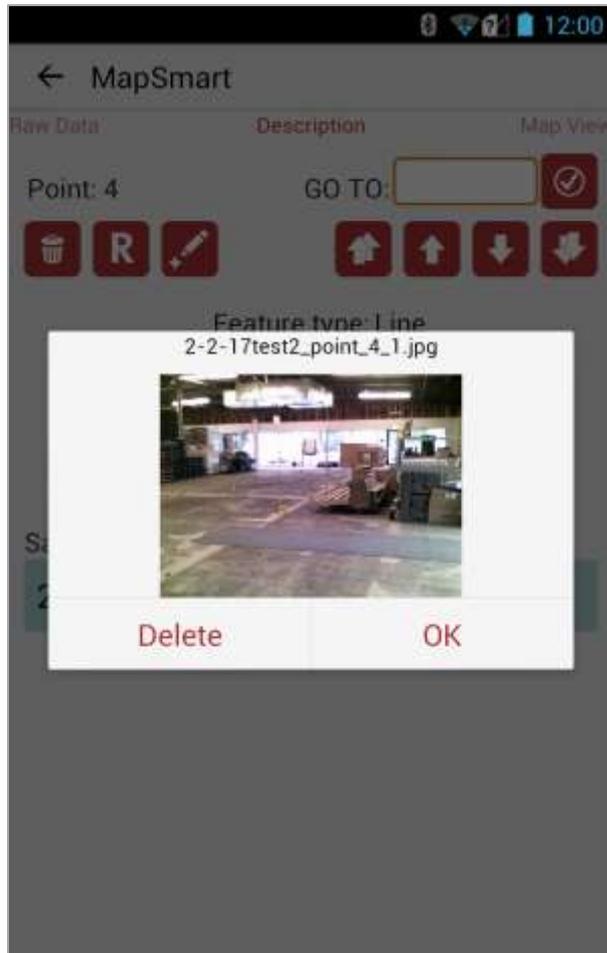
Add a Missing Line or Height Attribute

That can be saved with each individual point



Associate Photos with Mapped Points

Add an image to any point in a survey file



- Include one or more photos from your Android device
- Include a photo measurement from a TruPoint 300
- Review and delete images in Point Detail



Report Formats

MapSmart Android Output Formats

- CAD File (.DXF)
- GPS Exchange Format (.GPX)
- PDF File (.PDF)
- Spreadsheet Report (.CSV)
- Raw Data (.RAW)
- ASCII XYZ Description File (.ASC)
- Text Report (.TXT)
- Plot Graphic (.PNG)
- Template (.MS4DT)

2343A Gravel 12/10/16 1:30 PM

Company: Arapahoe County
Location: Centennial, CO Staging
File name: VolumeExample.ms4d

Volume: 1111.48 yd³
Weight: 1800.61 tons
Material type: Gravel, with Sand
Method: Volume with Azimuth
Units: Feet
Note:

The report includes a photograph of a gravel pile and two technical diagrams: a triangulation network and a traverse plot.

The screenshot shows the ArcGIS web interface with a map of a city area. A measurement tool is active, showing a 'Measurements 2.4' window with the following details:

- Latitude: 37.857
- Longitude: -101.214
- Name: Measurement 2.4
- Measurement: Measurement 2.4
- Number Categories: 1
- Number Categories: 1
- Classified Height: 13.25
- Measurement: 1.75
- Height Category: Tall
- Subcategory: Green-High
- Level Height: 25.71
- Measurement: 8.75
- Height Category: Low
- Subcategory: Green-Low
- Height: 19.71
- Measurement: 1.75



Bringing Freedom to Mobile Mapping

A Solution for “Adam”

Loosely Based on a True Story from Malaysia



Booth 20