PSLS 2021 Education Session Descriptions

Monday January 25, 2021

101 Laser Scanning: Choosing the Best Solution

Kenneth Fronheiser, PLS, Frank Hahnel III

8:00 am – 10:00 am

The method (art) of data capture has greatly changed over the years. One of the more advanced ways of collecting data is to use a Laser Scanner. From a Professional Land Surveyor turned Sales Consultant I am often asked what the difference is between "these scanners". When considering taking the "dive" into this type of advanced technology, it can be difficult to choose the scanner that meets all of your needs. Laser scanners today sit on tripods, are mounted on top of vehicles or can be handheld. This session will look at various laser scanners that Trimble offers and their associated workflows. We will conclude the presentation by looking at customer stories (case studies) and how they used laser scanners to maximize their time and profits.

102 Monitoring Surveys

John Hamilton

10:30 a.m. – 12:30 p.m.

Many types of structures require monitoring during construction and throughout the life of the structure, at various accuracies. In addition, mining and tunneling often causes surface subsidence. This workshop will detail various methods used to monitor structures and for ground subsidence, how to perform a pre-survey accuracy analysis, reduction of data, adjustments, and presentation of results. Various real-life examples will be presented and discussed.

103 Bathymetrics Surveys with Unmanned Device

Rick Johnson

1:00 pm – 3:00 pm

The workshop will discuss the field procedures and best practices for completing bathymetric surveys with unnamed devices.

201 Digitally Capturing Ancient Italy

Rob Sinclair, Rick Celender, Matthew Bainbridge, Mark Deitrick

9:30 a.m. – 12:30 p.m.

This interdisciplinary team of surveyors, engineers, designers, architects, scanning technicians, drone pilots, educators, and software experts will share their recent experiences working to digitally preserve historical sites in a small Italian town using technologies such as terrestrial LiDAR scanners, unmanned aerial systems, ground-penetrating radar, kinematic LiDAR, Matterport, 360° camera technology, and GNSS systems. Relevant software programs and workflows will also be discussed in regard to processing this data and tying it into survey

control. The team will also cover online cloud platforms and migrating the data for use in augmented reality (AR) and virtual reality (VR).

202 Writing Legal Descriptions

Robert Miller, PLS

1:00 p.m. – 4:00 p.m.

This session is intended for both surveyors (in varied roles and responsibilities) as well as those outside the profession that are involved with the preparation of legal descriptions. The content of the session is focused on legal descriptions for real property and/or easements. The workshop will review parts of a legal description and how to assemble the information in each part. Different types of descriptions will also be discussed. Common mistakes and tips in preparing descriptions will be reviewed during the session. Time is allocated to the attendees having an opportunity to draft simple descriptions.

Monday, March 1, 2021

301 – GIS for Surveyors

Jeffrey Horneman, PLS

9:00 a.m. – 12:00 p.m.

The class is designed to enable surveyors to better understand the role of GIS both within Architecture and Engineering (A&E) projects and outside of these traditional standards. Students will gain a grasp of usage and limitations of existing data, and creation of their own GIS datasets.

Real world empirical data will be used to show actual examples.

Question and Answer period afterwards, and information for on-site class availability

302 High Intensity Soil Mapping for Land Development Planning

Laurel Mueller, CPSS

12:30 p.m. – 3:30 p.m.

High intensity soil mapping for land development planning (sewage systems, stormwater, and wetlands). Project-wide, permit-driven detailed soil maps are for preliminary land development concept planning. Learn how a detailed soil inventory can lead to more efficient project layouts though permits, while reducing conflicts between stormwater and sewage facilities, avoiding wetlands and waters.

Planning Modules:

Regulations, Act 34, Exception, Exemption, Supplement, Revision
How to assemble a Component 2 Planning Module
The Sewage Facility Plan - the unwritten rules for marginal conditions, bracketing.
Sewage Management Programs
Deed recorded maintenance agreements and replacement site protection

401 FEMA Elevation Certificates and Zone A BFE Determinations (PART 1)

Thomas Smith PE, PLS

9:00 a.m. – 12:00 p.m.

It is intended that the participants will attend part 1 and part 2 of the workshops.

The goal of this seminar is to instruct the attendees to complete the FEMA Elevation Certificate. The instructions will include how to find the latest FEMA forms and the tools needed to complete the Certificate for detailed study streams (AE Zones) and for approximate Flood Zone (A) streams. The presentation will discuss the field data needed to complete the forms, including the use of Google Earth and datum conversion using VERTCON software. A detailed example of an Elevation Certificate survey will be discussed.

