

Ontario Professional Surveyor



on the cover ...

Toronto, Ontario
Site of the 127th AGM

also in this issue ...

Spinning an Arctic Yarn
The Difference Between
Public and Private Locafes
Open Data, Cooperative Education and Doathons:
Building Sustainable Cities and Communities

plus our regular features

Educational Foundation
News from 1043
Book Reviews
Sites to See



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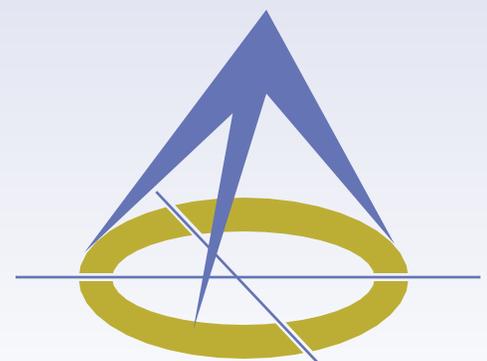
ON THE COVER ...

The 127th AGM will be held at The Westin Harbour Castle in Toronto from February 27 to March 1, 2019. The photo on the cover is taken at the Harbourfront Centre which is just west of the hotel. Credit Tourism Toronto.

*Professional
Surveying
in
Ontario*

*encompasses
the
Disciplines of*

*Cadastral,
Geodetic,
Hydrographic,
Photogrammetric
Surveying
&
Geographic
Information
Management*





President's Page

By Dan Dzaldov, O.L.S., O.L.I.P.



As my year gets closer to its conclusion, I would like to reflect on a number of key initiatives and tasks that Council has moved forward on.

Our engagement and co-existence with our sister Associations has reached a very high level. AOLS participated in the Pathways to Foreign Credentials Recognition for Foreign Trained Land Surveyors. We have committed to rejoining the Canadian Board of Examiners for Professional Surveyors (CBEPS) next year and we have worked together on a number of initiatives. However, none is more powerful and meaningful to me than the collaboration on national education; a concept that started with a discussion at our Strategic Planning session in May and one that ACLS is leading. If it is successful, it will make surveying education more accessible to candidates irrespective of where they reside and help us to attract more people to our Profession. This coupled with the current number of Articling students in Ontario sitting at about 100, and the highest number of newly licensed Surveyors in many years in 2018, is making our goal to finally turn the corner and increase our membership a reality. We will be presenting more details about the national strategy at our annual meeting.

As your President, I most recently travelled to Cape Breton, Nova Scotia in October and I will conclude my travels across Canada shortly with a stop in New Brunswick. Shawna and I have made some great friends this year and we look forward to hosting delegates from every province at our Annual meeting in Toronto. Our AGM is shaping up to have an impressive slate of professional speakers to educate and entertain you. The AGM Committee's goal is to motivate, invigorate and encourage all registrants to walk away from each session wanting to be the best they can be; to represent our Association to the best of their ability; to reinforce our ability to be leaders in society and as well to be great ambassadors. I look forward to seeing every member at the meeting and thank you in advance for not only your attendance but also for your active and meaningful participation.

I would like to conclude by offering my sincerest thanks to a number of people.

I will start by thanking my family for always supporting me and especially during this journey as President. A special thanks to my incredible staff for their continued support and dedication to our firm. Warm thanks to my brother and partner, Ophir for covering and supporting me this year as President.

I would like to thank all of Council for their efforts and support as well as members of the many committees and task forces for their time and efforts. It has been a pleasure working with everyone one of you. I would also like to thank the people at the Association office, from our esteemed and highly respected leader and Executive Director, Blain Martin, who somehow always has his pulse on all matters that need to be addressed, who has Council always ready and able to deal with ongoing concerns and issues during the year, and especially for his presence at Council meetings...and to every staff member at the AOLS office who works so hard to make our Association the proud and successful organization that we are.

I would like to add a special personal acknowledgement to our Registrar of the last 18 years. It is very easy for me to determine how long Bill has been at his position, as ironically or perhaps fittingly, I was the first Ontario Land Surveyor and the last President sworn in by Bill, and sadly it appears I will be President when Bill retires. At our last Council meeting in November, I was able to take a few moments to speak about what Bill has meant to our Association and to me. He has always carried out his role at the highest professional level. His ability to speak to the public on a daily, perhaps, hourly basis is a skill he developed very early on and one that we are all incredibly appreciative of. I have called upon Bill for his opinion many times, both before and during my term on Council and I can honestly say he has never failed to amaze me with his knowledge and candor in his responses and advice. I have no doubt that almost every member of our Association would have similar commentary for him. I can conclude by simply saying Bill will be missed at the office, at our Council meetings, at South Central meetings, at annual meetings and at the other end of the phone by all members and the public. Bill, we have learned a great deal from you and your efforts have helped shape our Association and will certainly continue to act as a guide for the future. We all wish you the very best of health and happiness for many years as you transition to retired life. Thank you Bill!

Finally, to everything there is a season, and a time to every purpose, a time to plant and a time to sow that which has been planted. A time to learn and a time to teach. This has of course been paraphrased from the work of Ecclesiastes.

For a number of years I served as a Council member and in more recent years as a member of the Executive Committee. During my time on this committee, I learned a lot about our Association. I appreciated its strengths while at the same time

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Executive Director's Notes

By Blain Martin



After over nine years as the Executive Director of the Association of Ontario Land Surveyors (AOLS), it feels strange to be writing my last Executive Director's article for the Ontario Professional Surveyor. I had fully expected to be in this position until the summer of 2020 but a couple of weeks ago the decision to retire snuck up on me.

I was sitting in Tom Packowski's office in the AOLS basement and we were talking about training for the new Survey Review Department consultants. Near the end of the conversation I felt pains in my chest that would not seem to go away. I did not say anything to Tom but I did get up to walk up the stairs. I stood just outside Bill Buck's office wondering if that defibrillator that we purchased a few years ago would finally be put to use.

The pain disappeared as quickly as it arrived but it really scared me and reminded me that I am almost 70 years old. I spoke to my wife, Paula about it and she said that for some time now she has been worried about me. She knows I have not been sleeping properly and often sees me getting up in the middle of the night to make notes about the things that are worrying me.

We talked about when I would resign as Executive Director (ED) and we decided that I should resign sooner than expected, perhaps even before the next Annual General Meeting (AGM). I cannot say enough about how intense setting up and operating the AGM is for me and for all of the AOLS staff. Each AGM has a bittersweet feeling where the stress of making it successful is matched with satisfaction once it is finished.

As I thought about retiring, I thought about the many aspects of the ED job that are both rewarding and demanding. One of the toughest things is reporting to a new Council each year and not knowing what direction the new Council will go until they have been officially installed in their positions.

I identify the changing of Council as one of the biggest hurdles for me. It has been somewhat mitigated by organizing a "strategic planning" session as one of the first meetings as each new Council comes into place. I believe that having this Strategic Planning session each year, facilitated primarily by my MBA Strategic Planning Professor, Peter Richardson, has been one of the key contributors to what we have accomplished for our profession during my tenure as ED.

My first Council Meeting was in July of 2009 and this was during the transition period from Jim Statham's tenure as ED to mine. Since then I have organized 112 Council meetings. Each Council Meeting is almost like a mini

AGM with at least two weeks of preparation and work to ensure that all the topics of the day are covered and all of the supporting information included for the Councillors.

Another one of the key contributors to the accomplishments over the last 9 years is the wonderful staff at the AOLS headquarters. I have come to consider all of the staff at the office as my closest friends. Each and every one of the AOLS staff is truly fabulous at getting their jobs completed and in being an absolute joy to work with. My hope is that the office carries on in the same fashion as it does now after I am gone.

If there is any lasting legacy I am leaving it is the book, *Great Lengths*, that author Charlie Wilkins created. It originated from a vision that I had for a publication that used history to illustrate the spectacular profession that we are involved in. My vision stemmed from receiving a copy of Bob Gunn's manuscript titled, "A Brief Historical Review of Surveying Programs at the University of Toronto 1888 to 1997".

Bob's manuscript is fabulous but was limited to education. I thought the AOLS book could use Bob's idea of history but also include surveyors' personal stories to illustrate the impact our profession has on society as a whole. I also wanted it to be interesting for the public to read. Charlie did a marvelous job of fulfilling that vision.

Mentioning Bob Gunn leads me to think about Erindale. Many of you know that I was part of the first graduating class of the Survey Science program at Erindale College. That program was fundamentally created by the AOLS. There were 20 in my class; many of whom you know quite well. Maureen Mountjoy is one, Izaak de Rijcke another and Past President Jim Statham a third. All three of them, along with Past Presidents Peter Stringer and Paul Church, have had a tremendous impact on our profession.

Only one member of our class has passed away and I truly miss him. In John Ward's final email dated March 26th, 2012, which was sent to a few of his friends, he said, "Take care of yourselves and each other." It is time for me to take John's advice and take care of myself. Please do not conclude from this that I have any health problems. So far I do not, but I am almost 70 years old and I would like to have several years of retirement to enjoy with my wife before real health problems start, as they will for all of us.

I want to conclude by thanking all of the AOLS members for your commitment to our profession and for your support during my tenure as your Executive Director. It has been a truly rewarding experience!



Complaints Committee – Part 3 – Statistics & Analysis

By Dave Kovacs, Complaints Committee Chair

This is the 3rd and final installment of my series of articles on the Complaints Committee. In Part 1, I described the roles and responsibilities of the Complaints Committee, which included the statutory composition of the Committee, the objectives of the Committee, and the Committee's powers as prescribed by Section 22 of the Surveyors Act. In Part 2, I discussed the powers of the Committee (including limitations) as they relate to Interim Decisions, and what happens if YOU are the subject of a complaint.

In this final article, I would like to present a series of statistics that help to illustrate and summarize the results of over 300 official complaints made between 2000 and 2017.

Complaints Statistics:

The Registrar maintains an up to date summary of all complaints, including the names of the parties and the topic of the complaint. The Complaints Committee reviews this summary at least once per year to determine whether many complaints are similar in nature, or whether a particular member has received an unusual number of complaints. This may indicate that the membership in general should be advised to be aware of particular behaviours that may lead to a complaint.

I have taken some of the data compiled between 2000 and 2017 to construct the following charts and graphs.

Year	Chart 1		
	No. of Complaints	By Surveyors	By the Public
2000	22	2	18
2001	12	2	8
2002	19	2	12
2003	8	4	4
2004	13	1	10
2005	18	2	16
2006	21	8	16
2007	12	2	10
2008	17	1	16
2009	11	2	8
2010	21	5	16
2011	11	2	9
2012	22	7	16
2013	24	4	21
2014	30	3	27
2015	14	5	9
2016	19	1	19
2017	19	5	16
Total	308	58	256
Averages	17 (100%)	3 (17%)	14 (82%)

Chart 1.

Chart 1 shows the number of complaints that were made each year between 2000 and 2017 and whether the complaints were made by the public or by other surveyors. Since the year 2000, there have been just over 300 complaints, resulting in an average of about 17 complaints per year.

- Total complaints have ranged in frequency from a low of 8 in 2003 to a high of 30 in 2014.

- Complaints from other surveyors ranged from a low of 0 in 2005 to a high of 7 in 2012.
- Complaints from the public ranged from a low of 4, again in 2003 to a high of 27 in 2014.

It is important to note that the number of official complaints that the Committee actually sees does not even begin to reflect the number of enquiries that AOLS staff, primarily the Registrar, receive regarding the behavior of our members. Most of these complaints are resolved without an official complaint being made.

Chart 2 illustrates in graph form, the numbers tabulated in Chart 1.

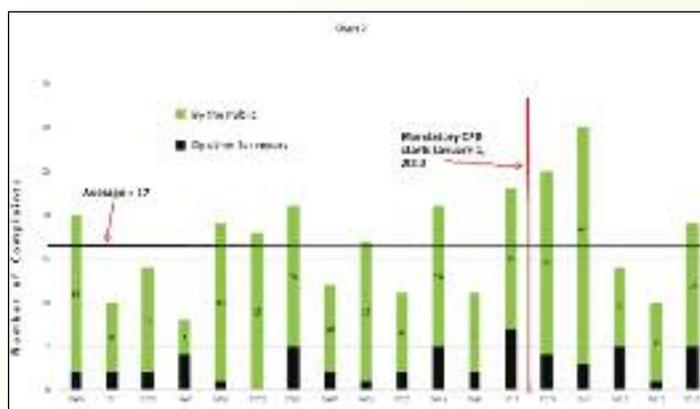


Chart 2.

The green bars indicate the number of complaints lodged by the public. The black bars indicate the number of complaints lodged by other surveyors. Note the horizontal line representing the average of 17 complaints per year. Also note the vertical line that shows when mandatory Continuing Professional Development (CPD) began on January 1, 2013. There appears to be a noticeable rise in complaints immediately following the implementation of CPD, followed by a significant drop. This would lead one to believe that CPD was indeed correlated to the decline in complaints. However, this supposition was quelled when we

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experienced a sharp increase in complaints in 2017. More annual data will be required to determine if there is indeed a trend related to the implementation of CPD.

Chart 3 illustrates what stage a complaint may fall under.

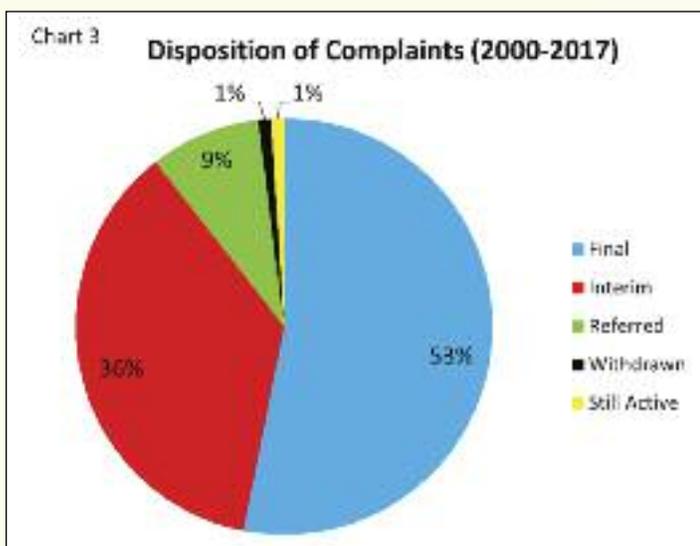


Chart 3.

