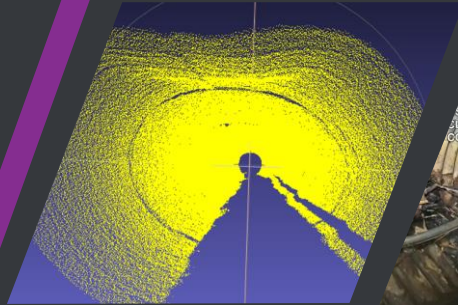


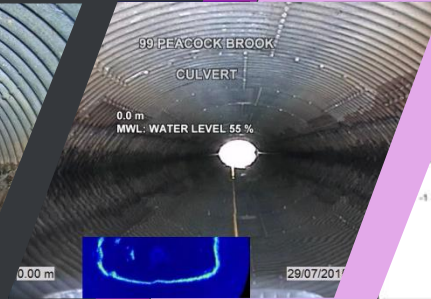
CULVERTS & STORM DRAINS



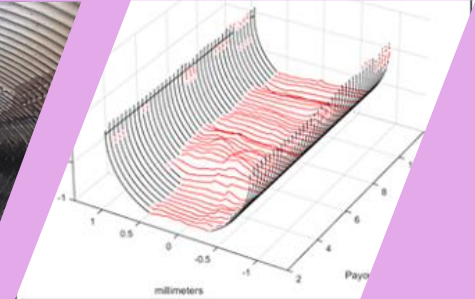
Culvert LiDAR Data



1080p CCTV



Sonar/CCTV Survey



Sonar Data

WE ARE A GEOMATICS FIRM. WE PROVIDE UNIQUE DATA & SURVEY SOLUTIONS

ESSENTIAL DATA FOR INTELLIGENT DECISIONS



Multi Sensor Surveys will Maximize the Benefits from your Time and Effort on Site



- CULVERTS
- STORM DRAINS
- OUTFALLS
- SIPHONS
- MANHOLES
- PIPE MEANDER
- OVALITY MEASUREMENTS
- RIVER CROSSINGS
- IN PIPE H2S GAS VALUES

SINCE 1993 OUR GOAL HAS BEEN TO PROVIDE EASILY UNDERSTOOD DIGITAL SURVEY REPORTS

WE DELIVER THE DATA YOU NEED

- Multi-sensor data collection technology provides new and unrivalled definition of your fixed assets
- Our in-house team designs and builds innovative robotic systems to help position the sensors and solve challenging inspection and survey issues
- Using our in-house designed software, we collect and process video & XYZ data above and below water
- All our data and deliverables can be accessed or viewed with widely available software
- Since 1993, Civil engineers have used our data to prioritize remedial work for their fixed assets



Our four wheel drive submersible tractor with laser, sonar and CCTV

INSPECTION SENSORS TO FIT YOUR NEEDS

- High resolution digital marine cameras (1080p)
- Time of flight profiling lasers used to create above water AutoCAD drawings
- Time of flight 3d lasers create CAD ready data around a fixed point
- Digital profiling sonars create CAD ready data below water
- Digital scanning sonars image underwater trends
- MH to MH gas and temperature sensors
- RTK GPS for terrestrial surveys with 2 cm – $\frac{3}{4}$ " accuracy
- Additional sensors are easily incorporated

Video frame grab from our ROV. Part of the underwater inspection in a surcharged culvert



11/08/2017 15

Large Storm Drain inspections using
our propane powered Argo ATV



WORK PLATFORMS FOR CHALLENGING AREAS

DESIGNED FOR EASE OF USE

- Propane powered six wheel drive amphibious vehicle
- ROV for outfall and submerged culvert surveys
- Four wheel drive steerable tractors, 2,000' penetration
- High flow aluminum floats
- Winches with over a mile of electro fiber cable
- Fiber optic communications for better video and higher data capacity

High Resolution PTZ Camera above water
with a profiling sonar below water

BROOK

CULVERT

0.0 m

MWL: WATER LEVEL 55 %

submerged invert

0.00 m

29/07/2015 13:52:56

HIGH RESOLUTION MARINE CAMERA

- Making your life easier with clear images
- Natural feel pan and tilt camera
- 18x optical zoom and auto focus
- Low light to 0.05 lux
- High-resolution frame grabs
- Natural light LED's for natural color
- We eliminate coding errors by coding in the office not in the field



