Technology Report Webinar

Wednesday - July 17, 2020 – 1:00pm Eastern
Webinar Instructions

All attendees are in listen-only mode.

Click “hand raise” icon to ask a question verbally during Q&A session. If you are using a phone for audio, ensure you have entered your audio pin.

Click “?” or “Questions” to submit a written question.
Technology Committee Leadership

• Thomas Young
  *Vice President of Sales, North America, PelicanCorp*
  *Co-Chair, Technology Committee*

• Nick Starke
  *Client Solutions Director, UtiliQuest, LLC / Locating, Inc.*
  *Co-Chair, Technology Committee*

• Joshua Spurgeon
  *Product Owner (Project Manager), One Call Concepts, Inc.*
  *Task Team Chair, Technology Report*

• Jordan Partlow
  *Client Relations Manager, Blood Hound*
  *Task Team Chair, Webinars*

• Alan Goodman
  *Market Development Manager, HammerHead Trenchless*
  *Task Team Chair, Best Practices Review*

• Kari Campbell
  *Marketing Specialist, Berntsen International*
  *Task Team Chair, Technology Campaign*
Panelists – Case Studies

• SeeScan
  Stacey Church, Communications Manager
  Gina Hartman, Director of Product Management

• PG&E
  Aaron Rezendez, Gas Operations, R&D and Innovation

• Leica Geosystems
  Simon Pedley, Detection Sales Manager, Hexagon Geosystems
  Steven Hobson, Sales Manager – Tools Division
  John Adams, Division Manager – Tools Division
Technology Committee

- **Committee Purpose**: Charged with keeping a pulse on technology that will affect the damage prevention industry. The committee focuses on driving the industry to develop and utilize innovative technology that will decrease the probability or consequences of excavation damage.

- **Annual Publication of Technology Report**
  - Technology opportunities/gaps in technology
  - Summary of current industry technology
  - How technology might help prevent damages
  - Technology case studies
Technology Report - 2020

• Technology Opportunities / Gaps in Damage Prevention
• Summary of Current Industry Technologies
• Technology to Address DIRT Root Causes
• **Case Studies**
  • Case Study 1: SeeScan – Geolocating System: A Data-Driven Solution for Locating and Mapping Buried Utilities
  • Case Study 2: Pacific Gas and Electric – Water Extraction Tool Development and Testing to Aid in Legacy Cross Bore Program Sewer Lateral Inspections
  • Case Study 3: Leica – Democratizing Ground Penetrating Radar Technology to Non-GPR Experts for Faster, Simpler, and Reliable Detection of Underground Utilities
Level of Production Guide

Where applicable, we use three “levels of production” to indicate the status of a technology:

- **Red** – being discussed at a level to determine if the manufacture should continue
- **Yellow** – manufacturer has determined to move forward, but is not in full production at this time
- **Green** – in full production and available for purchase

Technology Opportunities aka Gaps in Damage Prevention

This section lists gaps that the CGA Technology Committee has identified from various meetings within the industry. It illustrates opportunities for technology development—a wish list of technology innovations to improve damage prevention.

Summary of Current Industry Technologies

This section provides a basic identification and categorization of current technology in use.

*Note: For questions about a current technology in use or to suggest additions to this catalog, please contact the Technology Committee via our web form or Contact Us page:*

- **Contact Us:**  [https://commongroundalliance.com/about-us/contact-us](https://commongroundalliance.com/about-us/contact-us)
- **Web form:**  [https://commongroundalliance.com/technologyform](https://commongroundalliance.com/technologyform)
How Technology Might Address DIRT Root Causes of Damages

The DIRT Report gives us a look at Root Cause analysis for damages to our infrastructure. We have taken those root causes and used imagination and forethought to apply possible answers for future technology use.

<table>
<thead>
<tr>
<th>Root cause groups</th>
<th>Root cause</th>
<th>Technology that could be utilized—what is possible now</th>
<th>Technology that may be developed in the future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notification Not Made</td>
<td>No notification made to one call (No ticket, no 811 call, no locate request)</td>
<td>Accurate maps of all infrastructure available to excavators</td>
<td>Electronic key for all large machinery. Ticket number must be entered to operate machines.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GPS in the machine matches geospatial information on the 811 ticket. Each machine position must match area of existing ticket or it will not run.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Swarm satellites or drones provide last-minute encroachment analysis on areas with critical underground infrastructure.</td>
</tr>
</tbody>
</table>
Technology Collection Form
https://commongroundalliance.com/technologyform

CGA Technology Collection Form

Do you know about technology? Do you have an idea for new technology, have a problem that needs to be solved, or can you tell us how you’re using technology to help prevent damages? If so then please tell us about it by completing our Technology Collection Form. We’ll collect all of the information and consider using it in our annual Technology and Gaps in Underground Safety Report, or pass it on to another committee for review.