To clarify:

- **“Final”** indicates that the complaint was essentially dismissed, with no further action required by the member. These decisions make up 53% of the total decisions issued by the Committee;
- **“Interim”** means that the member was not referred to Discipline or Council, but the committee did issue what is termed an Interim Decision that required some remedial action by the surveyor. Interim decisions make up 36% of the overall decisions issued by the Committee.
- **“Referred”** means that there was enough compelling information submitted to the Committee that could be considered a violation of the Standards of Practice or the Code of Ethics, and hence constitutes Professional Misconduct, that warrants a referral to Council, perhaps with a recommendation that the complaint be referred to Discipline. Referrals to Council only make up 9% of the total decisions issued by the Committee.
- **“Withdrawn”** simply means the Complainant no longer wishes to pursue the complaint. Perhaps the surveyor took some remedial actions to resolve this issue during the course of the complaint and before a decision was issued. The Committee may still want to review the complaint on its own merits to determine if there were any instances of Professional Misconduct that led up to the complaint being filed in the first place. Withdrawals make up only 1% of all complaints.
- **“Still Active”** means that we may be still working on it. There is only one outstanding complaint still from 2017 that is reflected in this data. Sometimes, due to health reasons of the Complainant or the surveyor, or ongoing legal proceedings outside of AOLS functions, the

Committee may choose to suspend the file until both parties are prepared to resume the complaint. While the data shows that 1% of complaints are still active, the actual number of open files is less than 1%.

Chart 4A illustrates the average disposition of complaints by the type of complaint filed.

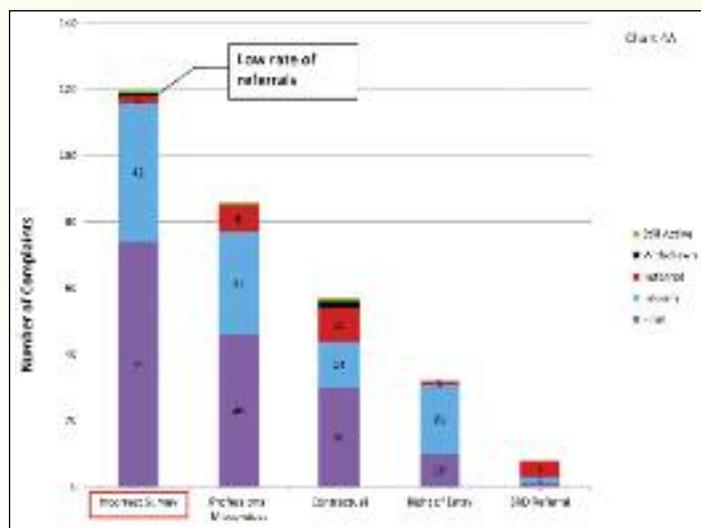


Chart 4A.

This data is interesting because it gives an indication of the “seriousness” of each type of complaint. For example, not many “incorrect survey” complaints get forwarded on for referral. This may suggest that the alleged “incorrect survey” was actually a lack of communication or a misunderstanding that was resolved through the complaints process.

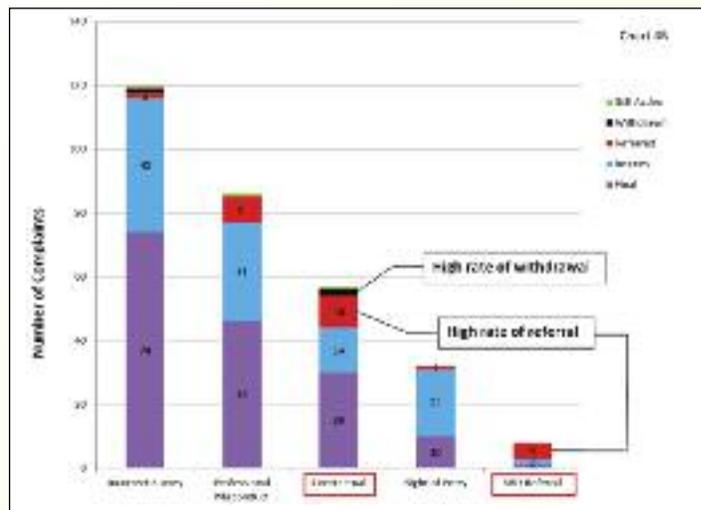


Chart 4B.

However, “contractual” and “Survey Review Department (SRD) Referral” complaints do show a higher rate of being referred to Council. In the case of an “SRD referral” the data may suggest that the surveyor was not able to demonstrate a noticeable improvement in their survey practice as recommended by the SRD. In the case of “contractual” complaints, the data may suggest that there was a violation

of the terms of a contract between the surveyor and the client. When it comes to “contractual” complaints, it is typically repeat offenders who receive referrals to Council. Ironically, “contractual” complaints also appear to have the highest rate of withdrawals. This could be due to the surveyor reducing their fee for service if it is a fees dispute, or perhaps coming to some other agreement prior to a decision being made by the Committee.

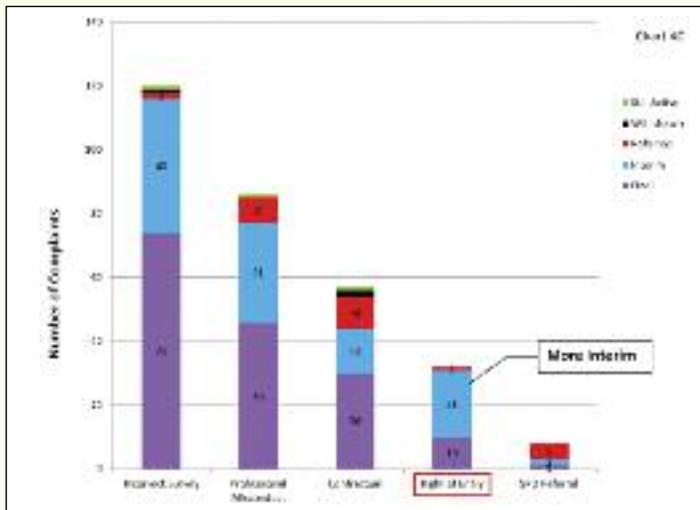


Chart 4C.

Under “right of entry” complaints you will notice that there are far more interim decisions issued than anything. This could be attributed to the Committee requesting that the surveyor and their staff review Section 6 of the Surveys Act along with the right-of-entry bulletins, or perhaps complete the Memorandum of Understanding regarding right of entry. The Committee will often ask for proof that this has been done before issuing a final decision.

Chart 5 indicates the major categories of complaints.

Nature of Complaint	Total	Surveyor	Public
Incorrect Survey	120	17	103
Professional Misconduct	96	22	64
Contractual	57	6	51
Right of Entry	32	0	32
SRD Referral	8	8	0
Total	303	53	250

Chart 5.

From the data above, you will note that the majority of complaints relate to accusations that a survey is incorrect or that there has been some sort of misconduct on the part of the surveyor.

Let’s look at this data in greater detail. Chart 6 indicates the occurrence of the types of complaints by percentage.

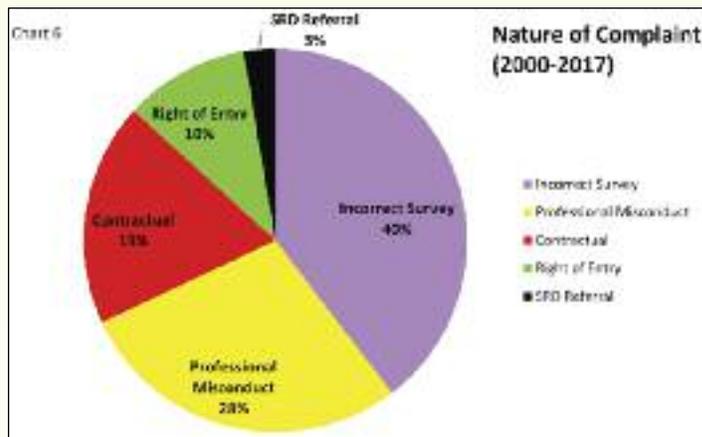


Chart 6.

Incorrect Survey

Around 40% of complaints are related to the perception that the member has provided an incorrect survey.

Some additional analysis of this data reveals that although 62% of these were dismissed, 38% did require further action on the part of the member, and two were referred to Discipline. In many cases, the Committee needed to request additional information from the surveyor to determine if sufficient research had been performed. Most of the cases for which additional action was required can be related to the requirements of Regulation 216/10, namely a review of the project before it starts and a report after it is completed. For the majority of these complaints it was not a question of the survey being wrong, but rather a misunderstanding about what was to be provided or a failure to review the project with the client when it was completed.

Professional Misconduct

Regulation 1026 defines what constitutes professional misconduct. Listed under this Regulation are 21 items; some are very specific while others are more general in nature. Professional misconduct comprises 28% of the total complaints between 2000 and 2017. Complaints of misconduct submitted by other surveyors do usually fall into one of the statutory definitions, and almost all of the complaints in the category of Professional Misconduct that were referred to Discipline or Council were made by other members. Public complaints alleging misconduct however, don’t often fall into any of the statutory definitions in the Regulation and are often related to the poor behavior of the surveyor. Public complaints have included allegations of rudeness, or failure to respond to a request that the complainant feels is unprofessional.

Contractual Complaints

Misunderstandings about the scope and cost of a project have become one of the major causes of complaints. Contractual complaints comprise 19% of all complaints and may include such things as perceived over-billing, or the client not receiving the service they thought they paid for. Verbal agreements, in place of proper written contracts, are

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the number one issue in this category of complaints. Regulation 216/10 under the Surveyors Act implies that a project should include the signing of a written contract or Work Order that clearly specifies the expectations of both parties. There is no reason to not have a written agreement with your client.

Right of Entry

This type of complaint comprises 10% of the overall complaints between 2000 and 2017. Public complaints about surveyors or their employees trespassing on private property have made a resurgence over the last few years and remain one of the more common complaints, with as many as five such complaints in 2014. As discussed in my previous articles, it is imperative that you and your employees are aware of the surveyor's rights and responsibilities under Section 6(1) of the *Surveyors Act*. AOLS Bulletins 1990-035 and 2005-01 give good summaries of this topic and reinforce that training staff to make reasonable attempts to contact land owners or residents is essential. If the property owner is not home, leave a business card or a door hanger. Door hangers that indicate that you have been at their property are available from the Association. Field staff should carry company identification, including business cards of the managing OLS.

Have your business logo on your hat or jacket, and definitely on your vehicle. Who knows, it may even lead to additional business.

Survey Review Department Referral

An SRD referral reaches the Complaints Committee through the Registrar; it is actually the Registrar who files the complaint with the Committee on behalf of the SRD. SRD referrals are not so common and only make up 3% of all the complaints between 2000 and 2017. SRD referrals seem to be a relatively new trend with a noticeable increase in the amount of referrals over the last 5 years. In fact, there were no referrals between 2000 and 2012, but then we received 8 between 2012 and 2017, with 3 of them coming in 2017. Further analysis of annual data will hopefully reveal the cause of this trend.

Conclusion

The data compiled between 2000 and 2017 suggests that around 75% of the membership have never had a complaint filed against them, so in general I think we are doing pretty

well. Here are a couple points of advice that I'd like to leave you with so you hopefully never have to deal with our Committee:

- Heed the recommendations made by the Survey Review Department in their Comprehensive Review. This review is done for your benefit and aligns mainly with the regulations under the *Surveyors Act* and the *Surveyors Act*. We are very fortunate to have a peer review process, so try to work with the system rather than against it.
- Make sure your client is fully aware of the services being provided and the costs associated with those services. Provide your quotations in writing, and have you and your client sign and date every agreement or change in scope. Take the time to meet with your client before and after you have provided your services.
- Have a reliable system in place for taking work orders, forms for doing research and a standardized check list for checking plans. Review Regulation 216/10 under the *Surveyors Act*, particularly for what defines projects, reports and records.
- Ensure you and your staff are aware of your rights and responsibilities when it comes to right of entry. Review the Bulletins and Section 6(1) of the *Surveyors Act*.

And the most important point is under the Code of Ethics, section 33 (2)a:

"The code of ethics of the Association requires that every member shall conduct his or her professional and private affairs in such a manner as to maintain public trust and confidence in the profession".

Serving the public interest is the principal object of our Association. Embrace that philosophy in your professional practice. We are a self-governing Association and we must hold ourselves to a higher standard of care and level of trust. Without the public's trust we no longer have any credibility as professionals. With so much information now available at the click of a button, whether it's right or wrong, we are constantly being scrutinized and challenged by the clients we serve. We need to be extra diligent and take greater pride in our profession, more now than ever, and hopefully reclaim some of the respect and prestige that I feel has been lost over time.



President's Page (cont'd from page 2)

recognized some of its weaknesses. I strove to make improvements. I would like to think that I participated to the best of my ability as a teacher, a student and a sower of seed.

It is almost a year that I have served as President of the Association and on reflection I recognize that while I am quite satisfied with my work in furthering the aims, and in some

cases, the functionality of the Association, there is much more work to be done for those who follow me.

My commitment to the Association will not end when my tenure as President ends. I will endeavour to be a meaningful Past President and assist Council to the best of my ability for the year that follows.

I look forward to greeting and seeing everyone next month at the AGM in Toronto.



I Attempt to Walk the Straight and Narrow

By David Coombs

This is David Coombs' second article for the Ontario Professional Surveyor. His first article "Where in Blazes Am I?" appeared in the Summer 2018 issue.

I was standing on a brushed-out township line in the predawn chill. I was about to attempt going where no man had gone before. In 4.5 billion years, I would be the first to walk a line dividing my lot from my neighbour's in a roughly north-south direction. Was I unnerved? No. I had Wally Simpson (OLS #1518), his son Mike and buddy Morgan to guide the way. Of course, I could lead, but in bringing up the rear, I felt the gang would keep me in line.

The crew unpacked the truck. I noted a transit, two axes, two chainsaws, one fuel and one oil container, three knapsacks, two hard hats, one iron bar, a can of orange spray paint and a roll of orange ribbon that nicely matched the paint. I peered into the truck to see if I could locate a kitchen sink. No luck. I guess they had only brought the essentials. With no pack mule, I wondered who would be the beast of burden.

Wasting no time, the three pros packed, shouldered and ferried everything up a fifty foot incline to reach the top of a rock outcrop where, the day before, Wally had determined we would commence our southern trek. Under his guidance, Mike had chiseled an X into the rock, sprayed an orange circle, erected a rock cairn and ribboned the nearby tree.

By the time I summited, gasping for breath and attempting to hide the rip in my pants, Wally had leveled and pointed the transit in a direction he assured me would allow us to walk some 3800 feet to an iron bar on our southern boundary. The bar had been placed 36 years ago when we had the shoreline surveyed.

"So Wally. How close do you reckon you'll come to the bar?" I asked. "Within 30 feet," he replied and dove into his field notes. I hoped he was kidding.

Morgan had fashioned a spear-shaped picket from a nearby poplar sapling and Mike was in the process of placing it on the line following Wally's directions. "An inch to your right, an eighth, a hair, whoa." Wally stopped shouting and made a note. Morgan had gone ahead with the chainsaw and had started clearing brush, constantly looking back at the picket.

I felt I could be most useful out of the way and yet wanting to be helpful, I decided to carry the gas and oil containers. I carefully passed Morgan in the dense bush. My plan was to move south, keeping an eye on the picket while trying to guess the direction of the line.