DIGITAL PIPE PROFILING SONAR

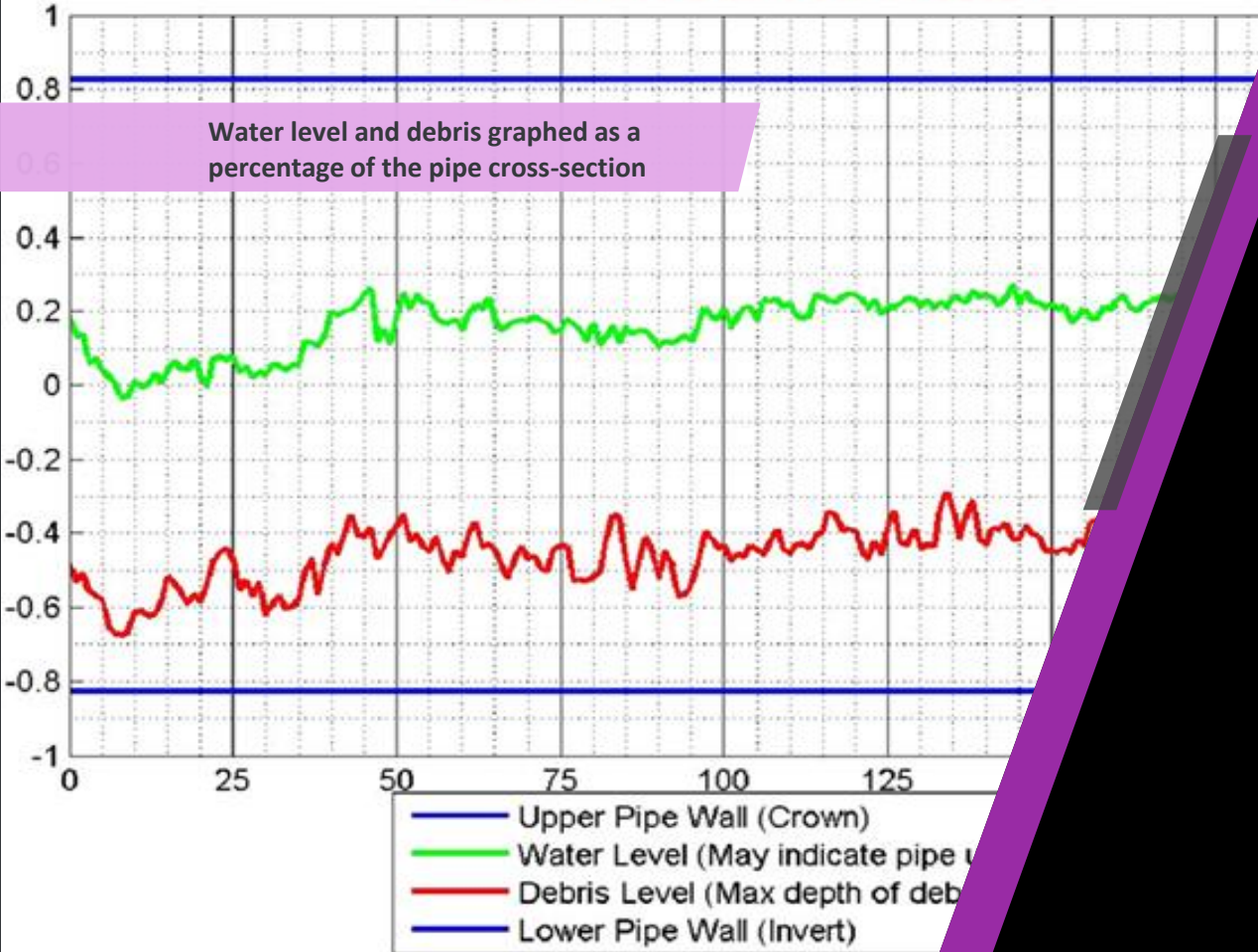
USING 3D SONAR SINCE 1993

- We have the knowledge to answer your questions
- Pipe cross-sections showing pipe restriction, cross-sectional restrictions & debris volume
- Manhole to manhole graphs showing water level & debris as a cross-sectional percentage
- Tabulated sonar data tables of cross-section restriction, debris volumes, storage capacity & water level
- Ovality tables and graphs
- Underwater pipe damage or pipe deformation
- 3D models are built by using payout, sonar data and attitude sensors including accelerometer information
- The processed data is quality controlled by trained personnel

