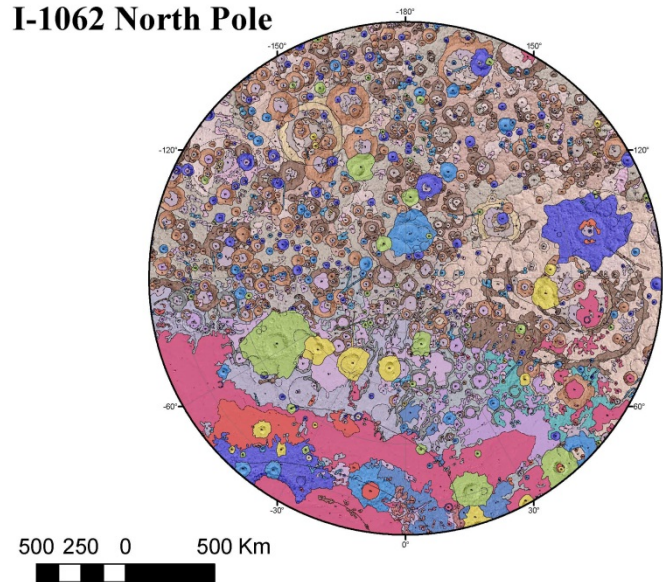


Selling GIS



I-1062 North Pole



GIS: Geographic Information Systems

A system used to store, manage, manipulate, and analyze data geographically. Virtually all data has a geographic component.

Reasserting American Leadership in Space Act (REAL Space Act)

- HR 1641 - Introduced to the 112th Congress, House of Representatives, on April 15, 2011, by a bipartisan committee; reintroduced in 2013
- "To direct the National Aeronautics and Space Administration to plan to return to the Moon and develop a sustained human presence on the moon."
- To return to the moon by 2022 to begin colonization.

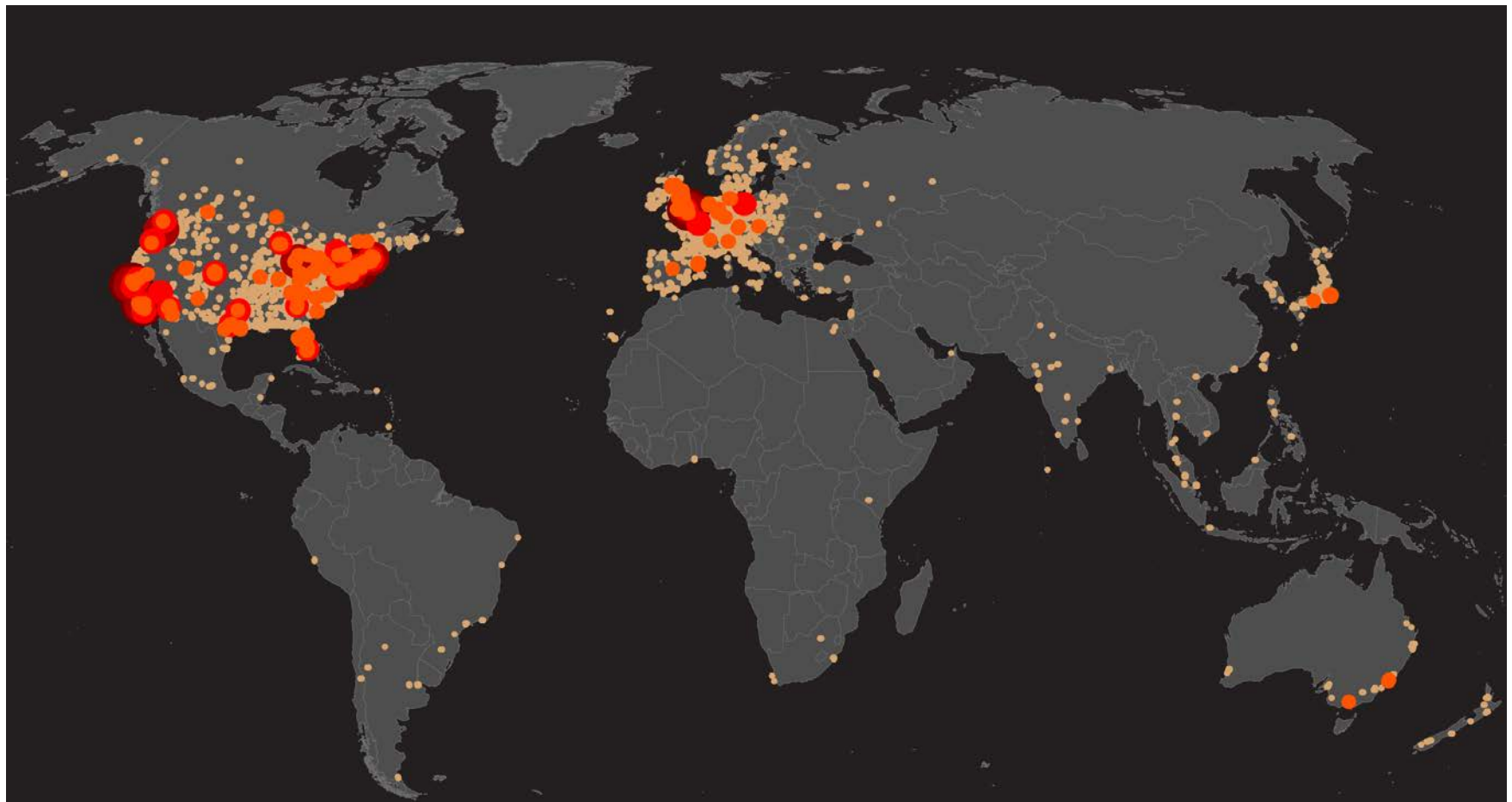
Reasons for the REAL Space Act

GIS Terms

Event - something on the map; examples include UFO sitings, a store, road, well, pipeline, etc.