I became immersed in the magic of the bush. My bush! I proudly walked ahead to a 100 foot white pine, hoping it was

on my side of the line. I stopped to gaze at the upper branches. Yes they really appeared to be on my property. Then I spied a very old white spruce in the distance that seemed to be close to the projected line. Next I trampled toward an ancient yellow birch. I wanted to guess its girth. Suddenly I stopped. At some point I had put down the fuel containers. But where? I decided to retrace my route in order to retrieve them. I could not see precisely where I had been, nor see the guys or hear the chainsaw!

I walked in ever widening circles, not by choice, but because I had stumbled into a cedar swamp that defied description. It seemed to meander everywhere. As quickly as I steamed toward high, dry ground, I would stumble into a gully and more water.

Swallowing my pride, I yelled, "Morgan. Can you hear me?" I was rewarded with a very faint, "Over here Dave." Ignoring the water and thereby thoroughly soaking both feet, I plunged along toward the voice. Just as I spied an orange helmet in the distance, I glimpsed the fuel containers, nestled by my tall white pine.

A few minutes later I emerged onto a freshly cut line, put down the fuel and casually said, "How's it going guys? Taking a break?" Wally quietly replied, "You could say that. We ran out of fuel. Perhaps you should stick close to us. We don't want you to get lost." Wally, the consummate diplomat and professional. I meekly vowed to toe the line.

Several hours and thousands of feet later, I saw our shoreline. I could not resist running ahead to find our target, the old iron bar. I spied it and began to estimate Wally's line. I muttered, "I bet he is within three feet."

Mike stood over the final nail marker, allowing his plumb bob to settle and the prism to reflect the infrared beam from Wally's transit. I anxiously asked, "How close is he?" Mike turned and smiled. "He is off. Off by a good quarter of an inch."

I looked back at Wally. "Yup. Straight and narrow."



David Coombs has a Ph.D. in Canadian history. After his retirement as a stockbroker in 2004, he began to write. His articles have appeared in *The Country Connection*, the *Toronto Star* and the *Globe and Mail*. He is also the author of "The Beckoning Land" which is an historical novel set in his home town of Barry's Bay during the Depression and WWII. A copy of his book is available for purchase at www.lulu.com (<https://bit.ly/2IpjDk1>)

Open Data, Cooperative Education and Doathons: Building Sustainable Cities and Communities

By Jonathan Brown

For many Ontario high school students, grade nine Canadian geography may be the only opportunity to learn how to apply spatial analysis skills to issues affecting the natural environment.¹ Given the impact of climate change on issues related to sustainable development, these skills take on greater urgency than in the past. The task of preparing students to take on the challenge of sustainable development is further compounded by the emergence of the Internet of Things (IoT), the backbone of Smart city initiativesⁱⁱ that will transform our communities in ways we can barely imagine.

As our public spaces are transformed by big data, Artificial Intelligence and machine learning, how will management of our physical and natural environment change? Will a generation of digital natives have the capacity to exercise prudence when deliberating about competing interests in the public realm? At the recent International Open Data Conference in Buenos Aires, there was much talk about taking back the name “Smart” from the



Jonathan and Bettina Brown (seated bottom row on right) at CKAN preconference workshop at the International Open Data Conference in Buenos Aires this past fall.

corporate branding of the term as a technology initiative.ⁱⁱⁱ

In what follows, we will explore how community-connected cooperative education, citizen science and open data offer a way to engage citizens in the urgent task of sustainable development of the Earth’s physical resources. We will also explore how this approach might be used to mentor future decision makers. They face a daunting task: reduce the rise in the earth’s temperature to 1.5° C by the end of this century or find another home for humanity.

Let’s begin with a few definitions. *Community-connected cooperative education* is hands-on learning that equips students and citizens with the knowledge and skills needed to achieve their education and career/life goals^{iv}. *Citizen science* is where volunteers collaborate with scientists to solve real-world problems. This activity may involve the identification of research questions, collection and analysis of data, interpretation of results, and user testing of new technologies and applications.^v Lastly, *open data* is “data that can be freely used, shared and built-on by anyone, anywhere, for any purpose.” The Ontario government shares its data online, so that app developers, non-profit organizations, researchers and others can help government solve problems that affect Ontarians’ wellbeing. Open datasets released by the government are subject to the *Freedom of Information and Protection of Privacy Act*.^{vi}

So how can open data used in the context of citizen science and community-connected cooperative education support sustainable development? Municipalities in partnership with the two formal education sectors, non-profits and healthcare sectors have started to use open data and time-bound events



Jonathan Brown and Jennifer Rolph presenting to St. Mary's High School students during GIS Activity Day at Venture 13 in Cobourg, Ontario.



Students from Bowmanville High School, Clarington Central Secondary School and Clark High School are mapping financial deserts while brainstorming solutions with Durham Region policy staff.

to address specific real-world problems, both at the local and global level. Competitive hackathons in which sprint teams create prototype designs to improve a program or service are gaining traction in municipalities that have set up incubation hubs^{vii}. They are also a popular way for companies to recruit talent from university and college campuses.^{viii}

Another time-bound event popular among non-profit organizations are mapathons. At these events volunteers fill in missing details on digital maps using a combination of satellite imagery and local knowledge. For example, first responders such as the Red Cross use the maps created by the Humanitarian OpenStreetMap team (HOT) to assist victims of natural disasters. HOT's ongoing work contributes to many of the United Nation's 17 *Sustainable Development Goals 2030*.

Closer to home, Durham Region staff from social services and healthcare collaborated with the region's Open Data GIS team to engage local high school students in the region's first mapathon. Staff pitched their policy challenge to a group of 24 high school students and led group brainstorming sessions to solicit the students' input. The GIS staff trained participants on how to use spatial analysis tools and open data from the Durham Region Open Data Portal. Participants were able to combine local knowledge with data collected by the region in

Additional Resources:

- How to Hackathon With Youth Guide https://www2.gov.bc.ca/assets/gov/education/kindergarten-to-grade-12/teach/pdfs/how_to_hackathon_with_youth.pdf Users can “fork” the document to create a personal version in their GitHub repository. They can also collaborate with the author(s) of the original document to improve the resource. (See Github glossary <https://help.github.com/articles/github-glossary/>).
- New York City Playbook Guide Principles: https://playbook.cityofnewyork.us/wp-content/uploads/2016/05/NYCDigital_PrinciplesStrategies.pdf
- Ontario 21st Century Competencies (see page 56) and *Community Connected Experiential Learning*. Students are challenged “to think about why the incorporation of a global positioning system (GPS) in everyday electronic devices is both useful and a concern.”
- Alignment to 21st Century Teaching and Learning projects (e.g., focus on local professional educator development as well as research, partnerships and resources to document school board transformations such as broadband modernization and shared cloud services).
- Specialist High Skills Major (SHSM) sector-partnered contextualized experience that includes one of the following options: Innovation Creativity and Entrepreneurship (ICE) training, sector-delivered contextualized coding and sector-delivered mathematical literacy. See list of where these 19 sector pathways are being offered by schools in the 2018-19 academic year <http://www.edu.gov.on.ca/morestudentsuccess/SHSMcomplete.html>
- Creating Opportunities through Co-op (Grade 11, Open). This new course enables students to explore a range of interests, create a focused experience or create their own innovative or entrepreneurial opportunity based on a particular interest for which they may not have a related course (or courses) to focus their learning. This new course allows students to earn up to two Grade 11 secondary school credits. See pp. 85-89 of Ontario Curriculum Cooperative Education Grade 11 and 12 <http://www.edu.gov.on.ca/eng/curriculum/secondary/cooperative-education-2018.pdf>
- Institute for Local Government <http://www.ca-ilg.org/health-transportation-mobility> and World Wide Web's Open Data Barometer https://opendatabarometer.org/country-detail/?_year=2017&indicator=ODB&detail=CAN
- Civic Commons wiki on open government http://wiki.civiccommons.org/Open_Data_Guidelines/
- Waterloo Sustainable Development Goals Centre <https://waterloosdg.ca/services/> and network

ArcGIS to support geospatial analysis of each policy challenge.

The feedback from staff, students and teachers was overwhelmingly positive.^{ix} Students and teachers want to contribute more to real-world problem solving at the local level. They also saw the value of using GIS tools and open data to analyze community-based policy challenges. Durham Region staff also expressed an interest in providing follow-up support, particularly if the student input contributed to the region's strategic goals. Combining the new Community-connected cooperative education course DC030 with a sustainable development and a citizen science framework may be a win-win for both municipal staff, teachers, students and the community.

Engaging students in the decision-making process is one way to ensure that “smart” city initiatives remain rooted in human judgement about what is in the public interest. Information generated by big data and machine learning will be a big part of the investment in sustainable development. However, the more important investment will be in the decision makers of tomorrow today.

The International Open Data Day on March 2, 2019 would be a great opportunity to engage youth, citizens and government staff in real-world problem solving. What better way to ensure that smart city planning serves the public good? Watch for Open Data Day events like CodeAcross Toronto in your area or search the spring lineup of hackathons.^x

Below are some additional resources on how to use open data to organize an event in your community. Let's challenge current and future leaders to demonstrate what it means to be good stewards of the earth's natural resources.^{xi}



Jonathan Brown is a volunteer community educator who is leveraging his professional knowledge and extensive network to support exploration of topics related to sustainable development. His career spanned teaching adult, alternative education classes and eLearning courses for the Kawartha Pine Ridge DSB, to Project Field Coordinator for the rollout of the Ontario Education Number, Student Achievement Officer and Education Officer for the Ontario Ministry of Education. He holds Master's degrees in History (McMaster University) and Political Theory (University of Toronto) and Supervisory Officer's Qualification Program certificate. He can be reached by email at jonabrow@gmail.com

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through strategic Memoranda of Understanding (MOUs).

- 2030 Watch <https://www.2030-watch.de/> is a German website that monitors indicators on how well European nations are progressing towards achieving their targets for each of the 17 sustainable development goals (SDG). For example, one of them is ending hunger through food security, improved nutrition and the promotion of sustainable agriculture.
- EduLabs <https://edulabs.de/about/> is a pilot in three German regional governments exploring ways of using Open Education Resources to engage students in cross-disciplinary projects. They are part of the government's [Digital media in vocational education and training](https://www.qualifizierungdigital.de/english-1926.php) to enhance areas of potential for teaching and learning <https://www.qualifizierungdigital.de/english-1926.php>.

The Art of Open Data:

- Bhargava, R., Kadouaki, R., Bhargava, E., Castro, G., & D'Ignazio, C. (2016). Data Murals: Using the Arts to Build Data Literacy. *The Journal of Community Informatics*, 12 (3). Retrieved from <http://ci-journal.org/index.php/ciej/article/view/1276/1224>
- Samhir Vasdez's presentation at the International Open Data Conference https://docs.google.com/presentation/d/1hElk9R7frnmCTvwwJdm2yLXLiYXdsW3wv89N_vc0yk/edit#slide=id.p6 who cited the MIT project on building data culture <https://databasic.io/en/culture/> and data ambassador blog in Tanzania <https://medium.com/data-zetu>
- Green Line Stroll uses OpenStreetMap <https://www.minnpost.com/stroll/2014/06/hockey-hip-hop-and-other-green-line-highlights/>. See also artist Andy Sturdevant's [Common Room](https://andysturdevant.com/Common-Room) experiential learning walks in Minneapolis <https://andysturdevant.com/Common-Room>.

References

- ⁱ See Ontario Secondary School Diploma graduation requirements <http://www.edu.gov.on.ca/extra/eng/ppm/graduate.html>
- ⁱⁱ See Smart cities and the Internet of Things video <https://www.dw.com/en/smart-cities-and-the-internet-of-things/av-45595683> in Tomorrow Today - The Science Magazine.
- ⁱⁱⁱ See how the Array of Things and examples of high school students use Github's open resources to build and install their own sensors for collecting real-time data as part of citizen science collaborative projects <https://arrayofthings.github.io/>
- ^{iv} This definition is derived from the new Ontario Curriculum Course entitle "Creating Opportunities Through Coop, Grade 11 (open, no prerequisites)". This course requires students "to create and implement a learning plan that meets their particular interests and needs, reflect on their learning, and make connections between their experience in the community and other aspects of their lives."
- ^v See for example, Citizen Science GIS <http://www.citizensciencegis.org/b> where they have set up a mobile workshop for K-12 students to "engage in an interactive assembly and then participate in hands-on learning activities that may include: using mapping apps, creating crowd-sourced data, flying mini-drones."
- ^{vi} For examples of how open data is used in postsecondary education and research see the Carleton University module on Open Data that includes a guide with examples and videos for instructors <https://carleton.ca/cuopen/resources-online-teaching/module-2-resources-open-data/>
- ^{vii} The City of Brampton has done an excellent job at reaching out to students in the GTA. See how one local high school co-organized and participated <https://wolfhacks.devpost.com/> and the ongoing support of the city's GIS Ambassadors <https://resources.esri.ca/education-and-research/meet-matthew-pietryszyn-and-the-city-of-brampton-s-gis-ambassadors> As Matt Pietryszyn, team lead, stated: "Our GIS Ambassador group feels that it's important to encourage our young citizens to use GIS tools and datasets and interact with their local government to help make a difference in their community." See also the *Youth Ambassador Mapping Project* in Washington DC where 7 university students and 20 high school ambassadors from underrepresented groups spoke to business owners about entrepreneurship and business skills that they used to refine their "elevator pitch" to meet 21st century competencies. The business owners used the data collected on building facades and structures to apply for revitalization grants <http://teachosm.org/en/cases/georgia-ave/>. ESRI's ambassadors support teachers through class visits to show them how to use GIS tools to solve problems. For example, see Esri Canada K-12 resources for adding maps and open data to apps <https://k12.esri.ca/resourcefinder/data/files/Hackathon.pdf>
- ^{viii} Devpost uses hackathons to recruit developers often for large software firms. Major League Hacking introduces students to the rapid-fire brainstorming, entrepreneurial spirit fostered by these events. See *How to Navigate Your First Hackathon* <https://stories.mlh.io/how-to-navigate-your-first-hackathon-4fa4ee6880dd>
- ^{ix} One group participated in Statistic Canada's crowdsourcing information on buildings called *Building Canada 2020* https://wiki.openstreetmap.org/wiki/WikiProject_Canada/Building_Canada_2020 See also the European Commission's Lifelong Learning Mapping Project http://wiki.openstreetmap.org/wiki/Life_Long_Learning_Mapping_Project and Missing Maps' checklist and resources for hosting a mapathon <http://www.missingmaps.org/host/> and TeachOSM <http://teachosm.org/en/>
- ^x CodeAcrossTO organized by CivicTech Toronto <https://www.hackathon.com/event/codeacrossto-2019-53330824933> and Major League Hacking <https://news.mlh.io/announcing-the-2019-spring-hackathon-season-11-16-2018>
- ^{xi} See *Stewardship and Public Service: A Discussion Paper Prepared for The Public Service Commission of Canada* (1997) http://www.dufferinpark.ca/research/pdf/stewardship_e.pdf

IN THE MATTER OF a hearing by a Discipline Panel of the Discipline Committee of the Association of Ontario Land Surveyors regarding John G. Boyd, O.L.S. pursuant to the *Surveyors Act*, R.S.O. 1990, chapter S.29, as amended, Section 26.