402 FEMA Computations to Establish Base Flood Elevation (BFE) for a Zone A System – Part 2

Thomas Smith PE, PLS

12:30 p.m. – 3:30 p.m.

This workshop is a continuation of Part 1 and assumes the usere has knowledge of FEMA Elevation Certificates and experience in completing the information required.

A FEMA Zone A stream is one where no detailed study has been completed by FEMA; therefore, no Base Flood Elevations (The so-called 100-year flood elevation). This workshop will cover the use of FEMA maps with field surveyed cross-sections to determine the BFE using approximate methods. The use of the USGS StreamStats model will be covered to determine peak flows for an actual watershed. Detailed methods will also be covered to determine flood flows and BFE elevations with cross-section data. The FEMA eLOMA (electronic letter of map amendment) will be discussed, which allows the removal of structures or property mapped within the flood plain. Presentation of several case studies to illustrate various types of projects.

Monday, May 3, 2021

501 Surveying in Forensics and Public Safety

Ryan Rezzelle

9:00 a.m. – 12:00 p.m.

This workshop will look at the application of Surveying methods in forensic science, event reconstruction, and general applications across the public safety industry. The process of extracting meaning from measurement data has deep roots in crime and crash scene forensics. This workshop will discuss briefly the the history of use of the measurement sciences in police work and present an overview of the current technology in use and discussions and examples of each current area of use.

The speaker is a former practitioner with 15 years of investigation case work in which total stations and 3D scanners have been deployed for the purposes of reconstruction crashes and

crime scenes. In 2015, while posted with the Johnson County Sheriff's Office (KS), his team began scanning their courthouse for the purposes of building an active shooter response plan. These are some of the applications he has been involved with directly; however over the past 5 years, his role as program manager for the Leica Geosystems Public Safety Group has presented him with the widest range of situational uses of Surveying in Forensics and Public Safety and he will share all of this in this workshop.

502 Ethics and Professionalism
Donald Housley, PLS
12:30 p.m. – 3:30 p.m.
A discussion regarding the Engineer, Land Surveyor & Geologist Registration Law - Act 367.

Specifically Section 4 (g) - "a code of ethics"

Section 4 (g) - "Suspension & revocation of licenses; Registration & Certificates; Reinstatements & Powers of the Board to discipline"

601 PA Act 82, the Uniform Condominium Act
Jonathan Tabas, PE, PLS
9:00 a.m. – 12:00 p.m.
This class will include an in-depth discussion and review of Act 82 of 1980, The Pennsylvania Uniform Condominium Act, including preparation of the Declaration Plan for creation of a Condominium in Pennsylvania.

602 To Be Announced
12:30 p.m. – 3:30 p.m.

Monday, July 12, 2021

701 Railroad Right-of-Ways – Part 1
Gary Kent, PLS
9:00 a.m. – 12:00 p.m.
Professional Surveyors frequently encounter railroad rights of way in their work as they retrace boundaries, deal with questions of seniority between public roads and railroads, address abandonments or reversionary rights, or guide clients on their needs for easements, permits or licenses over railroad rights of way. In the process they often face confusion over the status of a railroad right of way: Is it a fee ownership or just an easement? Is it abandoned or just inactive? Is it active? How does one know? How does one find Railroad Valuation Maps and vesting deeds? What about "Rails to Trails?" In Part 1 of this program, we will review the definitions of easements, licenses and rights of way, and demonstrate the challenges of determining the interests that railroads acquired for their rights of way by reviewing a series of acquisition documents and related court decisions.

702 Railroad Right-of-Ways – Part 2

Gary Kent, PLS

12:30 p.m. – 3:30 p.m.

Professional Surveyors frequently encounter railroad rights of way in their work as they retrace boundaries, deal with questions of seniority between public roads and railroads, address abandonments or reversionary rights, or guide clients on their needs for easements or licenses over railroad rights of way. In the process they often face confusion over the status of a railroad right of way: Is it a fee ownership or just an easement? Is it abandoned or just inactive? Is it active? How does one know? How does one find Railroad Valuation Maps and vesting deeds? What about "Rails to Trails?" In Part 2 of this program, we will review the railroad abandonment process and a number of related and significant federal and state court decisions regarding railroad rights of way including Preseault v. Interstate Commerce Commission (U.S. Supreme Court, 1990), Clark v. CSX (2000), Howard v. U.S. (2012). We will also exam the National Trails System Act of 1969 and its amendment in order to better understand "Rails to Trails" and how timing, and the standing of a railroad's right of way, are critical in attempts to establish of trails.