Attributes - specific characteristics of an event that uniquely identify it





Fewer
Zombies



More
Zombies

Mapping zombies

Using a keyword search for "zombies", the following map visualizes the absolute concentrations of references within the Google Maps database. The map reveals two important spatial patterns. First, much of the world lacks any content mentioning "zombies" whatsoever. Second, and related, the highest concentrations of zombies in the Geoweb are located in the Anglophone world, especially in large cities. The results either provide a rough proxy for the amount of English-language content indexed over our planet, or offer an early warning into the geographies of the impending zombie apocalypse.

Visualization by Mark Graham, Taylor Shelton, Matthew Zook and Monica Stephens.

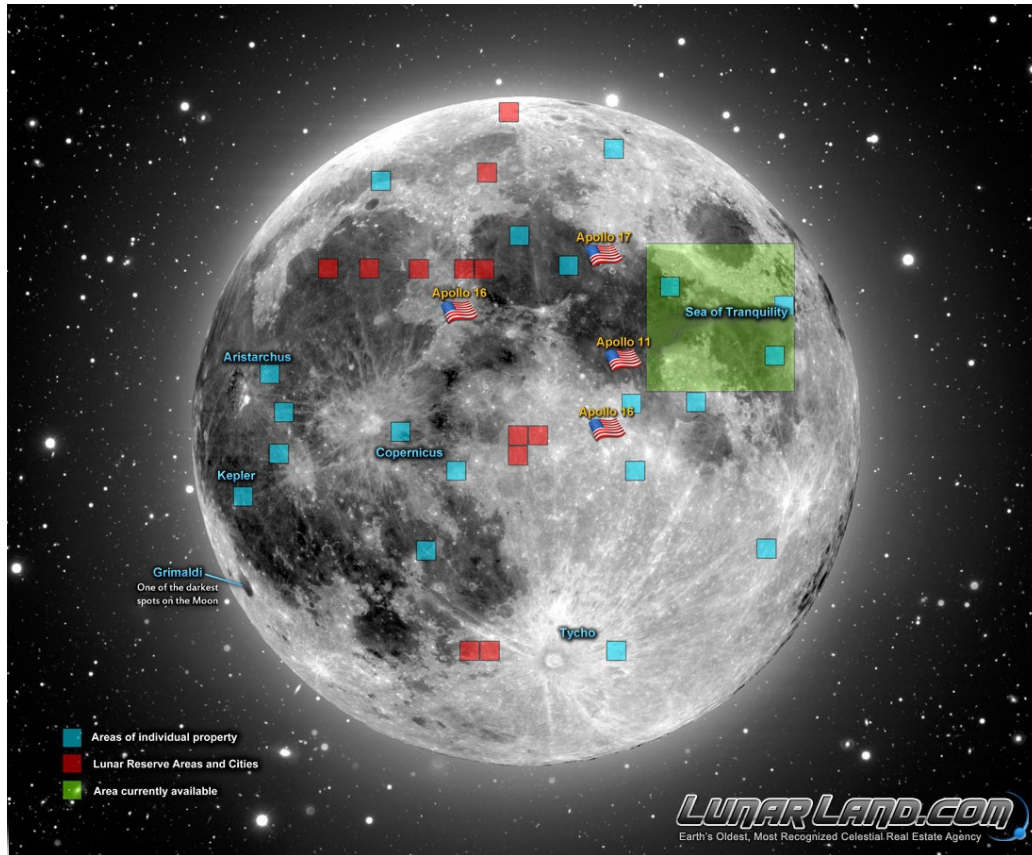
This map and other visualizations can be found on the OII visualization website at <http://www.oii.ox.ac.uk/vis/>



Reasons for the REAL Space Act

- “... allows astronauts and researchers the opportunity to leverage new technologies ...” for sustaining life on other planets.
- Motivating young people to excel in math and science instead of falling behind as we do now.
- Challenging American industries to develop new technologies which can be used across industries, impacting the economy with tens of billions of dollars.
- Improving healthcare with better technology.
- New technologies improve our military.
- A matter of national security, strategically important.
- China and Russia “have declared their intentions of colonizing the Moon and are advancing their lunar exploration plans.” Russia plans to have a moon colony within the next 10-20 years.

Colonizing the Moon: Find a Location, Determine the Owner



GIS Terms

Database - used to store multiple types of events and their attributes

Shapefile - geographically locates events from a database on a map

<http://www.lunarlandowner.com/>

Since 1980

Over 300 million acres sold

Colonizing the Moon: Environmental Impact Statements

- Purpose and Need of the Proposed Action
 - Better technology, improved healthcare advances
 - Better military capabilities
 - National security
 - Strategically important
 - Build before Russia and China: get their first!
- Description of affected environment
- Range of alternatives

Colonizing the Moon: Environmental Impact Statements

- Impacts to threatened or endangered species
- Air and water quality impacts
- Impacts to historical and cultural sites
- Social and economic impacts
- Cost analysis
- Environmental Mitigation Plan
- No Action Alternative