Hearing held at the offices of the Association of Ontario Land Surveyors
1043 McNicoll Avenue, Toronto, Ontario on Monday, August
13, 2018 at 10:00 a.m.

BEFORE: Richard Murray, O.L.S. (Chair)
Leslie Higginson, O.L.S.
David Wilton, O.L.S.
Nancy Grozelle, O.L.S.
Patricia Meehan, Lieutenant Governor in Council Appointee

Appearances: Izaak de Rijcke, Counsel for AOLS
John G. Boyd, O.L.S. Self-Represented
Carol Street, Independent Legal Counsel to the Panel
William Buck, Registrar

DECISION AND ORDER

PURPOSE OF THE HEARING:

The Member, John G. Boyd, was the subject of a complaint by a member of the public. That complaint was investigated by the Complaints Committee of the Association of Ontario Land Surveyors (the 'AOLS' or the 'Association') and ultimately referred the matter to Council of the AOLS, with a recommendation that Council refer the matter to the Discipline Committee.

Council considered the matter and, by Motion 18-23 dated May 7, 2018, referred the Member to the Discipline Committee.

This Panel of the Discipline Committee was constituted, and the hearing proceeded on August 13, 2018 to consider the allegations of professional misconduct against Mr. Boyd, O.L.S.

THE EVIDENCE

The evidence at the hearing consisted of the oral testimony of William Buck, Registrar, and John G. Boyd, O.L.S. and the following Exhibits:

- Exhibit #1 Notice of Hearing and Schedule "A" Allegations of Professional Misconduct dated June 13, 2018
- Exhibit #2 Notice under the Evidence Act dated July 3, 2018
- Exhibit #3 Book of Documents (July 2018) consisting of 17 tabs of documents put forward by the AOLS
- Exhibit #4 Affidavit of Service dated July 12, 2018 confirming service by the AOLS on Mr. John Boyd of Exhibits 1, 2, and 3
- Exhibit #5 Correspondence dated July 10, 2018 from Izaak de Rijcke to Mr. John Boyd, O.L.S.

- Exhibit #6 Registrar's Certificate Regarding Evidence dated August 13, 2018
- Exhibit #7 Order and Reasons dated November 18, 2009; Written Reasons released December 16, 2009 with respect to John G. Boyd of a Discipline Panel of the AOLS Discipline Committee
- Exhibit #8 Correspondence dated June 1, 2018 from John Boyd to the Registrar, Mr. Buck
- Exhibit #9 Email exchange between July 30 and August 13, 2018 between Mr. de Rijcke and Mr. Boyd
- Exhibit #10 Correspondence dated February 23, 2018 from John Boyd to the Registrar, Mr. Buck
- Exhibit #11 Handwritten note from John Boyd dated August 13, 2018 addressed 'To Whom it may concern'
- Exhibit #12 Unsigned and undated Joint Submission to Discipline Panel on Consent of All Parties

REVIEW OF THE EVIDENCE

The evidence established the following.

Mr. Boyd was the subject of an earlier Discipline Hearing which took place on November 18, 2009. The Panel convened to deal with that matter noted that the allegations of professional misconduct that gave rise to those proceedings set out repeated promises by Mr. Boyd to the representative of his client, the Ministry of Natural Resources, to complete a project on which Mr. Boyd was retained. In spite of those promises, the Panel noted, Mr. Boyd failed to complete the project as promised and as required (Exhibit 7).

That hearing concluded by way of a Joint Submission between the

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AOLS and Mr. Boyd, and accepted by the Panel, in which Mr. Boyd agreed, among other things, to provide a written undertaking that he would not accept any work that he was not reasonably certain he could complete within an agreed upon time frame.

The specified undertaking was provided to the AOLS by Mr. Boyd on February 8, 2010 (Exhibit 3 tab 1).

The Joint Submission also required Mr. Boyd to provide, beginning on January 1, 2010 for a period of one year, monthly reports to the Registrar listing all jobs begun on or after November 18, 2009 and indicating the date the job file was opened, the completion date (if any) agreed to with the client and the date on which the job was actually completed. A suspension of Mr. Boyd's Licence and Certificate of Authorization for a one year period was deferred for one year, but if he failed to comply with any of the terms of the Order or Decision, including providing the specified reports, the deferral of the suspension would cease, and the suspension would come into effect.

On October 27, 2010 the Registrar wrote to Mr. Boyd advising him that because he had failed to provide the required monthly reports in a timely way or at all, his licence and Certificate of Authorization was suspended for a one year period, effective November 5, 2010 (Exhibit 3 tab 2).

On October 27, 2017 a complaint was received from a member of the public who had retained Mr. Boyd on August 8, 2017 to prepare certain grading plans. Mr. Boyd advised the client that he estimated the work would be done by September 5, 2017 at the latest (Exhibit 3, Tab 3).

The client followed up with Mr. Boyd on September 5, again on September 11, and again on October 14, 2017. Mr. Boyd was advised that his delay was costing the client a lot of money, and he asked for the final date on which Mr. Boyd would have the plans completed (Exhibit 3, Tab 3).

On October 23, 2017 Mr. Boyd advised the client that he would deliver the plans to the client's office on the morning of October 26, 2017. He did not do so, and on October 27, 2017 the client sent a completed Complaint Form to the AOLS (all part of Exhibit 3, tab 3).

As is normal procedure, Mr. Boyd was advised of the complaint and given an opportunity to respond to it by November 14, 2017 (Exhibit 3, tab 4). On December 4, 2017 Mr. Boyd emailed the Registrar to advise that he was working on the Grading Plans for the client, expected to complete them by the end of that week, and would forward them to the Registrar. He provided an explanation of certain difficulties in the work and said that he was prepared to waive his fee not only for the preparation of the plans but to also provide all of the construction layout at no cost to the client.

The client was provided with this offer but did not respond. The Registrar never received the plans from Mr. Boyd.

The Complaints Committee convened and considered the complaint on January 18, 2018. That Committee concluded that Mr. Boyd's conduct in this case was similar to that in the previous disciplinary proceeding in 2009, and that Mr. Boyd appeared to have contravened the paragraph in the Undertaking he had provided to the AOLS, namely that he would not accept any work that he was not reasonably certain he could complete within an agreed upon time frame. The Complaints Committee referred the matter to Council with a recommendation that it be referred to the

Discipline Committee (Exhibit 3, tab 11).

Mr. Boyd was advised of the decision of the Complaints Committee and by letter of February 23, 2018 wrote to the Registrar. He asked that Council be advised that he was prepared to relinquish his Certificate of Authorization by no later than April 30, 2018, and to refrain from accepting any new work in the interim. That period of time, he said, would allow him to complete work in progress and to inform his current clients of his intention to retire from active practice. He proposed that he be allowed to retain his licence in order to be able to work for another survey company should there be an opportunity to do so (Exhibit 3, tab 14 and Exhibit 10).

On February 27, 2018 Council considered all matters with respect to Mr. Boyd, including his letter and proposal of February 23, 2018. By Motion 17-57 Council accepted Mr. Boyd's offer to relinquish his Certificate of Authorization no later than April 30, 2018, and resolved to defer consideration of whether Mr. Boyd should be referred to the Discipline Committee, with all issues to be reconsidered after April 30, 2018 by which time Mr. Boyd was to provide evidence that he had completed all outstanding work, as he had proposed (Exhibit 3, tab 15).

Mr. Boyd was advised of Council's decision (Exhibit 3, Tab 16).

Mr. Boyd did not provide evidence that he had completed all outstanding work by April 30, 2018. Accordingly, on May 7, 2018 Council reconsidered the matter and, by way of Motion 18-23, referred him to the Discipline Committee on the basis that he had failed to meet the terms set out in Motion 17-57 (Exhibit 3, tab 17).

On June 1, 2018 Mr. Boyd wrote to the Registrar. He said that he was unable to complete his work in progress by April 30, 2018 as previously promised. He now proposed to complete this work by June 30, 2018 and took the position that he had not yet relinquished his Certificate of Authorization but would officially do so on June 30, 2018 (Exhibit 8).

On June 13, 2018 the AOLS prepared the Notice of Hearing and Schedule "A" Allegations, which were served on Mr. Boyd on July 10, 2018 (Exhibits 1, 2, 3, 4). Mr. Boyd was thereby advised of the hearing date before this Panel, being August 13 and 14, 2018.

The Panel was provided with certain communications between AOLS Counsel and Mr. Boyd. Mr. Boyd took the position that he had, by way of his letter of June 1, 2018, resigned his Certificate of Authorization and his commission as of June 30, 2018.

AOLS Counsel responded that the AOLS had never received a formal resignation of either the Certificate of Authorization or of Mr. Boyd's licence (Exhibit 9).

At the Hearing Mr. Boyd provided a handwritten document in which he stated that he relinquished his Certificate of Authorization and membership as of August 13, 2018 (Exhibit 11).

THE LAW

Surveyors Act, R.S.O. 1990, c.S.29 as amended.

Relevant Provisions

s. 5 (3) A member may resign his or her membership by filing with the Registrar a resignation in writing, and the member's licence or certificate is thereupon cancelled, subject to the continuing jurisdiction of the Association in respect of any disciplinary

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action arising out of his or her professional conduct while a member.

s. 26(2)(b) A member of the Association may be found guilty of professional misconduct by a discipline panel if, ... in the opinion of the discipline panel, the member is guilty of professional misconduct as defined in the regulations.

R.R.O. 1990, REGULATION 1026

Section 35 Professional Misconduct

Section 35. "Professional misconduct" means,

18. Undertaking work the member is not competent to perform by virtue of his or her training and experience or that is beyond the member's resources to complete in the time agreed upon with the client.

21. Conduct relevant to the practice of professional surveying, that having regard to all the circumstances, would reasonably be regarded by members as dishonourable or unprofessional. R.R.O. 1990, Reg. 1026, s. 35; O. Reg. 506/93, s. 2; O. Reg. 327/12, s. 13.

DECISION WITH RESPECT TO PROFESSIONAL MISCONDUCT

The evidence, as reviewed above, persuaded the Panel that Mr. Boyd is guilty of professional misconduct. As long ago as 2009 he was before a differently constituted Panel of the Discipline Committee for similar reasons of failing to meet commitments to provide work within a promised timeframe. At that time he recognized and acknowledged his failing in that regard, and provided an Undertaking intended to avoid falling into the same behaviour. Shortly after giving that Undertaking he again repeated that conduct by failing to provide the Registrar with the monthly reports he had committed to complete.

The present complaint raises the same issues. He committed to providing a client with the specified grading plans by September 5, 2017, and when this date was not met he provided a second promise to provide them by October 26, 2017. He failed to meet either date.

When notified of the Complaint he was given until November 14, 2017 to provide his response: he failed to do so until December 4, 2017.

Once the matter was referred to Council by the Complaints Committee, Mr. Boyd promised not to take on any new work and to complete all outstanding work by April 30, 2018 at which time he would resign his Certificate of Authorization. On the basis of that commitment Council accommodated him by deferring any decision to refer him to the Discipline Committee until after April 30: he was required to produce evidence that he had in fact completed all outstanding work by that date.

Mr. Boyd did not complete all outstanding work by April 30, 2018 as promised, and did not relinquish his Certificate of Authorization as of that date. He provided no explanation or information until, on June 1, 2018 he advised that he would complete all outstanding work by June 30, 2018, and would only then relinquish his Certificate of Authorization and his licence.

He provided no further information to the Association regarding completing all outstanding work. On August 9, 2018 he stated his position that he had resigned his Certificate of Authorization and licence effective June 30, 2018, by way of his letter of June 1, 2018. The Association can be forgiven for not acting on this information in the June 1, 2018 letter, given the requirement in section 5(3) of the Act that a resignation must be specifically provided in writing, and given that Mr. Boyd had already previously promised that he would resign his Certificate of Authorization as of April 30, 2018, but had not in fact done so.

In any event Mr. Boyd confirmed to the Panel and provided the handwritten resignation that is Exhibit 11, that he has relinquished his Certificate of Authorization and membership (or licence) effective as of the date of the Hearing, or August 13, 2018.

The Panel accepts Mr. Boyd's resignation. The Panel also concludes that Mr. Boyd failed to comply with the Undertaking given to the Association on February 8, 2010 (Exhibit 3, Tab 1) in that he accepted work that he could not and did not complete in a time frame he provided. Further, he has continued to show an unwillingness or inability to meet time frames imposed on him by the Association, and time frames he himself committed to.

The Panel is satisfied that this conduct is professional misconduct as defined in R.R.O. 1990, Reg. 1026, s. 35(18) and (21). Mr. Boyd undertook work that was beyond his resources to complete in the time agreed upon with the client (s. 35(18): his conduct both with the client and in his dealings with the Association would reasonably be regarded by members as unprofessional (s. 35(21)). We do not find that he has acted dishonourably and note that there was no suggestion of incompetence.

Mr. Boyd was advised orally of the Panel's decision on August 13, 2018.

PENALTY

As noted above, the Panel accepted and acknowledged Mr. Boyd's resignation of both his Certificate of Authorization and his licence as of August 13, 2018. A suspension was therefore no longer an issue.

This decision in its entirety will be published in the Ontario Professional Surveyor Magazine and be posted on the Association website.

A reprimand was ordered and was administered on August 13, 2018.

The Association sought costs in the amount of \$15,000 and after due consideration the Panel ordered Mr. Boyd to pay this amount. The Panel noted that the repetitiveness of Mr. Boyd's problematic conduct contributed to his responsibility for this amount in costs.

Mr. Boyd requested that he be permitted to pay these costs in 10 post-dated cheques of \$1,500/month: the Association did not object to this and the Panel so orders.

This penalty was also communicated orally to Mr. Boyd at the Hearing on August 13, 2018.

This Decision and Order may be signed in counterparts.

It was signed electronically and dated Oct. 23 or Oct. 29, 2018 by all Panel members.

SCHEDULE "A"

ALLEGATIONS OF PROFESSIONAL MISCONDUCT

CANADA)
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))
PROVINCE OF))
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ONTARIO))
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**IN THE MATTER OF the *Surveyors Act*
R.S.O. 1990, Chapter S.29**

AND IN THE MATTER OF John G. Boyd, O.L.S.