801 Taking You from the Field to the Finish Line with Carlson Software

Michael Hyman

9:00 a.m. – 12:00 p.m.

Utilizing Carlson SurvCE/SurvPC and Carlson Survey students will gain a better understanding about the core 'Field-to-Finish' process. We will take a systematic approach for someone who is just getting started and help users who have started the process go to the next level. How it can be adapted for both the office and the field vs. how intimidating it can be even if you've never done it before. This will be a 'hands on' class with interactive Field-2-Finish learning. From there we will create surfaces for contour map creation. We will also look how you can collect GIS attribute data within your field-to-finish field activates and what deliverables are needed. Additionally, we will discuss how your field-to-finish collection/office processing data can assist any firm with the movement of 3D Points, 2D and 3D Line-work and 3D Surface stakeout and output. Additional items that will be reviewed: Survey Points/Drawing and locating of Survey Points/Using Coordinate Files Effectively within your Survey/Real Time-Cloud Survey Data-from 'field-to-office' and 'office-to-field'/Surface Model and Contour Map Creation/Point Rotation and Translations/Google and other image sources for your survey with Carlson Survey and Carlson SurvCE/SurvPC.

802 Sewage System Topics: Planning Modules, Spatial Requirements, Alternate Systems

Laurel Mueller, CPSS

12:30 p.m. – 3: 30 p.m.

Review of Onlot Alternate Technology Systems - what they are, how they work, and where they fit. Spatial requirements for onlot sewage systems. Learn how to anticipate sewage system footprints that could extend over property lines, stream, or wetlands. We will address soil depths, soil testing, percent slopes, loading rate reports, and site requirements for all types of conventional and alternate sewage systems. We will develop preliminary designs to estimate

the areal exents required for various absorption areas.

Monday, August 2, 2021

901 Clean and Green Subdivision – Surveying and Subdividing Preserved Farmland

D. Robert Davidson

9:00 a.m. – 12:00 p.m.

Surveyors need to understand the Clean and Green Act regulations and the implications of violations. Failure to understand the regulations governing the transfer of property enrolled in Clean and Green could result in significant roll-back penalties. This program will present information on the sale and subdivision of property enrolled in Clean and Green and how to avoid unexpected penalty costs. Consequences of an unintended violation could be significant and may be considered malpractice.

The Pennsylvanian Agricultural Easement Purchase Program enables the state and county governments to purchase conservation easements. The program has criteria to determine if a boundary retracement survey is required for easement and provides specific survey and plat requirements. There are also very specific subdivision requirements for preserved properties. This program will discuss survey and subdivision requirements.

902 The NEW 2021 ALTA/NSPS Land Title Survey Standards

Gary Kent, PLS

12:30 p.m. – 3:30 p.m.

After 2 years of work on the part of two national committees, the proposed 2021 ALTA/NSPS Land Title Survey Standards were adopted by the Joint ALTA/NSPS Committee and sent to ALTA and NSPS for consideration. The new Standards will become effective on February 23, 2021. The changes from 2016 will be discussed and an explanation of what each means to the surveyor will be provided. In addition, along with an overview of the entire set of 2021 Standards, we will discuss the most common questions and requests from lenders that arise in the process of performing or completing a Land Title Survey and how the surveyor should or could respond.

1001 Trimble Business Center Part 1

Kenneth Fronheiser, PLS

9:00 a.m. – 12:00 p.m.

This workshop will take a look at three popular workflows within Trimble Business Center.

1. Field and Office workflows of Adjusting a Traverse

2. Point Cloud processing tools within Trimble Business Center

3. Field to Finish

Implementing these workflows will save you time and money as well as enhance your client deliverable.

1002 Remote Sensing Processing (Individual, Cloud-Based)

Matthew Bainbridge, Rob Sinclair

12:30 p.m. – 3:30 p.m.

This workshop will take a look at three popular workflows within Trimble Business Center.

1. Field and Office workflows of Adjusting a Traverse
2. Point Cloud processing tools within Trimble Business Center
3. Field to Finish

Implementing these workflows will save you time and money as well as enhance your client deliverable.