Impacts to threatened or endangered species

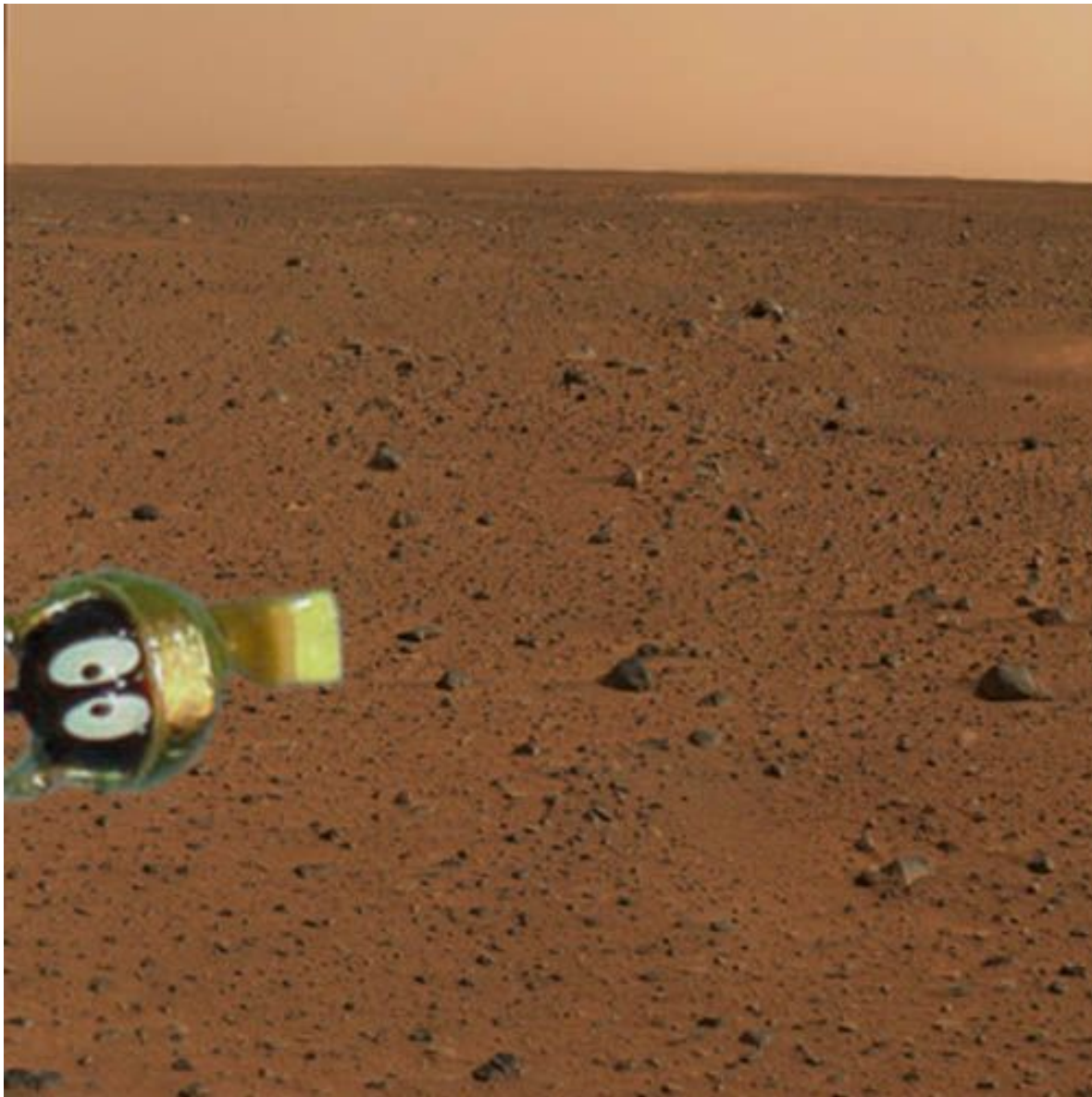
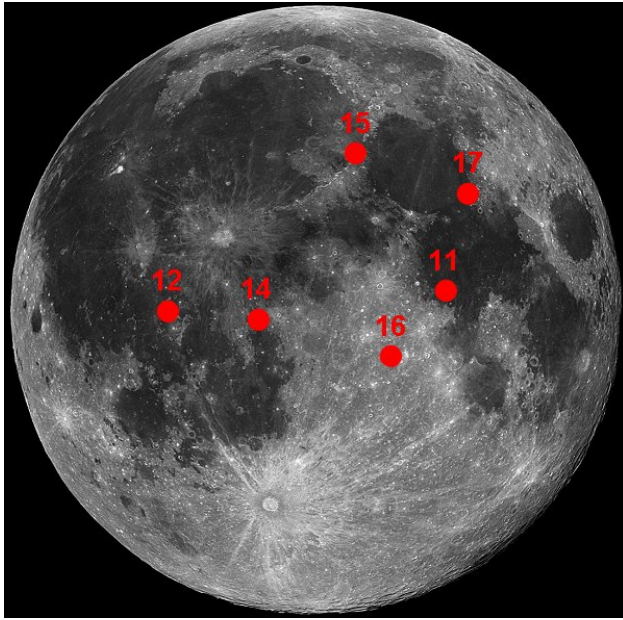


Image from the
Mars Rover, 2009

Social and Economic Impacts



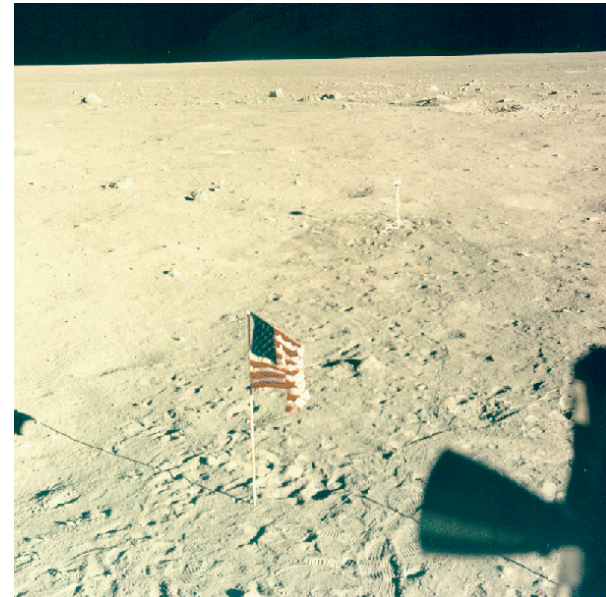
Transformers: Dark Side of the Moon, 2011



Apollo Landing Sites



Impacts to historical
and cultural sites



Common GIS Terms

- Event – something on the map; examples include a store, road, well, pipeline, etc.
- Attributes – specific characteristics of an event that uniquely identify it
- Database – used to store multiple types of events and their attributes
- Shapefile – geographically locates events from a database on a map