**AND IN THE MATTER OF a Disciplinary Hearing of the
Discipline Committee of the Association of Ontario Land
Surveyors held in accordance with sections 26 and 27 of
the said Act.**

I, WILLIAM D. BUCK, O.L.S., C.L.S., P. ENG., of the City of Markham, in the Region of York, am the Registrar of the Association of Ontario Land Surveyors.

The Council of the Association of Ontario Land Surveyors (AOLS) pursuant to Section 25(7)(a) of the *Surveyors Act*, by a Motion dated May 8, 2018, directed the Discipline Committee to hold a hearing in respect of allegations of professional misconduct.

2. It is alleged that John G. Boyd, O.L.S. (herein referred to as "Mr. Boyd"), in his personal capacity, and as the official representative for the firm JEMAP Holdings Limited, is guilty of professional misconduct within the meaning of Section 35 of Regulation 1026, R.R.O. 1990, as amended, all on the following grounds:
 - a) On October 27, 2017 The Registrar received an official complaint against Mr. Boyd from Mr. Gurmeet Bagga alleging that Mr. Boyd had failed to complete the survey work that he had been retained to perform in the time frame that he had agreed to.
 - b) On January 18, 2018 the Complaints Committee of the AOLS issued a final decision for Mr. Bagga's complaint file C-17-17 referring Mr. Boyd to AOLS Council with a recommendation that he be referred to the Discipline Committee.
3. It is alleged that the member is guilty of Professional Misconduct in that he failed to comply with his undertaking of February 8, 2010 which is contrary to Section 35(18) of Regulation 1026, R.R.O. 1990, as amended of the *Surveyors Act*.
4. It is alleged that the member has committed acts of professional misconduct as defined by Section 35(21) of Regulation 1026, R.R.O. 1990, as amended of the *Surveyors Act* in that his actions would be reasonably be regarded by members as dishonourable or unprofessional.

Dated at Toronto, Ontario, this 13th day of June, 2018.

Calendar of Events

January 28 to 30, 2019

International LiDAR Mapping Forum

Denver, Colorado

<https://www.lidarmap.org>

February 13 to 15, 2019

ORCGA Damage Prevention Symposium

Niagara Falls, Ontario

<https://orcga.com>

February 27 to March 1, 2019

127th AOLS Annual General Meeting

Toronto, Ontario

www.aols.org

April 22 to 26, 2019

FIG Working Week 2019

Hanoi, Vietnam

<http://www.fig.net/fig2019>

May 3 to 5, 2019

GISTAM 2019

Heraklion, Crete-Greece

<http://www.gistam.org>

June 4 to 6, 2019

40th Canadian Symposium on Remote Sensing and Geomatics Atlantic 2019

Fredericton, New Brunswick

<https://crss-sct.ca/conferences/csrs-2019>

Spinning an Arctic Yarn

Nunavut Qiviut marketing dependent on place and promotion to increase sales

By Grant Lee, BA, MA, RPP (Ret.), CPM

Grant Lee of AGL Marketing Limited is a long-time Associate Member of the AOLS. He began his career as a survey technician in the early 70s, spending years on the boards drafting plans on linen and Mylar. His interests led to a career as a Registered Professional Planner and now a Chartered Professional Marketer. AOLS has been a client of AGL Marketing Limited since 1999. Throughout that period, Grant has contributed to strengthening the Association's marketing and public awareness activities and contributed to the growth in membership. His recent marketing assignment north of the Arctic Circle included training and mentoring the owner of a small business in marketing tactics, strategy, and marketing communications technology. This experience is now shared with the members of AOLS with permission from Nunavut Qiviut.

Consulting marketing takes decades to develop a market for services where experience, marketing technology, knowledge of global marketing standards and ethics, and practical applications become relevant and profitable. Marketers who charge fees for service should be expected to have credentials and be engaged in continuing education. Of greatest value to consulting marketers is having the opportunity to test their skills and knowledge in an environment where they are alone, among strangers, and dependent upon their own personal resources. Working as a volunteer advisor for the Canadian Executive Services Organization (CESO), a leading international development organization working in Canada and around the world, Lee can test new knowledge and skills - and be tested. Lee's latest CESO assignment began in September this year and concluded in November. The highlight of the assignment occurred between October 19 and 23 with a visit to Kugluktuk, Nunavut north of the Arctic Circle.

CESO partnered with a small business in Kugluktuk, Nunavut called Nunavut Qiviut to help the owner develop a sustainable industry for the hamlet of approximately 1,500 Inuit and other Canadians.

local community groups, elders, community leaders, and independent hunters and trappers. Nunavut Qiviut is a product of 21st century entrepreneurship and commitment by the Inuit.

Located north of the tree line within an arctic desert presents a most challenging barrier for a small business dependent upon sales for growth below latitude 66.6° N. Shipping goods from Kugluktuk and receiving supplies is very expensive by air and water. There are no roads connecting the closest settlements.



Geography is a major factor in any Canadian enterprise north of the Arctic Circle



Geoff Clark (left), Nunavut Qiviut and CESO VA Grant Lee work on marketing tactics and communications technology applicable to a challenging environment

The core business of Nunavut Qiviut is producing and selling qiviut yarn and knitted apparel made from harvested muskox hides, supplemented by fibre from the Arctic fox and hare. By tapping into the muskox harvest, the business can thrive when modelled on the three pillars of sustainable development: social, economic and environmental (SEE).

Although Nunavut Qiviut is grounded on SEE principles, its success is dependent upon guidance and support from

Fibre is collected and prepared by women and men in Kugluktuk for shipment by air to mills in the south where it is processed, dyed and returned to Kugluktuk as pure and blended yarn. In Kugluktuk, the yarn is packaged and distributed to retailers in the Yukon, Northwest Territories, Alaska, Nunavik, and Nunavut for sale to tourists and local knitters. Nunavut Qiviut is developing the use of hand powered knitting machines from the Victorian era to knit lace shawls, scarves and a variety of other apparel for sale in retail outlets and online. These can create a new opportunity for local knitters.

Nunavut Qiviut has a website for selling yarn and apparel directly to customers, but like any business in the Arctic selling goods and services to customers in the south, sales

are often limited by price point. Price is especially challenging for producing qiviut yarn because pure muskox qiviut is rare and is only available in limited quantities.

The muskox harvest is regulated by the government of Nunavut and federal laws to govern the amount of food supplied to the villages for communal consumption and the fibre collected for processing and sale. Markets are being developed for hides, bone and horns.

Promoting Arctic Fibre

Qiviut and the company are promoted both offline and online. Because of geography, there is a greater need for online promotion than offline, which would include exhibits at trade shows and demonstrations of qiviut knitting at special events. It is rarer than the product itself to see a sales representative of the company visiting a retail outlet to work with the owner in solving sales issues.

To compensate for limited sales calls, the company has fostered strong relationships with associations and business owners who have become advocates of pure DNA-tested qiviut and the good business ethics of Nunavut Qiviut.

Strategically placing display advertisements in magazines read by travellers and tourists to the Northwest Territories, Yukon, Alaska, and the Canadian Arctic, and hosting local social activities, go a long way in the promotion of the company and its products. The company's online presence is designed to use social media to push customers to the company website at nunavutqiviut.com, and the website itself to pull customers into its pages to close a sale.



C21 Marketing Communications Technology for an Arctic Business

The owners of Nunavut Qiviut have taken the decision to embrace whatever 21st century technology that can work in a business environment characterized by interruptions to logistics caused by unexpected weather conditions; high costs of electricity for carrying out routine business practices when the region is in permanent twilight and darkness; a supply chain that is dependent upon a healthy and sustainable muskox population; available supplies of a variety of yarn blends and pure qiviut; and availability of basic banking services.

The company is making use of the Internet, software, apps, and hand powered equipment and production techniques to provide the necessities of managing a business from north of the Arctic Circle. Nunavut Qiviut is no longer isolated in its communications with distributors throughout North America and abroad by using readily-available marketing communications technology that includes email marketing campaign accounts. The company has discovered marketing communications efficiencies in setting up and using a variety of social media networks and managing an email database. Additional marketing tactics implemented include content management systems for websites; online customer experience management techniques; and guerrilla marketing.

CESO resources have contributed significantly to help Nunavut Qiviut improve its marketing tactics and product sales potential through mentoring and training in marketing communications technology. Nunavut Qiviut and its strategic partners and stakeholders are positioned to develop a local industry based on the three pillars of sustainable development.



Grant Lee is the President of AGL Marketing. He can be reached at glee@aglmarketing.com

IN THE MATTER OF the Surveyors Act, R.S.O. 1990,
Chapter S.29, as amended

AND IN THE MATTER OF Nath Segaran, O.L.S.

AND IN THE MATTER OF a Disciplinary Hearing
of the Discipline Committee of the Association of
Ontario Land Surveyors held in accordance with
Sections 26 and 27 of the said Act

DECISION AND ORDER

This Panel of the Discipline Committee convened on August 16th, 2018. The Member was represented by Ian McLean, Counsel: both were present at the hearing. The Association was represented by Mr. Izaak de Rijcke, Counsel; both Mr. de Rijcke and the Association Registrar, Mr. Bill Buck, were also present. The Panel was assisted by Independent Legal Counsel, Carol Street, who was present.

On convening, the Panel was advised that the parties proposed to proceed by way of a guilty plea by Mr. Segaran, O.L.S to all allegations, followed by a Joint Submission with respect to what the parties jointly proposed was an appropriate penalty for consideration by the Panel.

The allegations against Mr. Segaran were set out in Schedule "A" to the Notice of Hearing, marked as Exhibit 1 by the Panel. Mr. de Rijcke summarized the facts for the Panel, and Mr. McLean confirmed that the facts as summarized were accurate. On the basis of those agreed facts, and after due consideration, the Panel accepted Mr. Segaran's guilty plea to the allegations set out in Schedule "A": a copy of Schedule "A" is attached to this Decision and Order.

Counsel then jointly put forward for the Panel's consideration the Joint Submission setting out the penalty the parties jointly proposed should be accepted by the Panel (Exhibit 7). An unsigned copy of it is also attached.

In summary, the penalty jointly proposed by the parties included:

- A one year suspension from the date of the hearing, such suspension to be "deferred" for 1 year from the date of the hearing
- A reprimand
- That Mr. Segaran be supervised by another OLS in his practice of professional surveying for a period of 2 years from the date of the hearing
- That Mr. Segaran not be the managing OLS for any Certificate of Authorization company or branch office for a period of two years, and that the Registrar must provide pre-approval in writing for 3 years thereafter
- That there be publication of the allegations and the Joint Submission in the Ontario Professional Surveyor magazine and posted on the AOLS website
- That Mr. Segaran pay \$8,000 for costs, inclusive of HST, which could be paid in installments but to be fully paid within 1 year of the hearing

The Panel heard submissions from both Counsel as to why the penalty set out in the Joint Submission should be accepted. The Panel was reminded by Independent Legal Counsel that pursuant to the Supreme Court of Canada, (in *R. v. Anthony-Cook*, 2016 SCC 43) it should only depart from a joint submission in very limited circumstances, where the sentence proposed would bring the administration of justice into disrepute, or is otherwise not in the public interest.

The Panel considered the penalty jointly proposed by the parties and

after a thorough *in camera* discussion reconvened and asked the parties to consider certain changes to the Joint Submission as marked. Specifically, the Panel had been told that Mr. Segaran was not currently employed as an OLS as of the date of the hearing. In light of that information, the Panel suggested that his 2 year period of supervision begin to run from the start of full time employment as an OLS, instead of from the date of the hearing (paragraph 5). The Panel also further proposed that payment of the costs of \$8,000 be paid in full within 1 year of the date on which Mr. Segaran starts full time employment and no later than 2 years from the date of the hearing, or by August 16, 2020.

Both Counsel, on behalf of their respective clients, agreed to these changes to the Joint Submission. Accordingly the penalty imposed by the Panel is as follows:

1. Mr. Segaran's licence shall be suspended for a period of one year from August 16, 2018, such suspension to be deferred for a period of one year, meaning that if he complies with the terms of this Order, the suspension will never take effect.
2. Mr. Segaran was reprimanded by the Panel at the conclusion of the hearing, and the reprimand will be recorded on the Register of the Association.
3. Mr. Segaran will engage in the practice of professional surveying only under the personal supervision and direction of another member for 2 years from the start of resuming full time employment as an OLS.
4. Mr. Segaran will not be the managing Ontario Land Surveyor for any Certificate of Authorization company or a branch office of any Certificate of Authorization company for the 2 year period referenced in paragraph 3, and, in any event the Registrar's pre-approval in writing will be required first for a 3 year period thereafter.
5. The Schedule "A" summary of allegations leading to this proceeding, as well as the original (but subsequently revised) Joint Submission, and this Decision and Order will be published in the Ontario Professional Surveyor Magazine and posted on the Association website.
6. Mr. Segaran will pay to the Association the sum of \$8,000 for costs, inclusive of HST. This amount may be paid in installments but in any case will be fully due and payable no later than 1 year from the date on which Mr. Segaran starts full time employment as an OLS and in any event no later than 2 years from the date of this hearing, or by August 16, 2020.

This Order may be signed in counterparts.

Tom Kristjanson, O.L.S.

Julia Meldrum Smith, O.L.S.

Paul Miller, O.L.S.

Gary Auer, O.L.S.

Kathleen Gowanlock, Lieutenant-Governor Appointee

IN THE MATTER OF the Surveyors Act, R.S.O, 1990
Chapter S.29

AND IN THE MATTER OF Prashannath (Nath) Segaran, O.L.S.,

AND IN THE MATTER OF a Disciplinary Hearing of
The Discipline Committee of the Association
of Ontario Land Surveyors held in accordance
with sections 26 and 27 of the said Act

JOINT SUBMISSION TO DISCIPLINE PANEL
ON CONSENT OF ALL PARTIES

WHEREAS the Association of Ontario Land Surveyors (“AOLS”) has commenced proceedings under the *Surveyors Act* against one of its members, namely, Prashannath (Nath) Segaran, OLS, for professional misconduct;

AND WHEREAS AOLS has specified and made allegations in respect of the member which have been acknowledged and admitted by the member for purposes of making a finding of guilt on the part of the Discipline Committee.

AND WHEREAS AOLS and the member are now desirous of making a Joint Submission as to penalty and disposition by the Discipline Committee pursuant to the *Surveyors Act*;

THE PARTIES, on a consent basis, hereby agree to dispose of this matter before a panel of the Discipline Committee by way of a joint resolution on the following terms:

1. The Member represents to the Association of Ontario Land Surveyors and the Discipline Panel that, before entering into this agreement, he has been advised to obtain independent legal advice as to the consequences of signing same, that the Member has either obtained independent legal advice or he has voluntarily waived his right to obtain independent legal advice knowing the consequences of signing same and that the Member is doing so voluntarily and without undue influence or pressure from anyone.
2. The Member pleads guilty to the charges and allegations of professional misconduct against the Member (the “Charges”) as alleged.
3. The Member’s Licence shall be suspended for a period of one year from August 16, 2018, such suspension to be deferred for a period of one year.
4. The Member shall be reprimanded and the reprimand will be recorded on the Register of the Association.

