# 3D LASER SCANNING

PACIFIC GEOMATIC SERVICES INC.

Ron Hilliard, PLS

# AGENDA

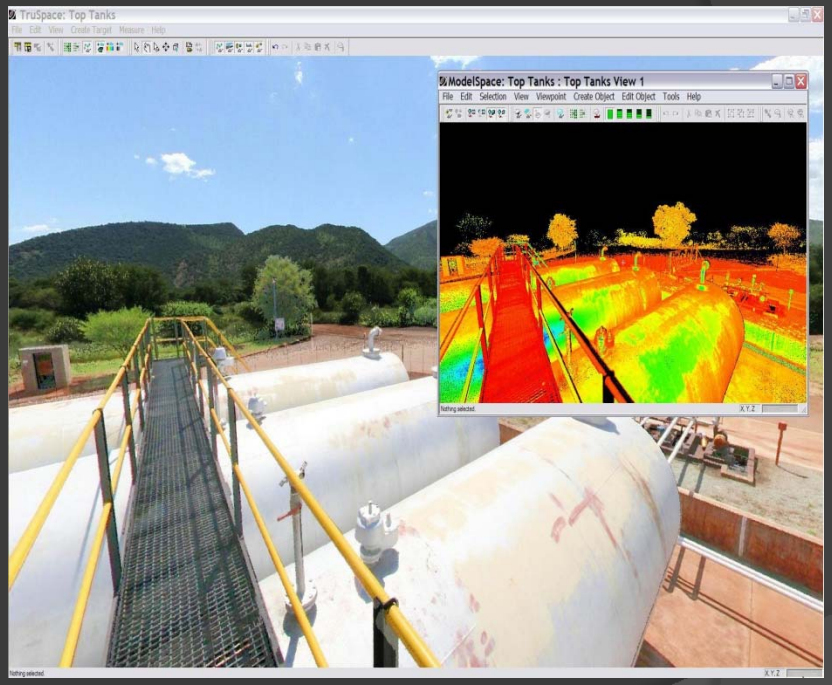
- What is a scanner and how does it work?
- Benefits and advantages of scanning
- Versatility of Scanners
- Deliverables and finished products

# TECHNOLOGY OVERVIEW

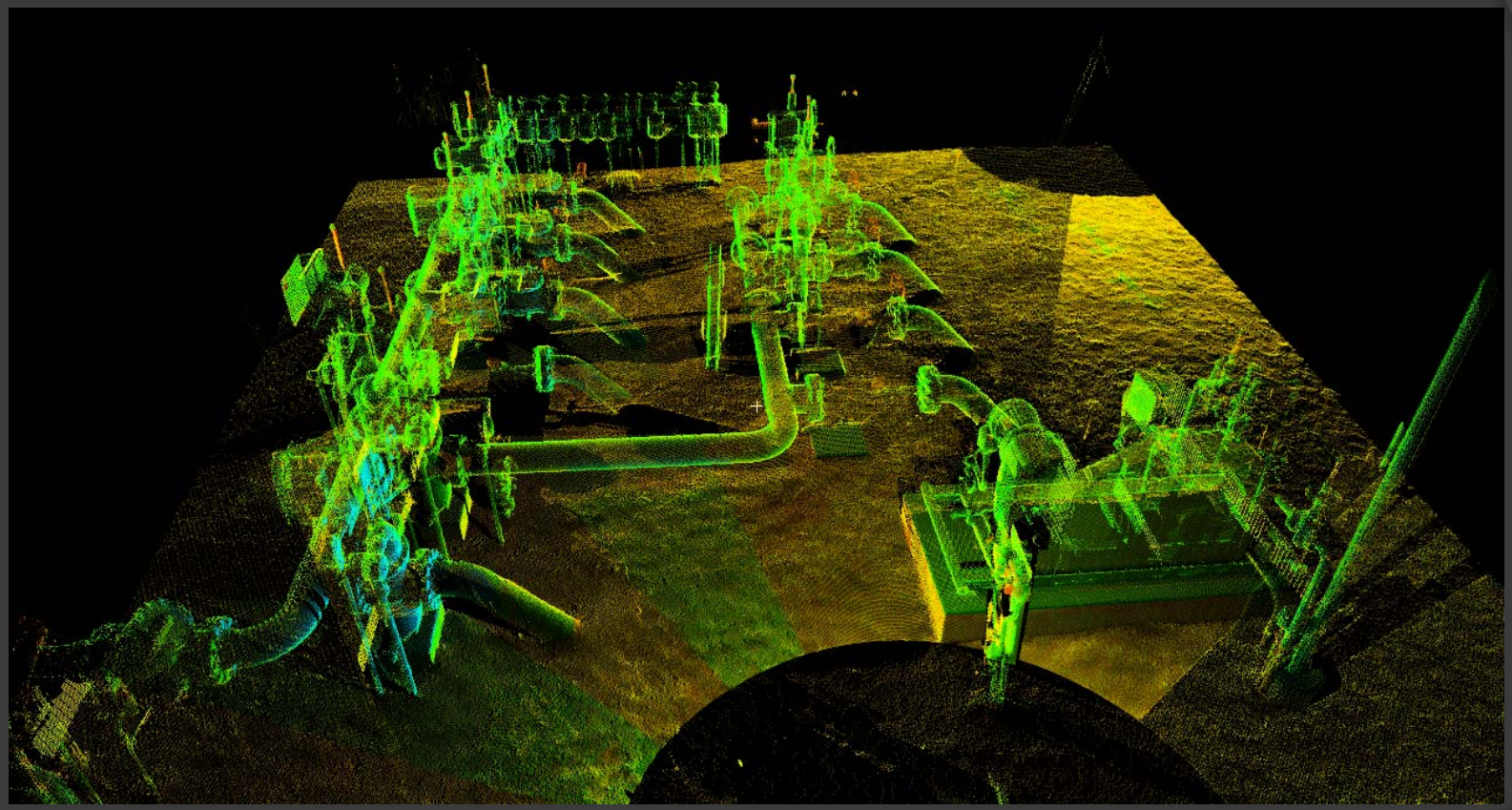
- Pulsed or “Time of Flight” scanners
- Ground based Lidar
- Lidar – Light Detection and Ranging
- Overlays photographic images