Necessary Attributes for Data

- Coordinates for geolocation
- Type of event
- Identifying information

Apollo 11

Launched 16 July 1969

Landed on Moon 20 July 1969

Sea of Tranquility

Returned to Earth 24 July 1969

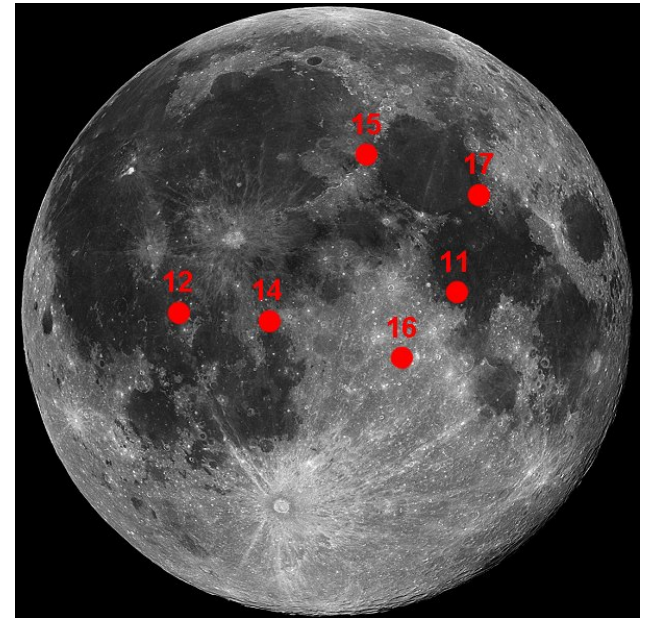
Apollo 12

Launched 14 November 1969

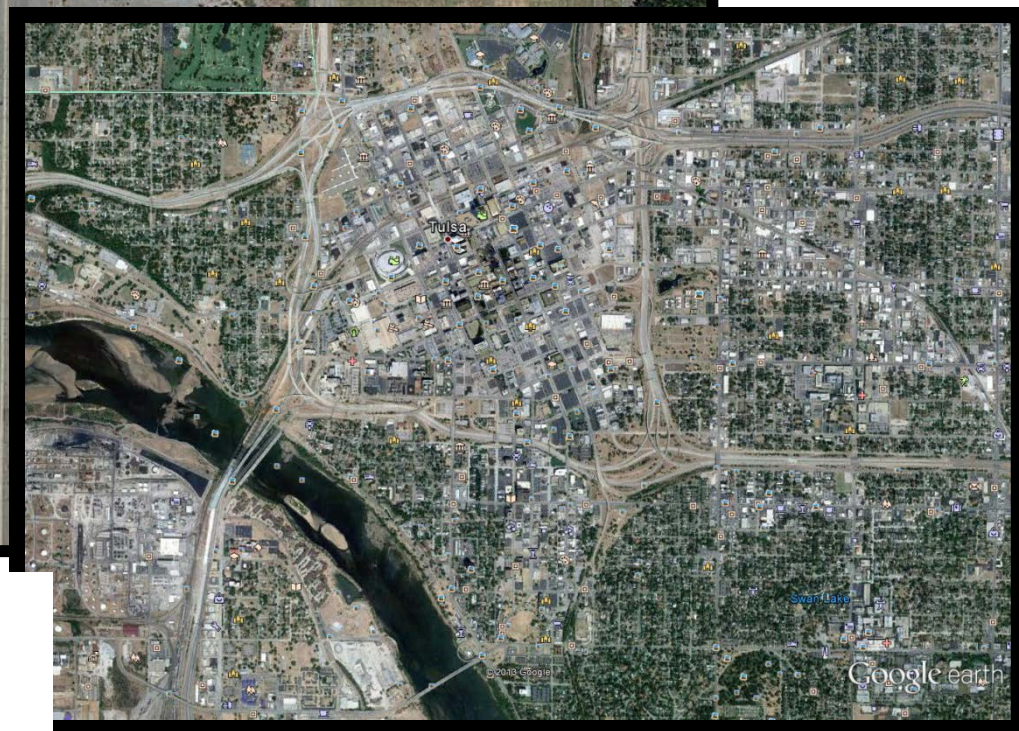
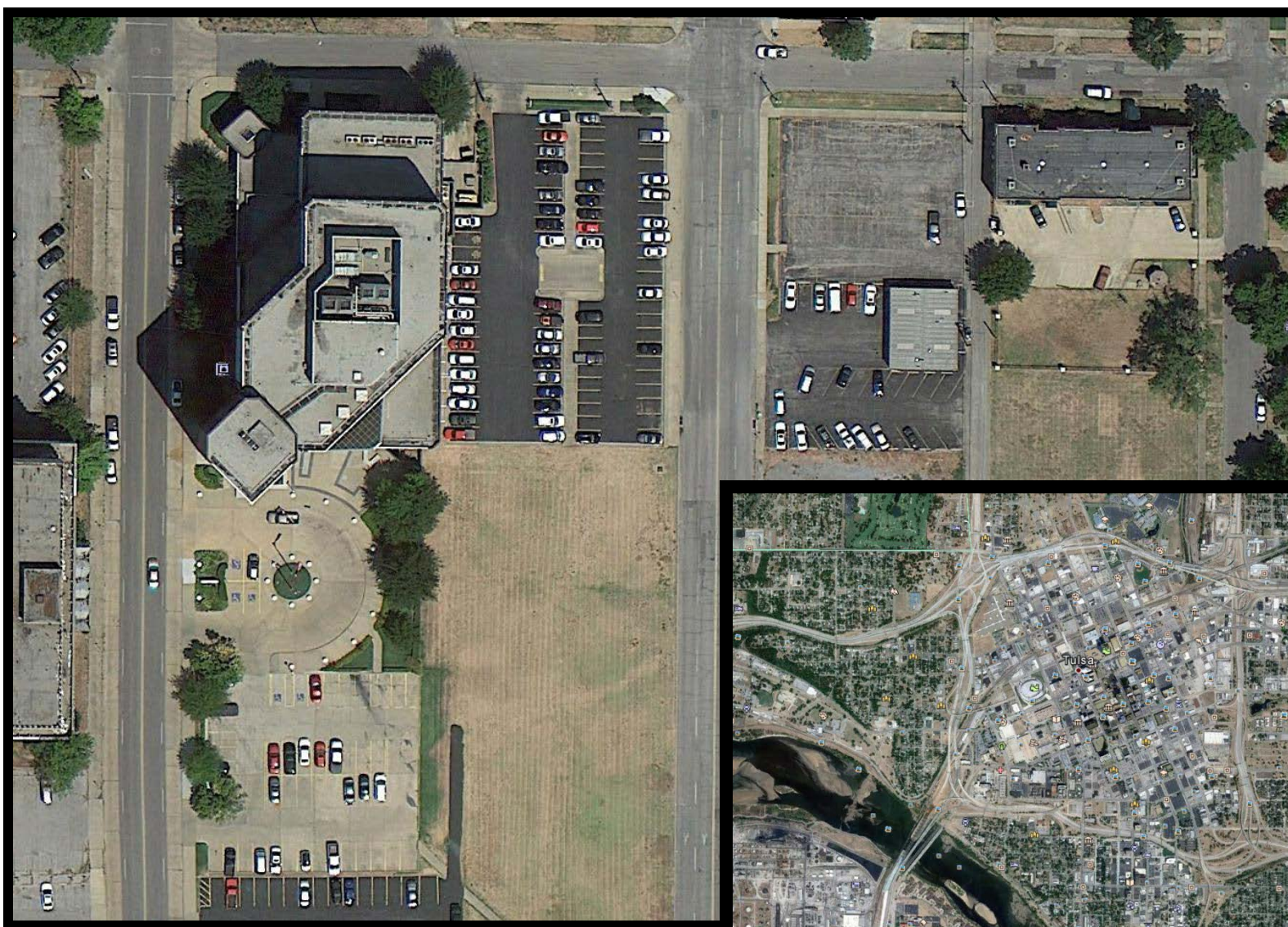
Landed on Moon 19 November 1969