5. The Member engage in the practice of professional surveying only under the personal supervision and direction of another member for two years from the date of this hearing.
6. The member will not be the managing Ontario Land Surveyor for any Certificate of Authorization company or a branch office of any Certificate of Authorization company for a period of two years but, in any event, the Registrar’s pre-approval in writing will be required first for a three year period thereafter.
7. The publication of the summary of allegations leading to this proceeding, as well as the contents of the Joint Submission, shall be published in the Ontario Professional Surveyor Magazine and posted on the Association website.
8. The Member shall pay to the Association the sum of \$8,000.00 for costs, inclusive of HST. This amount may be paid in installments but in any case will be fully due and payable no later than one year from the date of this agreement. Should the member’s licence be terminated for any reason full payment of these costs will be required as a condition of the reinstatement of the member’s licence. Should full payment not be received within the above period the member’s licence will be cancelled.
9. The Member and the Association acknowledge and agree that this Joint Submission document has been prepared by both parties and reflects a fair disposition of this matter, under all of the circumstances. In the event the Discipline Panel does not adopt this Joint Submission document as a basis for making its determination, finding, and disposition, the parties agree that this matter will then continue on the basis of a full hearing before a Discipline Panel on a date to be fixed by the Discipline Committee and that same shall proceed on the basis of all of the allegations set out in the Notice dated 13 June 2018.

Dated this 16th day of August, 2018

SCHEDULE “A”

ALLEGATIONS OF PROFESSIONAL MISCONDUCT AND INCOMPETENCE

CANADA)	IN THE MATTER OF the <i>Surveyors Act</i>
)	R.S.O. 1990, Chapter S.29
)	
PROVINCE OF)	AND IN THE MATTER OF Prashannath (Nath) Segaran, O.L.S.
)	
ONTARIO)	AND IN THE MATTER OF a Disciplinary Hearing of the
)	Discipline Committee of the Association of Ontario Land
)	Surveyors held in accordance with the sections 26 and 27 of the said Act.

cont’d on page 28

I, WILLIAM D. BUCK, O.L.S., C.L.S., P. ENG., of the City of Markham, in the Region of York, am the Registrar of the Association of Ontario Land Surveyors.

1. The Council of the Association of Ontario Land Surveyors (AOLS) pursuant to Section 25(7)(a) of the *Surveyors Act*, by a Motion dated May 8, 2018, directed that Mr. Nath Segaran be referred to the Discipline Committee.

2. It is alleged that Nath Segaran, O.L.S. (herein referred to as “Mr. S”), in his personal capacity, and as a former employee of the firm Barich Grenkie Surveying Ltd., is guilty of professional misconduct within the meaning of Section 35 of Regulation 1026, R.R.O. 1990, as amended, and incompetence within the meaning of Section 26 (3) of the *Surveyors Act* R.S.O. 1990, c.S.29, as amended.

3. The particulars of the allegations in paragraph 2 above are as follows:

(a) On or about May 4, 2016 the Registrar of the AOLS received a letter from Mr. P. Douglas Reitsma, O.L.S., a consultant to the AOLS Survey Review Department (SRD), reporting that the Comprehensive Review report of the firm Barich Grenkie Surveying Ltd. (herein referred to as “BGS”), indicated numerous instances of non-compliance with the standards, regulations and other applicable rules for surveys, such that the average number of demerit points per plan for the seven plans reviewed was 35.75, which exceeded the threshold of 25 points per plan, after which SRD policy requires that the member be referred to the Registrar.

(b) On or about May 6, 2016 the Registrar informed Mr. Edward Grenkie, O.L.S., the then holder of the Certificate of Authorization for BGS, by letter that a follow-up review of his practice would take place in approximately one year, said review to consist of a limited Comprehensive Review of two of his plans, and would not include a field examination.

(c) On or about November 30, 2016 Edward Grenkie retired as the managing Ontario Land Surveyor for the Stoney Creek office of BGS, at which time Mr. S became the managing O.L.S.

(d) The Final Report of the BGS follow-up review, dated August 23, 2017, which was based on two survey plans signed by Mr. S indicated many serious deficiencies such that the demerit point average was 69 points per plan, significantly higher than the initial review.

(e) The Registrar considered that the deficiencies noted in the BGS follow-up review report were of such a serious nature that they warranted a referral to the Complaints Committee of the AOLS in accordance with Section 40(8) of Regulation 1026 of the *Surveyors Act*.

(f) The report of the BGS follow-up review indicated many serious deficiencies, including the following:

Re: SRD File 17-468-R-01 (Part of Block 20, R.P. 62M-1170, City of Hamilton)

(i) Section 8(a) of O. Reg. 216/10, which requires that a licensed member refer to the documentary evidence related to the property and the land adjoining the land under survey, in that Mr. S failed to perform an adequate search of title at the Land Registry Office, and obtained no, or incomplete, records from other land surveyors having performed surveys in the area;

(ii) Section 8(b) of O. Reg. 216/10, which requires a licensed member to carry out a thorough field investigation for the best available evidence of all lines, boundaries, and corners of the land under survey, in that the survey evidence which existed on the ground was not looked for, not found, or not considered by Mr. S;

(iii) Section 16 of the AOLS Interpretive Guide and Supplement to O. Reg. 216/10, which requires that a plan should only be prepared from a current survey, in that new field notes should have been prepared for the May 18, 2017 plan to confirm that the information shown on that plan is complete and up-to-date;

(iv) Section 12 of O. Reg. 216/10, which requires that measurements be verified by mathematical closure or by independent measurement, in that Mr. S did not include sufficient redundancies to confirm his measurements;

(v) Section 23 of O. Reg. 216/10, which requires a plan to show comparisons with bearings or distances shown on other plans or in any metes and bounds description, in that the plan did not show all the comparisons which should have been made and considered;

(vi) Section 4 of O. Reg. 216/10, which requires that upon completing a project a professional member shall provide a project report to the client, in that this did not occur;

(vii) Section 4(2)(e) of O. Reg. 216/10, which requires a licensed member to certify a plan of survey in a prescribed Form 1, in that the certification date on the plan is indicated as March 6, 2017 whereas the plan shows that it was completed on March 17, 2017; and,

(viii) AOLS By-Law 94-4, which requires that every Surveyor’s Real Property Report (SRPR) shall be affixed with a SRD Plan Submission Form, in that the May 18, 2017 plan should have been prepared as a separate SRPR with a separate Plan Submission Form;

Re: SRD File 17-468-R-02 (Lots 10 and 11 and Part of Lot 9, Registered Plan 728 and Part of Lot 2, Registered Plan 751, in the City of Hamilton)

(g) Mr. S prepared a Plan of Survey for properties known municipally as numbers 124, 128 and 132 Cline Avenue, City of Hamilton, dated April 21, 2017, which was deposited in the Wentworth Land Registry Office as number 62R-20556, hereinafter referred to as the “plan”, contrary to:

(i) Section 8(a) of O. Reg. 216/10, which requires that a licensed member refer to the documentary evidence related to the property and the land adjoining the land under survey, in that Mr. S failed to perform adequate search of title at the Land Registry Office, and did not obtain complete records from other land surveyors having performed surveys in the area;

(ii) Section 8(b) of O. Reg. 216/10, which requires a licensed member to carry out a thorough field investigation for the best available evidence of all lines, boundaries, and corners of the land under survey, in that the survey evidence which existed on the ground, was not looked for, not found, or not considered by Mr. S;

(iii) Section 15 of O. Reg. 216/10, which requires that

exact field notes for all surveys be made, in that the field notes made by Mr. S are not a complete, accurate, or legible portrayal of the data necessary for a complete depiction of information concerning the property surveyed;

- (iv) Section 12 of O. Reg. 216/10, which requires that measurements be verified by mathematical closure or by independent measurement, in that Mr. S did not provide sufficient evidence to indicate how he confirmed his measurements;
- (v) Section 2 of O. Reg. 525/91, which defines the monuments to be planted, in that Mr. S used items that were not prescribed as monuments;
- (vi) Sections 4(1) and 11(5) of O. Reg. 525/91, which require that monuments are to be set on corners and that witness monuments are to be no closer than one metre to the corner, in that the bar found near the southwest corner of Part 3 on the plan should have been removed and a new bar planted on the corner;
- (vii) Section 4(2) of O. Reg. 525/91 which requires that at least one quarter of the total number of angles must be monumented by a cut cross, rock bar, rock post, rock plug, or standard iron bar, in that all four parts of the plan did not have the required monumentation;
- (viii) Sections 7(1) and 7(2) of O. Reg. 525/91 which require that the limits of a route survey are to be marked with standard iron bars or equivalent, in that the bend in Cline Avenue was not correctly monumented and the field notes did not indicate why a sub-standard monument was used;
- (ix) Section 9 of O. Reg. 216/10, which specifies the minimum error of closure for a survey, in that the errors of closure for Parts 1 and 3 on the plan do not meet the minimum requirement;
- (x) Sections 24(1)(a)(ii) and (iii), which require that a plan show all topographic information that may indicate an interest in title to the surveyed parcel or that indicates an encroachment from the surveyed parcel onto the adjacent lands or from adjacent lands onto the surveyed parcel, in that while the field notes show fences and other features on or near the boundaries these features are not shown on the plan with ties to the boundaries sufficient to relocate them if necessary;
- (xi) Section 21(1)(d) of O. Reg. 216/10, which requires that a plan shall clearly and accurately show the prop-

erty identifiers assigned to the land surveyed, in that the plan incorrectly illustrates the extent of PIN 17460-0208 and PIN 17460-0210;

- (xii) Sections 18(1)(k) and 18(1)(l) of O. Reg. 216/10, which require that a plan show the procedure used in re-establishing all existing boundaries forming part of a survey or on which a survey is dependent and the source of the distance or direction if distances or directions are set, in that the plan did not show all such procedures and sources;
- (xiii) Section 27 of O. Reg. 216/10, which requires a plan to include a note indicating that the plan is to be read in conjunction with a written report, in that this did not occur; and,
- (xiv) Section 4 of O. Reg. 216/10, which requires that upon completing a project a professional member shall provide a project report to the client, in that this did not occur;

all of which are breaches of sections 35(1), (2), (3) and (21) of Regulation 1026, R.R.O. 1990, as amended; and the Code of Ethics at sections 33(2)(a) of said Regulation 1026; and, collectively constitute incompetence within the meaning of Section 26(3)(a) of the Surveyors Act, R.S.O. 1990, c.S.29.

4. It is alleged that the member failed to comply with the Code of Ethics of the AOLS in that he has repeatedly failed to abide by the standards of practice which is contrary to Section 33(2)(b) of Regulation 1026, R.R.O. 1990, as amended. Failure to comply with the Code of Ethics constitutes Professional Misconduct within the meaning of Section 35(3) of Regulation 1026, R.R.O. 1990, as amended.
5. It is alleged that the member failed to comply with the Code of Ethics of the AOLS in that he signed survey plans which did not comply with all relevant legislative requirements and all standards of the Association, which is contrary to Section 33(2)(f) of Regulation 1026, R.R.O. 1990, as amended. Failure to comply with the Code of Ethics constitutes Professional Misconduct within the meaning of Section 35(3) of Regulation 1026, R.R.O. 1990, as amended.
6. All of which are breaches of sections 35(1), (2), (3) and (21) of Regulation 1026, R.R.O. 1990, as amended; and the Code of Ethics at sections 33(2)(a) of said Regulation 1026 and, collectively constitute incompetence within the meaning of Section 26(3)(a) of the *Surveyors Act*, R.S.O. 1990, c.S.29.

DATED at Toronto this 13th day of June, 2018

Sites to See

Canada's Commemorative Map

<https://bit.ly/20D8hrb>

Many places throughout our country are named to remember the actions of Canadians in the defence of freedom and democracy. *The Geographical Names Board of Canada Secretariat at Natural Resources Canada* has created an interactive map that shows how we remember them – eternally tying them to the lands, lakes, rivers and towns for which they made the ultimate sacrifice.

The map commemorates Canada's participation in armed conflicts at home and abroad by highlighting a sample of the many geographical features and places named for those that served our country. The map represents ongoing efforts to memorialize Canadians that have played notable roles in Canada's war and peacekeeping efforts.

Geodesy at Queen's University – Where Fundamental Surveying Principles are Entrenched in Advanced Research Projects

By Dr. Georgia Fotopoulos, P.Eng.

In 2013 a new research group was formed at Queen's University in the Department of Geological Sciences and Geological Engineering, aptly named the Geodesy and Geophysics Lab. Since then undergraduate engineering and science students as well as graduate students (Master's and PhD) have been undertaking research projects that heavily rely on the fundamental surveying principles embedded in the lab's directors, Dr. Georgia Fotopoulos, P.Eng. and Dr. Alexander Braun, P.Geoph. Overall, the group tackles challenging problems related to the acquisition, processing and application of heterogeneous datasets for making measurements of the Earth and its changes over time. The following is a brief description of some of the recent projects:



PhD student Callum Walter and Dr. Braun testing the UAV with suspended magnetometer system at the Queen's University Biological Station.

Key to understanding and exploring the synergies that exist between multi-platform geodetic data (i.e., from terrestrial, airborne and satellite) is the ability to estimate the uncertainties in these observational datasets. Dr. Dimitrios Bolkas (now a professor at Penn State University in Surveying Engineering) as part of his doctoral research investigated and determined the relevance of airborne gravity data to fused multi-platform gravity-field models. This allows agencies (typically government) to prioritize airborne gravity surveys over regions that would benefit the

most. In addition, the role of ground control points was studied for assessing the quality of digital elevation models. As the land surveying community is keenly aware, the existence of regional and global models for modelling the terrain does not and should not exclude the need for properly surveyed and monumented ground control. The Geodesy and Geophysics Lab works hard to ensure that these basic surveying principles are incorporated in all analyses even as contemporary datasets may seem too good to be true. Finally, this research work was capped off with the development of a refined stochastic model for airborne LiDAR measurements. As LiDAR observations become ubiquitous, it is imperative that the underlying uncertainties are estimated before interpretations of the topographic and morphological data are conducted. This is particularly important as these data are often used as input for multi-faceted complex models and processes of Earth systems.

Since the research group is based in one of the top Geological Sciences and Geological Engineering departments in Canada and worldwide, the application of geodetic and surveying principles to geological surfaces is a captivating area of interest. To this end, many research projects seek to improve our use of laser scanning for rock surfaces from hand samples to outcrops. Dr. Graham Mills (now a research scientist at Ford Motor Company) conducted his doctoral research on developing numerical tools for interpreting rock surface roughness from terrestrial laser scanning data. This process involved a systematic study on the influence of instrumental bias in terrestrial laser scanning range measurements and the resulting surface morphology of the target area. As part of his Master's research Alexander Harvey (now at IBM) conducted a research on multi-scale visualization and interpretation of geological relationships. This research was partially support by Esri Canada and focused on the development of a virtual geological database and the integration of a Web-GIS platform. Of particular interest is an interactive interface that allows for the simultaneous visualization of geophysical, geodetic and

geological datasets to improve the understanding of geological trends and relationships. A current Master's student in the research lab, Rebecca Hudson, has continued with this work in order to assess the contributions of remote sensing datasets to geological site investigations.