Processed Sonar & LiDAR data

Total Length: 202m, Diameter: 1.65m

Accumulated Debris Vol: 77.3268m³

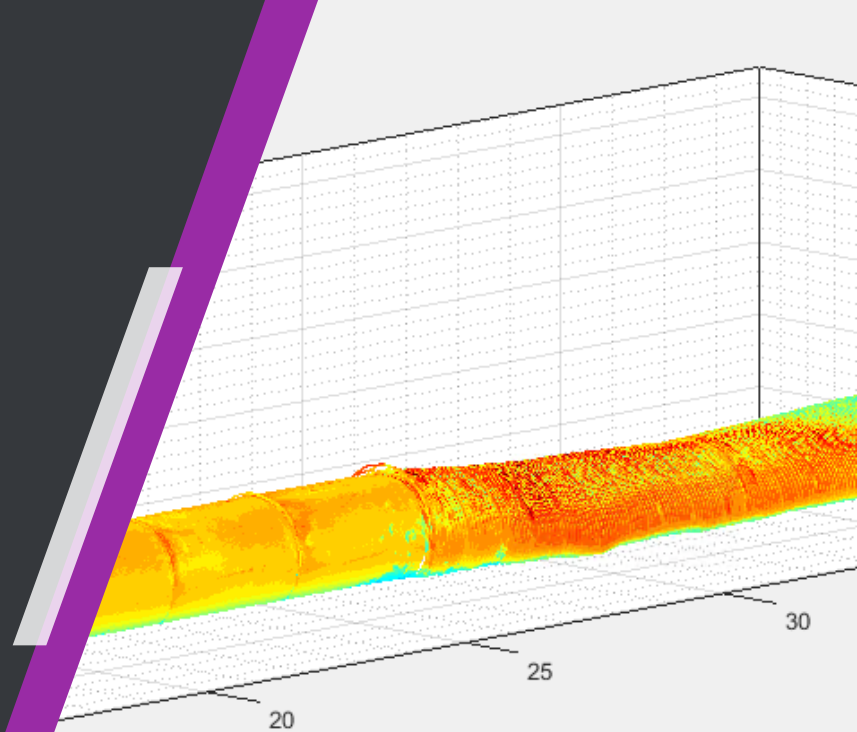


SONAR LIMITATIONS

- Sonar can measure deformation but not cracks
- Cross-sectional sonar profiles may not measure joint size
- The pipe profiling sonar used will not penetrate the pipe wall unless it is High Density Polyethylene
- The sound pulse will reflect off the water surface and the sonar cannot see above the water