# HOW IT WORKS

- Records up to 50,000 points per second
- Range up to 300 meters
- Takes high-res photos
- Creates “Point Clouds”
- Combines multiple scans into one “point cloud”



# Point Clouds



- A point cloud is a series of points in 3D space, defined in X, Y, Z and I (intensity) format, which collectively describes the geometry of a physical object

# BENEFITS & ADVANTAGES

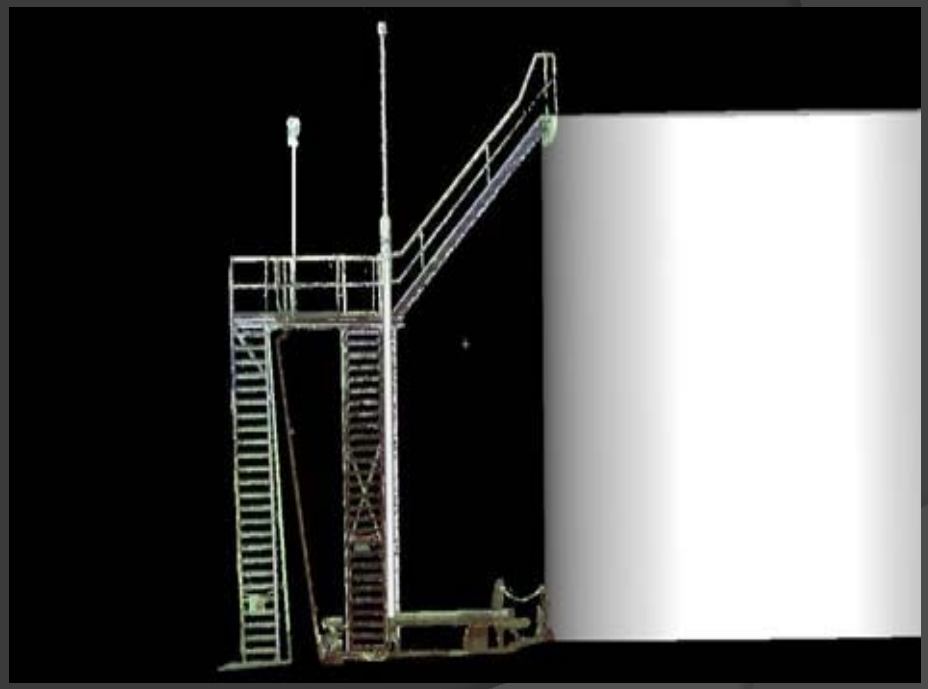
- Acquisition Speed
  - Reduced survey time and cost
  - Reduced risk to technical staff
  - Shorter facility disruptions
  - Preliminary data can be delivered almost instantaneously
- High Resolution
  - High detail of data collection
  - Indiscriminant collection of features
  - Reduced risk of needing additional surveys
- Accuracy
  - Survey grade dual axis compensator
  - Greater confidence in data due to the high density of points collected

# VERSATILITY OF SCANNERS

- Transportation
- Facilities mapping
- Crime scene investigation
- Historic archives
- Deformation surveys
- Architectural
- Design mapping
- Quantity surveys
- And much more!