Our airborne projects have primarily focused on the use of Unmanned Airborne Vehicles (UAV) and the integration of various geophysical and positioning sensors for making accurate measurements of the Earth's geophysical fields. After the development of a UAV magnetometry prototype with initial survey results applied to mineral exploration in Oman by Kiyavash Parvar's MASc research (now at Pioneer Exploration), our group has teamed up with Sumac Geomatics Inc. to develop an operational system for UAV magnetometry achieving industry-standard magnetic measurements. PhD student Callum

Walter is currently pursuing his research on the optimization of UAV survey design to meet the requirements of specific targets (size, depths, material parameters) towards more economical and safe mineral exploration. One of his UAV magnetometry surveys has led to a new gold discovery which was attributed to the improved resolution of the UAV survey specifications. Our group is currently translating the lessons learned with UAVs to Unmanned Surface Vehicles (USV) equipped with a marine magnetometer to get the sensor even closer to the exploration targets in Canadian Lakes.

Gravity plays an important role in our research group as



Master's students Daniela Iribre Gonzalez and Shaza Ismail viewing the iGrav Data at Queen's University, Kingston, Ontario.

it has both geodetic relevance for height systems, reference systems and positioning, but also direct applications in geophysics. We have been awarded an iGrav superconducting gravimeter which has been operational since August 2018. The iGrav is set up on a bedrock-mounted slab next to a broadband seismometer, station KGNO of the Canadian Seismic Network. The iGrav continuously measures deformation processes including earthquakes, Earth and ocean tides as well as mass change processes. It is therefore used like any other observatory gravimeter, however, the purpose of the acquisition is to take the instrument into the field to monitor mass change in reservoirs. Former MSc student Judith Elliott (now at Sensors & Software Inc.) modelled the theoretical resolvability of density changes in a Steam Assisted Gravity Drainage reservoir in the McMurray formation in

Alberta, and demonstrated that the iGrav is able to detect subtle changes in density down to 0.05 g/cm^3 or gravity changes as small as a few μGal .

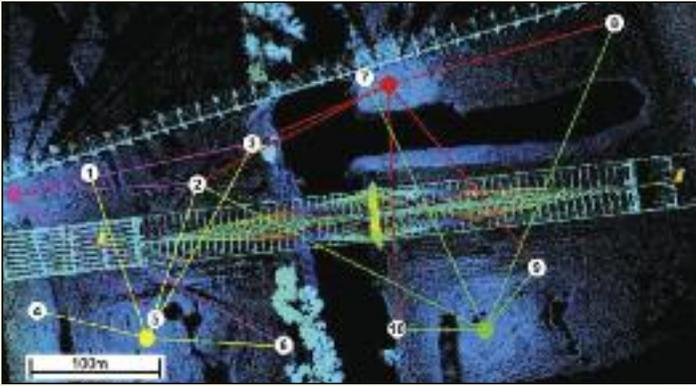
Taking gravimetry to space was achieved by the dedicated gravity missions CHAMP, GRACE and GOCE, however, actually putting a gravimeter on an extraterrestrial body was first and last done during the Apollo 17 Mission to the Moon. Astronaut Harrison Schmidt conducted the gravity survey in 1972. Our research group is involved in proposing surface gravimetry missions for asteroids and the Moon. We collaborate with GEDEX Inc., which developed a space gravimeter suitable to be deployed on a lander.

Positioning of a gravimeter on an asteroid is not trivial and therefore careful consideration of the required instrumentation to position the instrument within a certain accuracy envelope using star cameras and attitude control systems is essential. Finally, all of those star shots on the roof of the engineering building at the University of Calgary are paying off! Recently graduated Master's student Oday Dabboor conducted an extensive sensitivity study of surface gravimetry surveys for a variety of asteroids in order to find out what questions could be answered. The fundamental parameter of density



Geodesy and Geophysics Research Lab Members Fall 2018: (Front, L-R) Shaza Ismail, Daniela Iribre Gonzalez, Sara Pieczonka, Rebecca Hudson, Danielle Beaulne, (Back, L-R) Andrew Branson, Mitchell Wootton, Callum Walter, Fouad Faraj, Malcolm MacDougal, and Mert Karanfil.

cont'd on page 32



Control Network for the Terrestrial Laser Scanning of the Margaret Hunt Hill Bridge in Dallas, Texas.

distribution of asteroids is not known. Determining the density distribution of an asteroid is a classical geodetic (or

maybe astrodectic) problem, which nicely combines our expertise in surveying, space geodesy, gravity and geophysical exploration.



Dr. Fotopoulos received her PhD in Geomatics Engineering from the University of Calgary and is now an Associate Professor in the Department of Geological Sciences and Geological Engineering at Queen's University as well as a Research Director of the GeoEngineering Centre Queen's-RMC. She can be reached by email at georgia.fotopoulos@queensu.ca

Dr. Braun received his PhD in Geophysics from the University of Frankfurt, Germany and holds an Associate Professor position in the aforementioned department and is cross-appointed in the Department of Physics, Engineering Physics and Astronomy at Queen's.



Aleta Mawuenyegah (left) and Rosie De Luca.

EDUCATIONAL FOUNDATION NEWS

Ryerson University - At the Civil Engineering Awards Ceremony on November 1st, the *Fernando De Luca Memorial Award* was presented to **Aleta Mawuenyegah**, who graduated from the Civil Engineering program with a minimum CGPA of 3.0, has demonstrated high achievement in CVL 650 Satellite Geodesy and has expressed interest in pursuing a career in Geomatics Engineering. Fernando's wife Rosie and their two sons, Joey and Michael attended the ceremony to present the award. In Aleta's letter of thanks, she said that she "was honoured to receive the award". She was "inspired by the type of person Fernando was and hoped to continue his legacy". Thank you to all who have supported this award in Fernando's memory.

NEWS FROM 1043

Changes to the Register

MEMBERS DECEASED

Robert George Holder	961	Oct. 2, 2018
Marcus Nouwens	1873	Nov. 29, 2018
William E. Bennett	1292	Dec. 2, 2018

RETIREMENTS/RESIGNATIONS

Ron Karpziel	1449	Oct. 11, 2018
Bruce Irwin	1728	Dec. 31, 2018
Murray Shantz	1686	Dec. 31, 2018
Robert G. Mountjoy	1746	Dec. 31, 2018
William J. Moore	1623	Dec. 31, 2018
Donald E. Roberts	1176	Dec. 31, 2018
Paul Kidd	1609	Dec. 31, 2018

REINSTATEMENTS

J. Trevor Carnegie	CR109	Oct. 25, 2018
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COFA REVISED

Was: John H. Kennedy Surveying
Is: AOV Kemptville
January 1, 2019, Kemptville, ON

Was: Rady-Pentek & Edward Surveying Ltd.
Is: R-PE Surveying Ltd.
November 8, 2018, Woodbridge, ON

Was: Auer Campbell & Ims Survey Consultants Inc.
Is: ACI Survey Consultants, (A Division of J.D. Barnes Limited)
November 20, 2018, Kitchener, ON

COFA APPROVED

Simon Kasprzak Land Surveying
November 28, 2018
Barry's Bay, ON

Surveyors in Transit

John H. Kennedy Surveying Ltd has merged its operations with **Annis O'Sullivan Vollebakk (AOV)** and is now operating as **AOV Kemptville**. **Rick Gauthier** is the managing OLS for this office and **John Kennedy** continues to work on a part-time basis. The business address remains unchanged at 136 Prescott St., Kemptville, ON K0G 1J0.

Saeid Sedaghat is now with **McIntosh Perry Surveying Inc.**

Wikar Bhatti is now with the **City of Toronto, Engineering & Construction Services**, 18 Dyas Rd., 4th Floor, Toronto, ON M3B 1V5.

Guido Consoli is no longer with **Barich Grenkie Surveying Ltd. (a division of Geomape Canada Inc.)** in Stoney Creek.

Seyed Majid Fathi is now the managing OLS at **Barich Grenkie Surveying Ltd. (a division of Geomape Canada Inc.)** in Stoney Creek, and **Djordje Petrovic** is now the managing OLS in the Toronto office.

J.D. Barnes Limited has acquired **Auer Campbell & Ims Survey Consultants Inc.** in Kitchener and it is now **ACI Consultants (a division of J.D. Barnes Limited)**. **Pat Haramis** is the managing OLS and **Gary Auer** is also now at this location.

Robert Wannack is now the managing OLS at **Ivan B. Wallace, Ontario Land Surveyor** in Belleville, and **Francis Lau** is no longer with the firm.

Simeon Mitrev is now the managing OLS at **WSP Geomatics Ontario Limited** in Oakville and **Jeff Fee** has also relocated to this same office. **Rick Della Mora** is now the managing OLS at the Thornhill office.

Robert Murdoch is now with **Esri Canada** located at 12 Concorde Place, Suite 900, Toronto, ON M3C 3R8.

MTE Ontario Land Surveyors Ltd. in London is now located at 123 St. George Street, London, ON N6A 3A1. Phone: 519-672-4551.

MTE Ontario Land Surveyors Ltd. has a new branch office located at 1016 Sutton Drive, Unit A, Burlington, ON L7L 6O8. Phone: 905-639-2552. **Pat Woolley** is the managing OLS.

Guido Papa Surveying (A Division of J.D. Barnes Limited) is now located at Unit B7, 9135 Keele St. Vaughan, ON L4K 0J4.

The Downsview office of **J.D. Barnes Limited** has relocated to 100-140 Renfrew Drive, Markham, ON L3R 6B3.

Raymond Sibthorp has moved to the Guelph office of **Black, Shoemaker, Robinson & Donaldson Limited (A Wholly Owned Subsidiary of J.D. Barnes Limited)**.

Jason Elliot has moved to the Cambridge office of **MacDonald Tambllyn Lord Surveying (A Division of J.D. Barnes Limited)**.

T.A. Bunker Surveying Ltd. has acquired the records of **Keith Beacom, O.L.S.**, covering the years 1982 – 2003.

Chris Musclow is no longer with **J.B. Fleugel, O.L.S. (a Division of Donevan Fleischmann Petrich Limited)**.

Peter Aubrey is now the managing OLS at **Donald E. Roberts Ltd.**

THE AOLS IS PLEASED TO ANNOUNCE THAT THE FOLLOWING ONTARIO LAND SURVEYORS WERE SWORN IN:

Kevin Haddad	2044	Oct. 24, 2018	Piotr Banaszek	2045	Dec. 11, 2018
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The Difference Between Public and Private Locates



By Grant Piraine, C.E.T., DPT

Damages to buried utility infrastructure continue to grow at an alarming rate. Everyone involved in a project that requires excavation needs to understand the complex utility locate process. From a technical perspective, the public and private locate processes by which public and private utilities are physically traced and marked are very similar; in fact, the locate equipment, procedures and operational requirements are virtually the same. However, the process of how a public locate and private locate are conducted are somewhat different. A public or private locate technician will locate and mark a buried facility by working through the following procedural steps:

- Step 1. Review records of a buried facility to understand its path and where the connection points are to perform an active locate.
- Step 2. Physically connect their locate transmitter to a connection point and place a signal on the buried facility.
- Step 3. Use their locate receiver to find and trace the signal placed on the buried facility. Sometimes they use non-standard locating techniques such as ground penetrating radar or electromagnetic survey equipment.
- Step 4. Mark the buried facility using one, or a variety of, marking methods (paint, flags, offset markers, etc.).
- Step 5. Prepare a locate report that documents the particulars for the locate including a sketch of the marks on the ground.

There are two main factors that differentiate public and private locates. The first considers the owner of the buried facility, and the second is in regard to the process of how the locator receives information from the facility owner.



Public locators mark buried facilities owned and maintained by the public utility companies. These facilities are positioned within the public right of way and on private property up to a point called the demarcation point that will vary for each utility owner. Private locators mark buried facilities owned and maintained by the private land owner, or their representative, and are located on private property after the public demarcation point. Both of these owners manage their buried facilities quite differently.



Information management is the primary factor which sets apart both private and public locators. A public locator is given drawings and access to facilities by the public utility owner, whereas, a private locator must request drawings and access from the person who hired their services. A private locator can be hired by a third-party excavator or directly by the private landowner. Unfortunately, 9 times out of 10, drawings are not provided to the private locator for a variety of reasons. The drawings may not exist, or the person receiving the request does not understand their importance, resulting in little effort to find them. Other factors can include, but are not limited to, out-of-date or inaccurate drawings, no access to connection points and utility rooms, and no private landowner facility support.

Consequently, private locators are often challenged to work “blind” and have to sleuth out the underground private facility network without any help from the private landowner. Challenged to protect underground assets, and often without support from the private landowner, the private locate contractor is contractually bound to a third-party client. This places the private locate contractor in a

difficult position of providing complete results while being held accountable for restitution of errors and omissions beyond their control.

When a locator does not have the tools they need to do their job properly (i.e. access, drawings, or support from the facility owner), the RISK of missing or inaccurately locating a buried facility increases. Although the differences between public and private locates are clear, the true difference is that private locates have more RISK than public locates. Much of this RISK can be mitigated through the proper education of everyone involved in the excavating industry by OWNING Your Safety and KNOWING Before You Dig! If you want to learn more about the complex locate process, please sign up today for Utility Infrastructure Awareness training at www.ownyoursafety.com.



Grant Piraine, C.E.T., DPT, is the founder and President of Own Your Safety Inc., an Ontario based firm that specializes in



Utility Infrastructure Awareness education, damage investigations, and consulting for organizations involved in excavation activities.

Mr. Piraine has 28 years experience in the excavation industry and was the founder of OnSite Locates Inc. a premier private locate company in Ontario. An active member with the Ontario Regional Common Ground Alliance (ORCGA) since 2005, Mr. Piraine was one of the co-authors of the ORCGA Damage Prevention Technician (DPT) Training Manual as well as a former DPT Course trainer. Mr. Piraine has published numerous articles for the private locate, excavation, and construction industries and is currently head of the task team to draft a Private Utility Locate Best Practice for the ORCGA.