Describe the technology

What technology category does your submission fall into? *
- Locating
- Excavation
- GPS/Digital Mapping/CIS
- Predictive Analytics/Risk Assessment

Provide a short title or name for the technology submission *

Describe how the technology has been used or could be used, or the challenge that could be eliminated by new or improved technology. *
Case Study 1: Annual Technology Report  
GEO® Locating System: A Data-Driven Solution for Locating and Mapping Buried Utilities

**Existing technology** relies on human interpretation and favorable conditions for accurate utility maps
- Trained technicians interpret data the instrument is showing

The GEO® Locating System
- **Transmitter**: Applies multiple frequencies to the utility simultaneously
- **Receiver**: Uses advanced signal processing to gather a substantial quantity of data about the electromagnetic signals in the locate area
- **SubView™**: The system generates a comprehensive map of utilities, backed by data gathered from the locating equipment
- By using data instead of human interpretation, the GEO® Locating System is able to determine the position of the utility’s horizontal position and depth with a high degree of accuracy

Contact: Gina Hartman, Director of Product Management  
gina.hartman@seescan.com
Level of production: Yellow
Case Study 1: Annual Technology Report

GEO® Locating System: A Data-Driven Solution for Locating and Mapping Buried Utilities

Test Case 1: Passive locating with vehicle hitch
San Diego, CA

Results: The vehicle drove through the intersection multiple times over the course of the locate. Map data uploaded to SubView shows the density of signals detected at various depths, revealing the presence of multiple utilities that cross the intersection.
Case Study 1: Annual Technology Report
GEO® Locating System: A Data-Driven Solution for Locating and Mapping Buried Utilities

Test Case 2: Isolating multiple utilities in one area with active locate on foot
San Diego, CA

Results: Data from multiple Geo Locating Transmitters and a single Geo Locating Receiver was uploaded into the SubView mobile app, along with images from the receiver’s optical ground tracker and photos of asset location to create complete map area.

Zoomed in, the map data in SubView shows distinct utilities. Each line was energized with different groups of frequencies.
Case Study 2: Annual Technology Report
Water Extraction Tool Development and Testing to Aid in Legacy Cross Bore Program
Sewer Lateral Inspections

Case Study 2: Water Extraction Tool Development and Testing to Aid in Legacy Cross Bore Program Sewer Lateral Inspections

Company’s Name: Pacific Gas and Electric Company (PG&E) and ServPro Industries, LLC.
Contact Name: Aaron Rezendez, PG&E, and Ivan Espinal, ServPro
Contact Email: aaron.rezendez@peg.com and jespinal9542@sbrglobal.net
Area of Technology: Cross bore prevention and identification
Level of Production: Green

Pacific Gas and Electric Company (PG&E) has a cross bore inspection program to identify and remediate gas cross bores and a public outreach program that provides safety information to PG&E customers, sewer districts, and public works agencies. The program uses video camera inspections to verify that no damage has occurred to sewer lines when using trenchless construction methods on new construction projects.

The goal of the program is to identify cross bores by completing inspections of potential conflict locations and repairing all occurrences as they are discovered. PG&E completed approximately 46,045 inspections in 2018 (bringing the total to 181,430 inspections since 2013). In 2018, PG&E found approximately 1 cross bore per 1,000 inspections.

Figure 13 (left-right)— Plumber’s snake modification to the hose to assist with p-trap navigation. Water extraction and camera inspection occurring simultaneously at a multi-family complex.
Case Study 2: Annual Technology Report
Water Extraction Tool Development and Testing to Aid in Legacy Cross Bore Program
Sewer Lateral Inspections

(left-right)—ServPro van and the interior showing vacuum hose and pumping system. Water storage tank (not pictured) is directly behind the pump.
Case Study 2: Annual Technology Report
Water Extraction Tool Development and Testing to Aid in Legacy Cross Bore Program
Sewer Lateral Inspections

(left-right) — Inspection crew inserts optical camera at curb cleanout. ServPro crew inserts WET at property line cleanout. Real-time view of optical camera screen showing water being extracted.
Case Study 3: Democratizing Ground Penetrating Radar Technology to Non-GPR Experts for Faster, Simpler, and Reliable Detection of Underground Utilities

Since the 1970s, ground penetrating radar (GPR) technology has been used primarily by highly skilled and experienced professionals trained to interpret difficult radar grams for detecting and mapping underground utilities. Achieving high-skilled interpretation can be an issue because achieving the best results requires a high degree of training and experience on the equipment. This article discusses new cutting-edge GPR technology that allows unskilled GPR users to locate, avoid, and map underground utilities in a simple, fast, and reliable way in the field. By opening the world of GPR to those with limited GPR knowledge, the new technology provides for safer excavation practices and leads to fewer utility strikes.
Case Study 3: Annual Technology Report

Democratizing Ground Penetrating Radar Technology to Non-GPR Experts for Faster, Simpler, and Reliable Detection of Underground Utilities

Visualization of captured vs real-world data
Case Study 3: Annual Technology Report
Democratizing Ground Penetrating Radar Technology to Non-GPR Experts for Faster, Simpler, and Reliable Detection of Underground Utilities

Screen shot of finger swipe to identify utility.
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To select multiple options, hold down the Ctrl key while selecting options.

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Active CGA Participation

Join a committee today!

- Best Practices
- Educational Programs and Marketing
- Data Reporting & Evaluation
- One Call Systems International
- Regional Partners
- Stakeholder Advocacy
- Technology Committee

support@commongroundalliance.com
Upcoming Meetings & Events

• July 20-22, 2020  
  Virtual Committee Meetings

• November 16-29, 2020  
  Committee Meetings
Contact CGA / Technology Committee

Common Ground Alliance
• Erika Lee, Vice President – erikaa@commongroundalliance.com
• Steve Blaney, DIRT Program Manager – stevenb@commongroundalliance.com
• Sarah Magruder Lyle, President – sarahl@commongroundalliance.com

Technology Committee or Report Questions
technologyreport@commongroundalliance.com