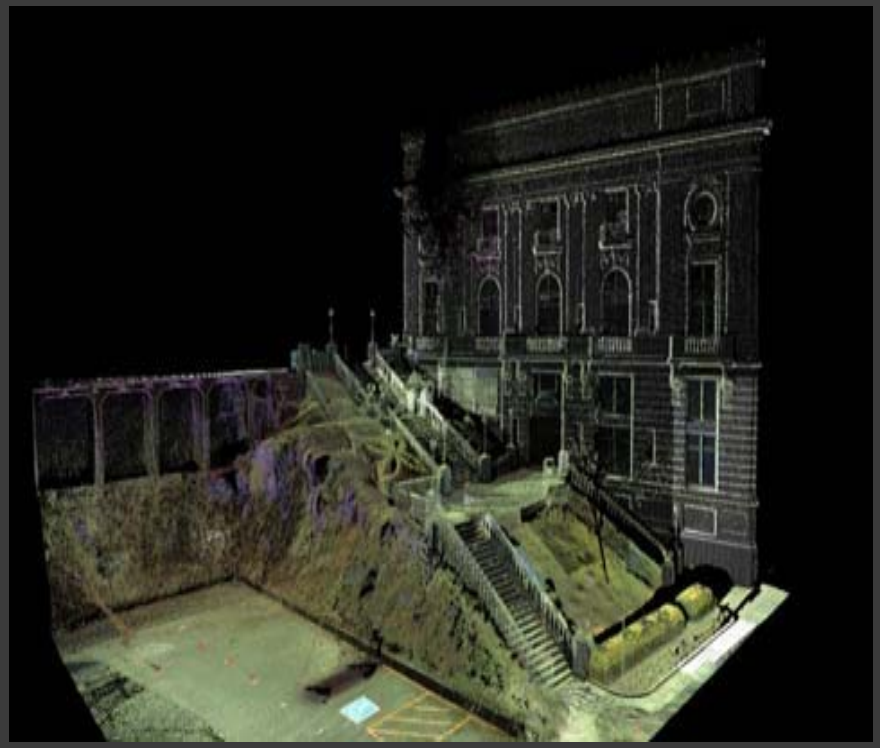
# BP PORTLAND TERMINAL TANK FARM

BP U.S. PIPELINES AND LOGISTICS



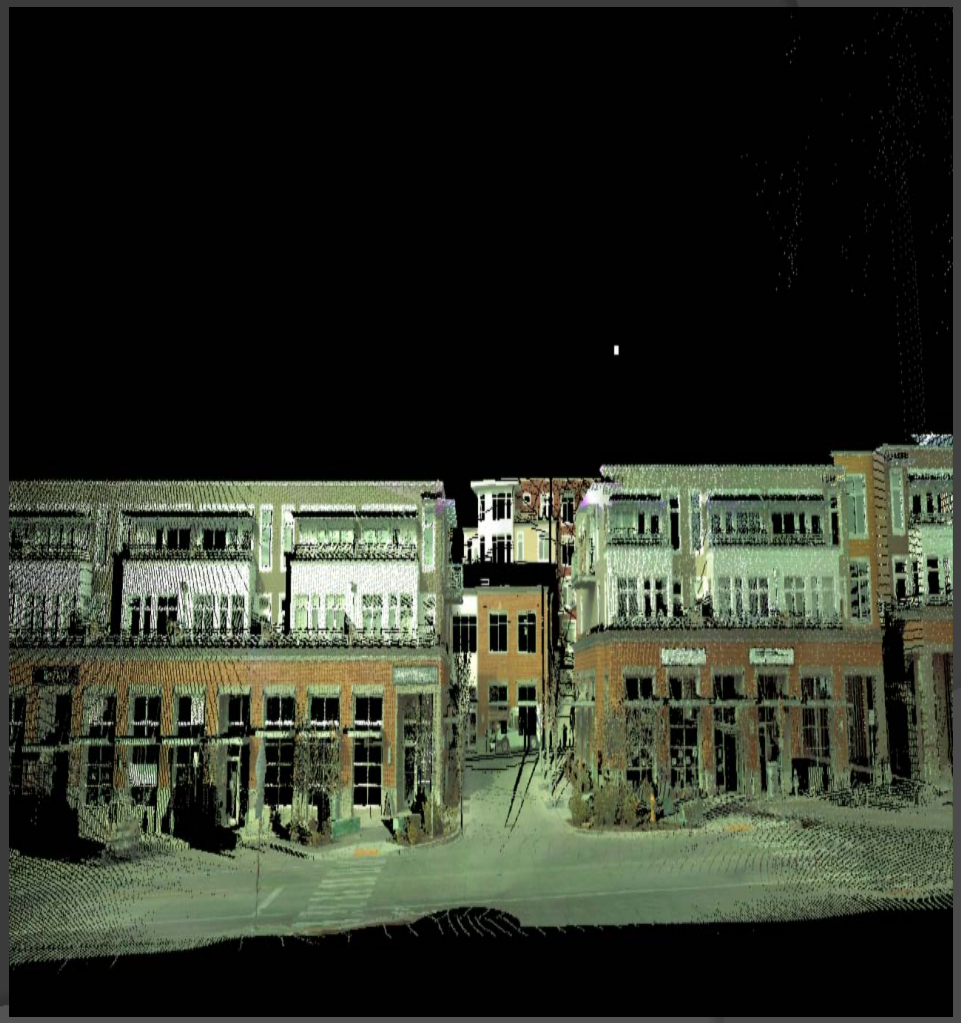
# SPANISH STEPS HISTORIC REHABILATATION

APEX ENGINEERING, INC



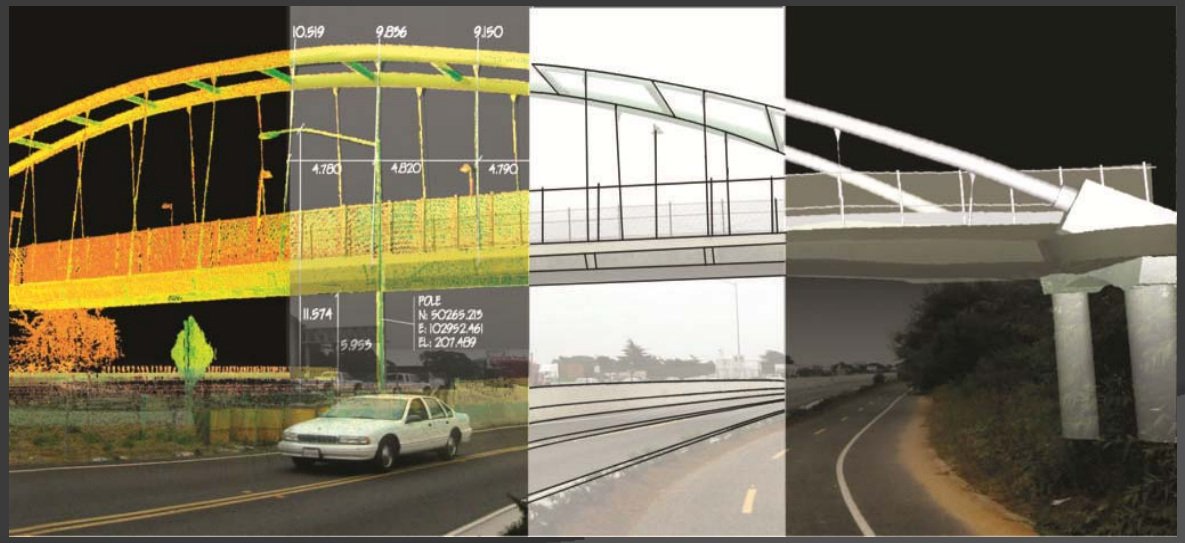
# HARBOUR SQUARE

OPUS CORPERATION



# DELIVERABLES & END RESULT

- 2D and 3D As-built drawings
- 3D modeling
- Point Clouds
- Raw data and point files
- TRUVIEW



# COMPANY BIO

Pacific Geomatic Services, Inc. is a full service Land Survey and Design Mapping Company. Pacific Geomatic Services, Inc. is owned and managed by Ron Hilliard, a Professional Land Surveyor with over 30 years of experience. The company is active in providing surveying, mapping, high-definition scanning and GIS services to a diverse client base of private, government and commercial interests.

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