On September 19th, 2018, Grant Piraine and Adam Sampson were the presenters of the AOLS Webinar “Utility

Infrastructure Awareness: The Importance of KNOWING Before You Dig!” Grant can be reached by email at grant.piraine@ownyoursafety.com

Survey Review Department Forum – The Surveyor’s Duty to Make and Preserve Field Notes



By Tom Packowski, O.L.S., Survey Review Department Manager

This issue’s topic concerns field notes. Currently, the *Surveys Act, R.S.O. 1990, c. S.30, sec 4.(1)* states that every surveyor shall make and preserve exact and regular field notes of all his or her surveys and ... The earliest records I can find of a Surveyor’s duty to maintain field notes were in Section 45 C. 166 of the *Surveys Act, 1911*. Quite likely this duty was also incumbent on earlier Surveyors under the Canadian Dominion Statutes. From there, it is easy to imagine that this duty arose from English common law. Ontario Regulation 216/10 is also known as “Performance Standards for the Practice of Professional Land Surveying”. Section 15 of the Regulation states that for each survey, field notes shall be prepared in the field and shall contain a clear and detailed account of everything found, observed and done in the field in the course of and relevant to the survey.

The Statutes and Regulations cited in this article are all readily available for review and printout for your reference library on CanLII at <https://www.canlii.org/en>

What the Acts and Regulations don’t tell you is what exactly regular field notes should look like. What should they contain? The **Survey Review** section on the members’ side of the AOLS web site has several *Documents, Bulletins and Interpretive Guides* that set out in detail the items that should/shall be included with regular field notes. If you have not done so, consider adding the following four documents to your professional library.

1. The Interpretive Guide and Supplement to the Performance Standards for the Practice of Cadastral Surveying (Ontario Regulation 216/10).
2. Guideline for the Preparation of Field Notes.
3. Field Notes and Field Procedures.
4. Guidelines for use of Total Station and Radial Methods for Legal Surveys.

These four documents detail the items that should/shall be contained on the field notes. Print the above noted documents and provide them to your field crews. Better yet, arrange for “in-office” seminars so that all your crews have the information to prepare field notes that are clear, concise and capable of no misunderstanding AND are an accurate, and complete record of the field work.

During your in-office seminars, select a random set of field notes from a past field survey and review them with your field staff. Ontario Regulation 216/10 of the Surveyors Act in Part II outlines the field survey standards required by a professional land surveyor during the preparation of a cadastral survey. Section 8(b) requires that the surveyor, through their field crew, carry out a thorough field investigation for the best available evidence of all lines, boundaries and corners of the land under survey.

Do your field notes show that your field crew carried out this requirement as instructed in Section 8(b) of the regulation?

- Do the notes show all evidence including evidence that appears to be contradictory?
- Is the extent of the field research evident from the field notes?
- Have all lines, boundaries and corners been examined for evidence?
- Can evidence be identified as to age, type, condition and origin?

Fences and their relationship to the boundary must be shown on field notes and plans (O.Reg. 216/10 S.24(1)(a)ii and (b)). (Note: Features such as fences, retaining walls, hedges, posts, which appear to limit or demarcate properties, must be shown in relation to the boundaries.) Field notes and plans shall show any visible encroachments from the land being surveyed onto adjacent lands and from adjacent lands onto the lands being surveyed (O.Reg. 216/10 S.24(1)(a)iii.). (Note: Field notes shall show overhanging eaves, encroaching structures, fences, driveways, planters, walks, utility pedestals and lines, pole anchors and the like.)

Often, field notes prepared using an electronic total station are incomplete in the sense that information is acquired but is expressed in the electronic version only, yet the printout of the raw data is not included with the field notes. For example, there is/was a fence along one side of the boundary but no comment as to fencing on the other side of the boundary. Suppose that today there is now fencing on both sides of the boundary. Were both fences there at the time of your original survey, or not? How do you know?

Do the field notes show a clear and detailed account of everything found, observed and done in the field in the

course of the survey, as required by the Regulation? As the Consultant for the SRD, Drew Annable, OLS has observed, it is not up to the field crew to decide what should be picked up and what should not be picked up. They are the eyes on the ground. They should note everything observed (or not observed) and it should then be up to the surveyor to decide what goes on the plan. Is the method set out?

In instances where there is an abundance of evidence to consider, often the field crew is instructed to record all evidence and bring it back to the office for a detailed analysis of what constitutes ‘the best available evidence’. This makes sense in view of the requirements of O. Reg 216/10 S. 8(c), that the Surveyor use priority of evidence, particularly where there is an abundance of evidence that must be analyzed, weighed and either accepted or rejected by the Surveyor. Once this analysis is complete, the field crew is sent back to the site to complete the monumentation as required by Ontario Regulation 525/91. Is this analysis included with the notes? Has the method eventually decided upon, after considering all the evidence, set out for the field crew? Was there a separate page of field notes made specifically for the additional monumentation? All deviations from the monumentation regulations (regarding the marking of any particular corner) should be properly documented in the field notes to support an interpretation of ‘substantial compliance’.

Are all monuments that are set, independently verified to confirm that they were set in the proper location? This is most evident in ‘total station’ applications using radial stake out. Often the field notes do not show what checks have been made to confirm back-sight and foresight stations or whether the instrument itself was set on the appropriate station. The regulations require that “all measurements shall be verified by mathematical closure or independent measurement”. (O. Reg. 216/10, s. 12).

All field notes made for the various types of surveys should be compiled in a logical format which will lead any reader through the progress of the work in the same manner as the actual field work was completed. To this end the notes should follow a factual and comprehensive format in easy to follow steps, such as:

The SRD has recommended that each page of field notes should be formatted with prompts to include all the administrative details of the survey as outlined in the *Guideline for the Preparation of Field Notes* as Approved by Council in July, 2007, (e.g. name and address of survey organization; company file number; names and duties of field party; date(s) of field activity; weather conditions; geographic location of survey; page number and number of pages; north point; survey equipment used, including an identified method for differentiating between GPS measured points and Total Station measured points; units of measure; coordinate framework being used). It is further suggested that field notes should also contain the following: (where a Total Station is used, traverse points and traverse lines with closed

traverse loops where appropriate or an obvious check on hanging traverse points; methodology and progression; redundant measurements, including independent measurements to points established; names of relevant streets as posted; legible printing). Also, it is highly recommended that the field crew take pictures of the site and include them as part of the field note package.

In the field notes, if the term, ‘Measured’ is actually a calculated measurement (i.e. an inverse between two points) then it should be shown as ‘Calculated’.

The origin of monuments that were found should be identified in the field notes. The field notes should state the condition of monuments found to confirm that they don’t appear disturbed. The Consultants for the SRD will often comment that monuments found, and monuments set, and their associated point numbers should be illustrated in the field notes, as well as the extent of the field investigation for physical evidence, noting where monuments were looked for but not found. This would better support the method used to re-establish existing limits and/or corners.

As well as showing occupational features that exist along a boundary, the field notes should indicate those boundaries or portions thereof where none exist (i.e. no fence).

The raw data file should be part of the field note package. A coordinate list should also be included that provides a list of point numbers, their coordinates and a description of what the point represents. The raw data file should be related to the field note sketch so that, between the two, the definition of the methodology, progression and redundant measurements can be captured (i.e. set up, back-site, foresight, point details, GPS details, etc.). The field note sketch should further relate to the methodology and progression of the survey by showing the traverse lines/network and by more frequent use of terms such as, set, measured, calculated, held, accepted, etc. This information can either be provided directly on the field note sketch, or on a calculation sketch (which should then be part of the field note package). In this manner, the method of establishing boundaries would be better illustrated, particularly when summarized further in an accompanying report. The raw data file should also be cross referenced on the field note sketch.

The creation of field notes is not to be taken lightly, and constant on-the-job training on different types of surveys is necessary to obtain a true knowledge of how they must be done. Field Notes that are “messy”, incomplete, difficult to read, and without the required checks, lead to frustration and wasted time spent attempting to decipher what was actually done in the field. This often leads to return trips to the site to verify data, or, to incorrect decisions and information being shown on the plan which may result in a costly law suit. More than anything else, poorly constructed and confusing field notes convey to the user that the field party did not really know what they were doing and that their work cannot be trusted.



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EDUCATIONAL FOUNDATION NEWS

Congratulations to our Fall Award Winners

Loyalist College – On November 19, Keith Watson presented the Eastern Regional Group Undergraduate Award to **Jurgen Ismaili**, a returning student in the Survey Engineering Technician program, for overall scholastic achievement and leadership in the first year of the program.

Ryerson University – The Civil Engineering Awards ceremony was held on November 1st. Awards were presented to the following third year students who have demonstrated overall academic proficiency, including CVL 323 – Fundamentals of Surveying, and have expressed interest in pursuing a career in Geomatics Engineering: **Diego**

Bustamante Holguin, Sujan Kisiju, Michael Pardassie, and Hermanna Versteeg. Awards were presented to the following fourth year students who have demonstrated overall academic proficiency, including CVL 323 and/or CVL 352 – Geomatics Measurement Techniques and have expressed interest in pursuing a career in Geomatics Engineering: **Moathe El-Rabbany, Mladen Mladenov, Ibad Rashid and Stanley Zeng.**

Mark your Calendars

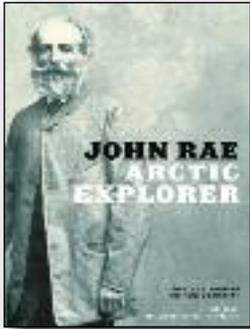
The Educational Foundation Annual Meeting of Members will be held on February 28, 2019 from 7:30 a.m. to 8:30 a.m. at The Westin Harbour Castle in Toronto.



The Educational Foundation would like to recognize with thanks donations made in the memory of **George Glenday, Robert Holder and Bill Bennett.**

BOOK REVIEWS

John Rae, Arctic Explorer The Unfinished Autobiography



Published by
The University of
Alberta Press
ISBN 978-1-77212-332-6

Edited and with an Introduction by William Barr

John Rae is best known today as the first European to reveal the fate of the Franklin Expedition, yet the range of Rae's accomplishments is much greater. Over five expeditions, Rae mapped some 1,550 miles (1,850 kilometres) of Arctic coastline; he is undoubtedly one of the Arctic's greatest explorers, yet today his significance is all but lost. *John Rae, Arctic Explorer* is an annotated version of Rae's unfinished autobiography. William Barr has extended

Rae's previously unpublished manuscript and completed his story based on Rae's reports and correspondence—including reaction to his revelations about the Franklin Expedition. Barr's meticulously researched, long overdue presentation of Rae's life and legacy is an immensely valuable addition to the literature of Arctic exploration.

Information taken from the publisher.

Erebus One Ship, Two Epic Voyages, and the Greatest Naval Mystery of All Time

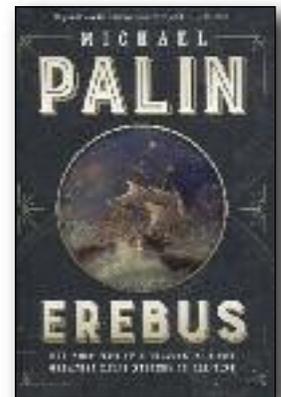
By Michael Palin

Michael Palin – formerly Monty Python stalwart and much-loved television globetrotter – brings this extraordinary ship back to life, following it from its launch in 1826 to the epic voyages of discovery that led to glory in the Antarctic and to ultimate catastrophe in the Arctic. He explores the intertwined careers of the men who shared its journeys: the dashing James Clark Ross who charted much of the 'Great Southern Barrier' ice wall and oversaw some of the earliest scientific experiments to be conducted there; and the troubled John Franklin, who at the age of sixty and after a chequered career, commanded the ship on its final, disas-

trous expedition. And he vividly recounts the experiences of the men who first stepped ashore on Antarctica's Victoria Land, and those who, just a few years later, froze to death one by one in the Arctic wastes as rescue missions desperately tried to reach them.

To help tell the story, Palin has travelled to various locations across the world – Tasmania, the Falklands, the Canadian Arctic – to search for local information, and to experience at first hand the terrain and the conditions that would have confronted the *Erebus* and her crew.

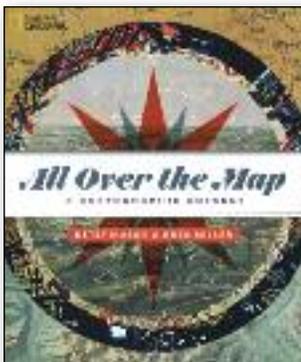
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All Over the Map A Cartographic Odyssey

By Betsy Mason and Greg Miller



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Whether etching lines into animal skins or manipulating pixels on a screen, people have been creating maps to describe, recall, and comprehend the world for thousands of years. Now, award-winning journalists Betsy Mason and Greg Miller, creators of the popular National Geographic blog All Over the Map, share their passion and take you on journeys back in time, forward into the future, around the world, and out into the heavens – all

through the fascinating art and science of cartography.

Brilliantly colorful and intricately detailed, with hundreds of maps, graphics, and in-depth comments from leading cartographers, curators, and scholars, *All Over the Map* will capture the imagination of anyone hungry for knowledge about our world – and the many ways we have found to picture it.

Information taken from inside the front cover.

The Last Word

The 2019 Arctic Return Expedition to Honour Dr. John Rae (1813-1893)

In March 2019, the *Arctic Return Expedition* team, led by David Reid, will embark from Nauyaat (Repulse Bay) in the Central Canadian Arctic on a 650 km trek, on skis and snowshoes, across Boothia Peninsula in an attempt to re-enact the 1854 journey taken by famous Scottish doctor, explorer and surveyor, John Rae.

Dr. John Rae, a native of Orkney, Scotland graduated as a surgeon from Edinburgh University at the age of 19. In 1833, his father, who was the Orkney agent for the Hudson's Bay Company (HBC), suggested that he sign on as a ship's doctor for a round trip to Canada's Arctic. Once it arrived, the ship was iced-in for the winter so Rae accepted a post to be the surgeon and clerk at Moose Factory. He remained there for 10 years and during that time learned to respect the Indigenous people who taught him the skills necessary to survive in the Arctic.

In 1844, Rae's Arctic skills brought him to the attention of Sir George Simpson, HBC Governor in Chief, who asked him to survey and map the northern coastline of Canada in search



John Rae with Franklin relics and Royal Geographical Society Medal – Photographer: Byrne and Co., London, 1889. Credit: HBCA 1987/363-R-2/6

of the Northwest Passage. He received his surveying training from Lieutenant John Henry Lefroy in Toronto and in 1846 set out on his first of five Arctic expeditions. In March 1854, he again set out to map the northern coast of Canada and it was during this expedition that he proved the existence of the Northwest Passage. It was also in this year that he learned the fate of Sir John Franklin from the Inuit. Rae's report that Franklin's crew had resorted to cannibalism was not well received by Lady Franklin and others in Britain and Rae's reputation was destroyed. Rae was the only Arctic explorer of note not to be knighted. It has only been recently that Rae's Arctic achievements have been recognized.

The *Arctic Return Expedition* is expected to take about 35 days. The team will be joined by author Ken McGoogan who will write and publish a book about the journey. More information about the expedition and the team can be found at <https://www.arcticreturn.com>



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