TIME OF FLIGHT LASER SURVEY

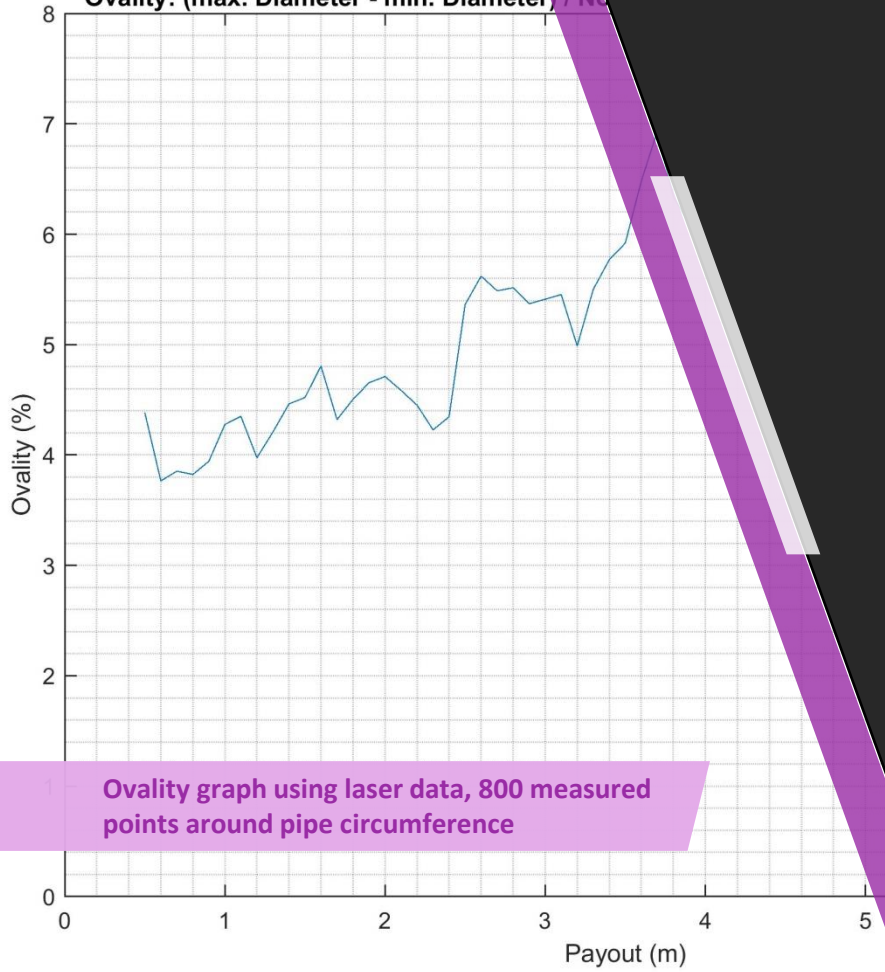
- Your fixed assets are measured to 5 mm resolution. (range 2" to 65 ft.)
- Ovality tables and graphs
- Pipe restriction graphs
- Erosion / Encrustation Maps (E & E Maps)
- Storage capacity values
- Perspective views
- CAD drawings
- Our lasers produce a very dense, measurable XYZ point cloud
- Our deliverables are designed to make your life easier



Laser Data showing Concrete to
Corrugated Iron Storm Drain

Material: PVC Direction: D

Ovality: (max. Diameter - min. Diameter) / No



AQUACOUSTIC'S KEY POINTS

- We are an infrastructure pre-engineering firm that develops unique data gathering solutions
- Our data helps you prioritize areas of concern and can be instrumental in reducing costs of repairs
- We design and build robotic systems capable of meeting challenges and develop software that transforms data into useful information
- We control the data from collection to deliverables without outsourcing; therefore, we respond to client input directly and completely
- Our technological solutions generate actionable information that reduces costs
- Our deliverables can be viewed via widely available software
- Any input from our clients is greatly appreciated
- If you have any technical questions please phone or email us & we'd be happy to provide an answer

AREAS OF INFRASTRUCTURE INSPECTIONS

IF YOU HAVE A PARTICULAR INTEREST OR CHALLENGE, WE CAN DISCUSS SOLUTIONS ON THE PHONE OR WE CAN SEND ADDITIONAL INFORMATION ON THE FOLLOWING:

- ✓ Dams
- ✓ Bridges
- ✓ Tunnels
- ✓ Culverts
- ✓ Manholes
- ✓ Mine Stopes
- ✓ Ports & Marinas
- ✓ Large Diameter Pipes
- ✓ Traffic Control Plans
- ✓ Mine Tailing Ponds
- ✓ Shafts and Boreholes
- ✓ Specialty Sonar/Laser Surveys
- ✓ Pipe and Cable River Crossing Surveys
- ✓ Internal ROV outfall surveys, minimum diameter 450mm (18")
- ✓ Historical Video Re-coding to New Standards or AI Quality Control
- ✓ Processing Client Collected Sonar & Laser Data

AQUACOUSTIC CAN PLAY A SIGNIFICANT ROLE IN YOUR RISK MANAGEMENT STRATEGY

WHAT CAN WE DO FOR YOU



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Processed 3D Laser Data
of a steel lined culvert

AquaCooustic 
REMOTE TECHNOLOGIES INC.