Ocean of Storms

Returned to Earth 24 November 1969



Apollo Landing Sites



36.137508°, -95.988049°
36° 08' 14.03", -95° 59' 14.90"
231125.96 E, 4003335.80 N, OK Zone 15S

Common GIS Terms

- Point – 0 dimensional event on a map; examples include a store, well, house, etc.
- Line – 1 dimensional event on a map; examples include roads, pipelines, county lines, etc.
- Polygon – 2 dimensional event on a map; examples include buildings, well pads, counties, states, etc.

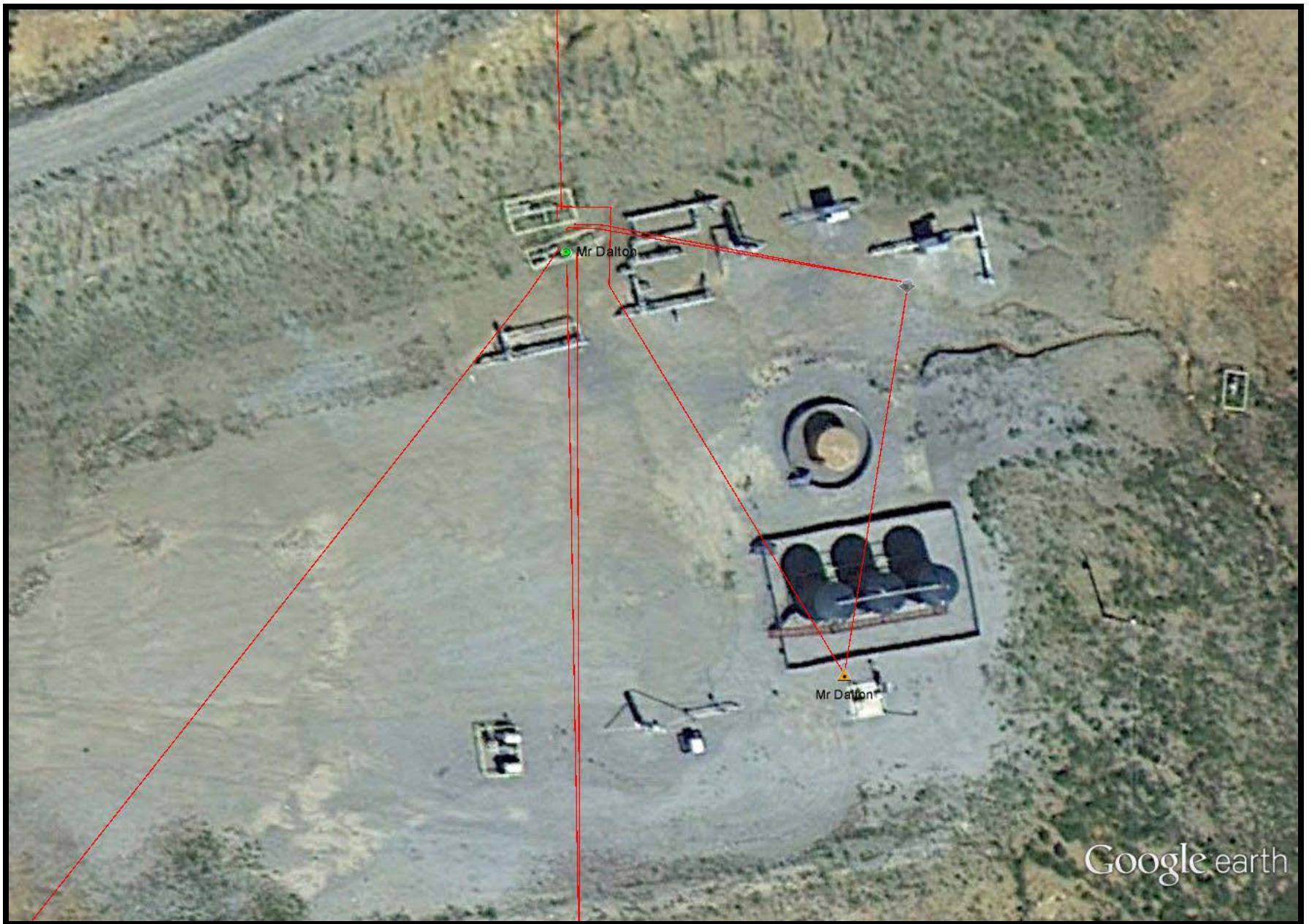
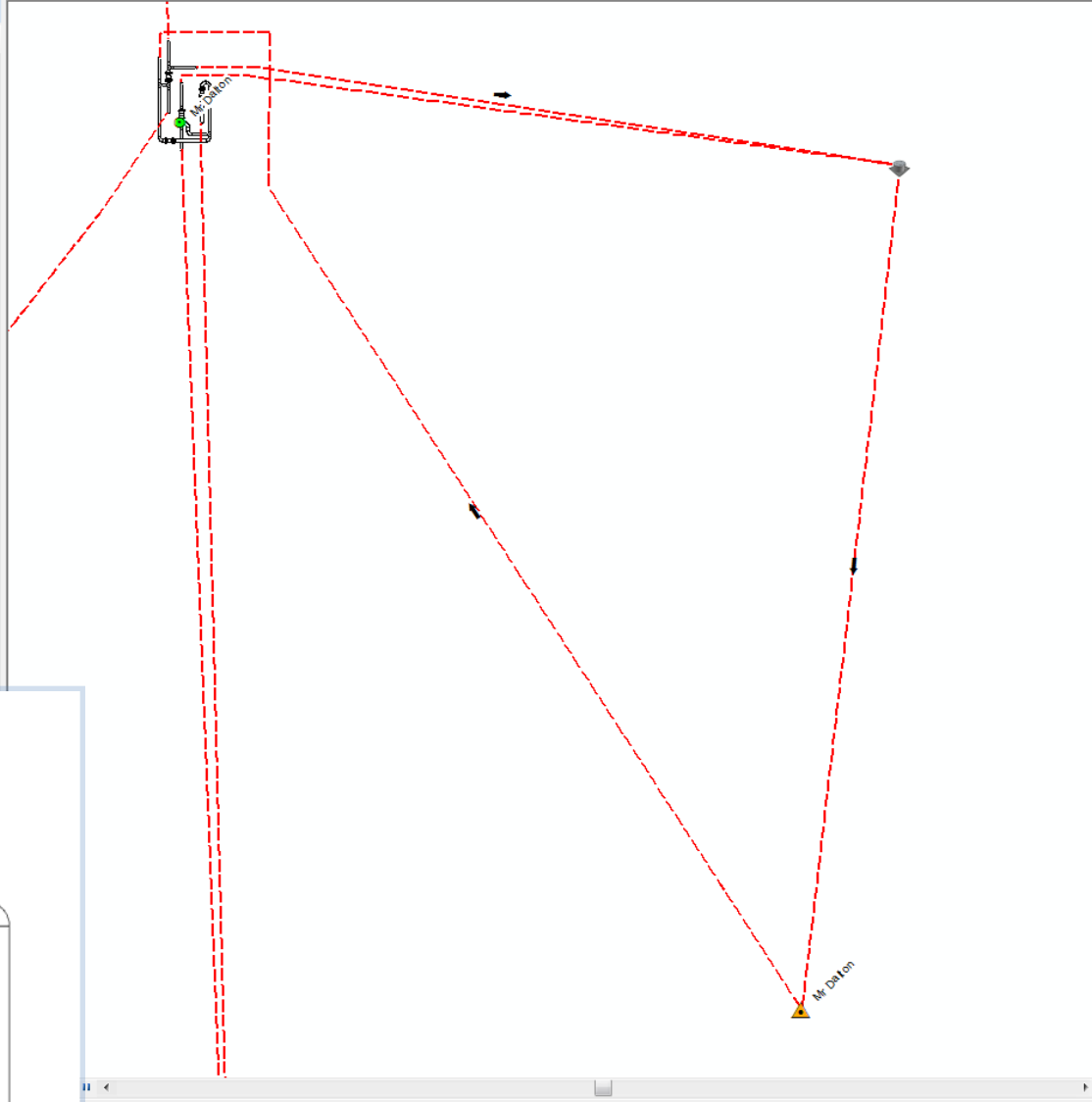


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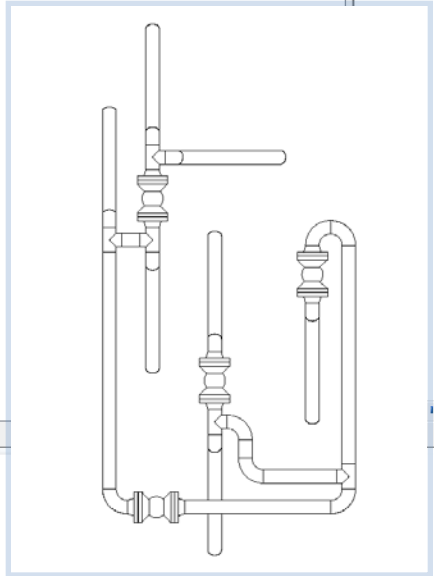
- SYSTEM_MAP
 - ☒ Tanks & Disposal Sites
 - ☒ System_Pumps_Risers
 - ☒ Pipelines
 - ☒ Wellheads
 - ☒ Point
 - ☒ Well heads - CAD
 - ☒ RISERS
 - ☒ utm
 - ☒ Imagery



ArcToolbox

- ArcToolbox
 - 3D Analyst Tools
 - Analysis Tools
 - Cartography Tools
 - Conversion Tools
 - From GPS
 - From KML
 - From Raster
 - From WFS
 - Metadata
 - To CAD
 - To Collada
 - To Coverage
 - To dBASE
 - To Geodatabase
 - To KML
 - Layer To KML
 - Map To KML
 - To Raster
 - To Shapefile
 - Data Interoperability Tools
 - Data Management Tools
 - Editing Tools
 - Geocoding Tools
 - Geostatistical Analyst Tools
 - Linear Referencing Tools
 - Multidimension Tools
 - Network Analyst Tools
 - Parcel Fabric Tools
 - Schematics Tools
 - Server Tools
 - Spatial Analyst Tools
 - Spatial Statistics Tools
 - Tracking Analyst Tools

2645083.481 630285.103 Feet



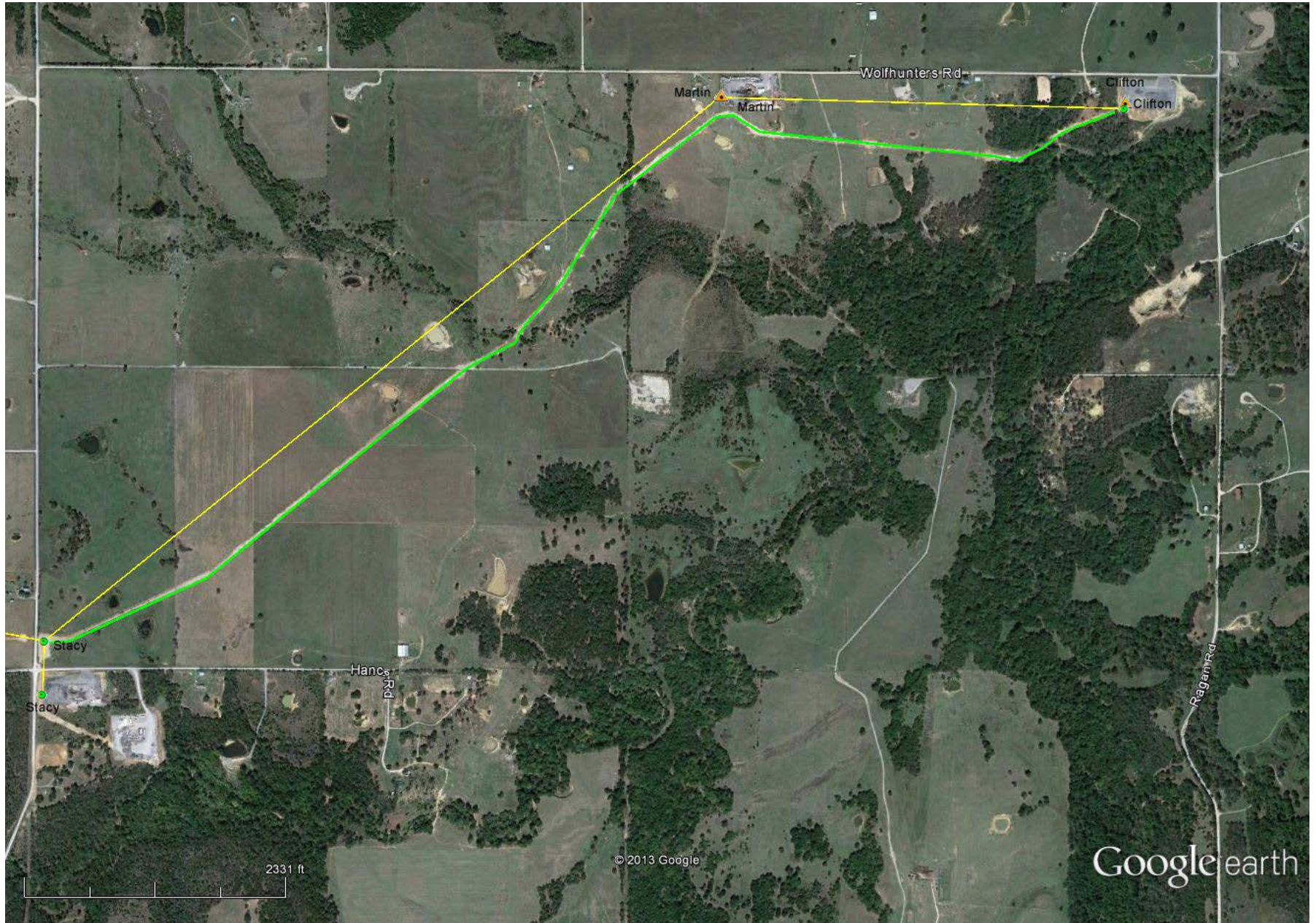


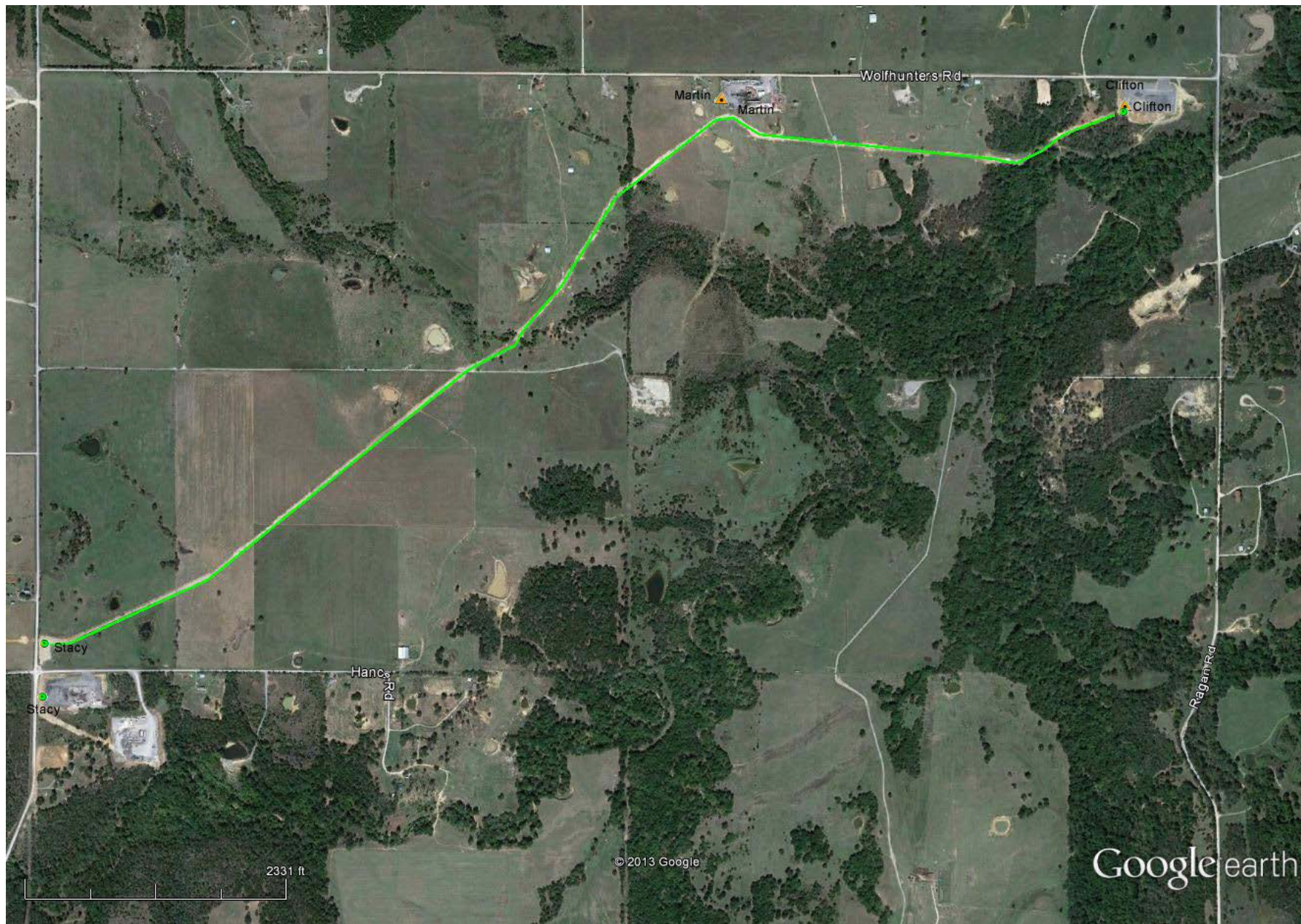
Methods of Collecting Data

- Remote sensing
 - LIDAR – Light Detection and Ranging
 - Aerial photography
 - Satellite imagery
- Surveyors
- GPS



Google earth





Inspections Underway on Oil Pipeline That Runs through Oologah Lake - June 17, 2013

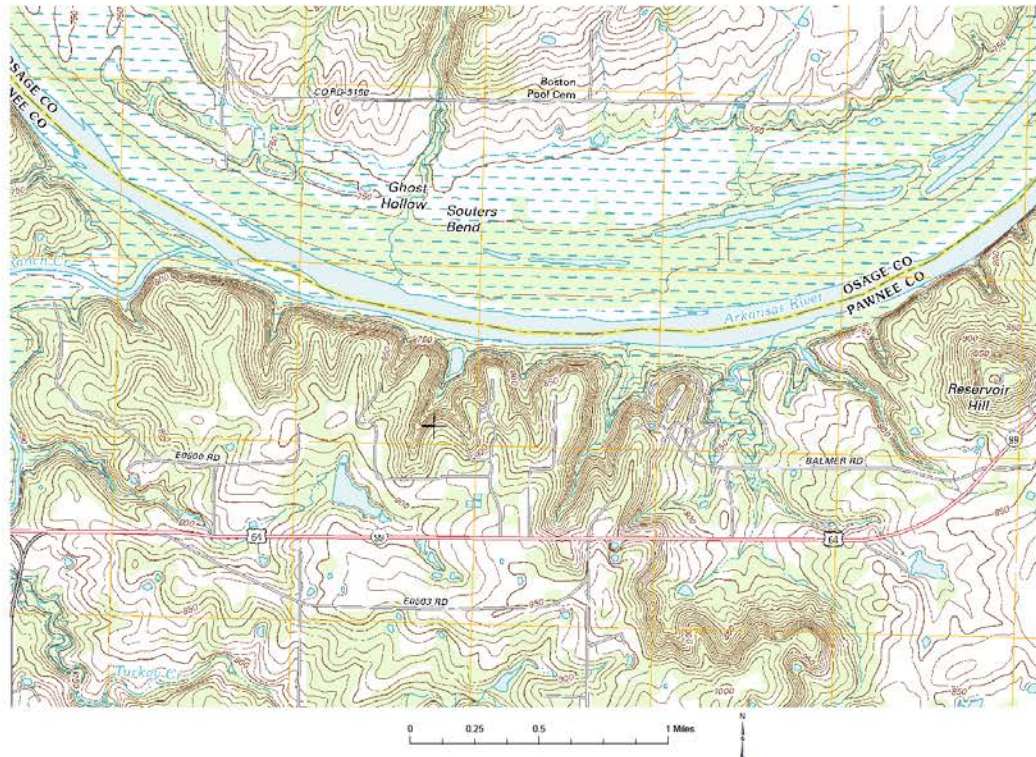
- 64 year old 22 inch pipeline
- Carries 200,000 barrels of crude oil per day from Cushing, OK, to Wood River, IL
- No oil is flowing during the inspection
- Oologah provides 50,000,000 gallons of drinking water per day to the City of Tulsa
- No danger to the water supply or to the public







Will Rogers Scout Reservation



Tips

- Have a clear definitions of GIS that you can easily share: a simple version and a technical version.
- Make interesting maps that you can hang in and around your office.
- When someone comments on a map, share what you do and why it is important.
- Offer help for employer and personal projects.
- Find innovative ways to promote GIS.

Understand the Value of Your Work

- If you are not a GISP, become one - ask me how
- Recognize that what we do is important
- Insist that your employer recognize the importance of GIS and the people who do it



GIS Professionals Around The World



Sheila McGinty Wilson

smcgintywilson@select-engineering.com