

Volume 31: Issue 1  
January, 2020



# LINES & POINTS

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PROFESSIONAL LAND SURVEYORS OF WYOMING

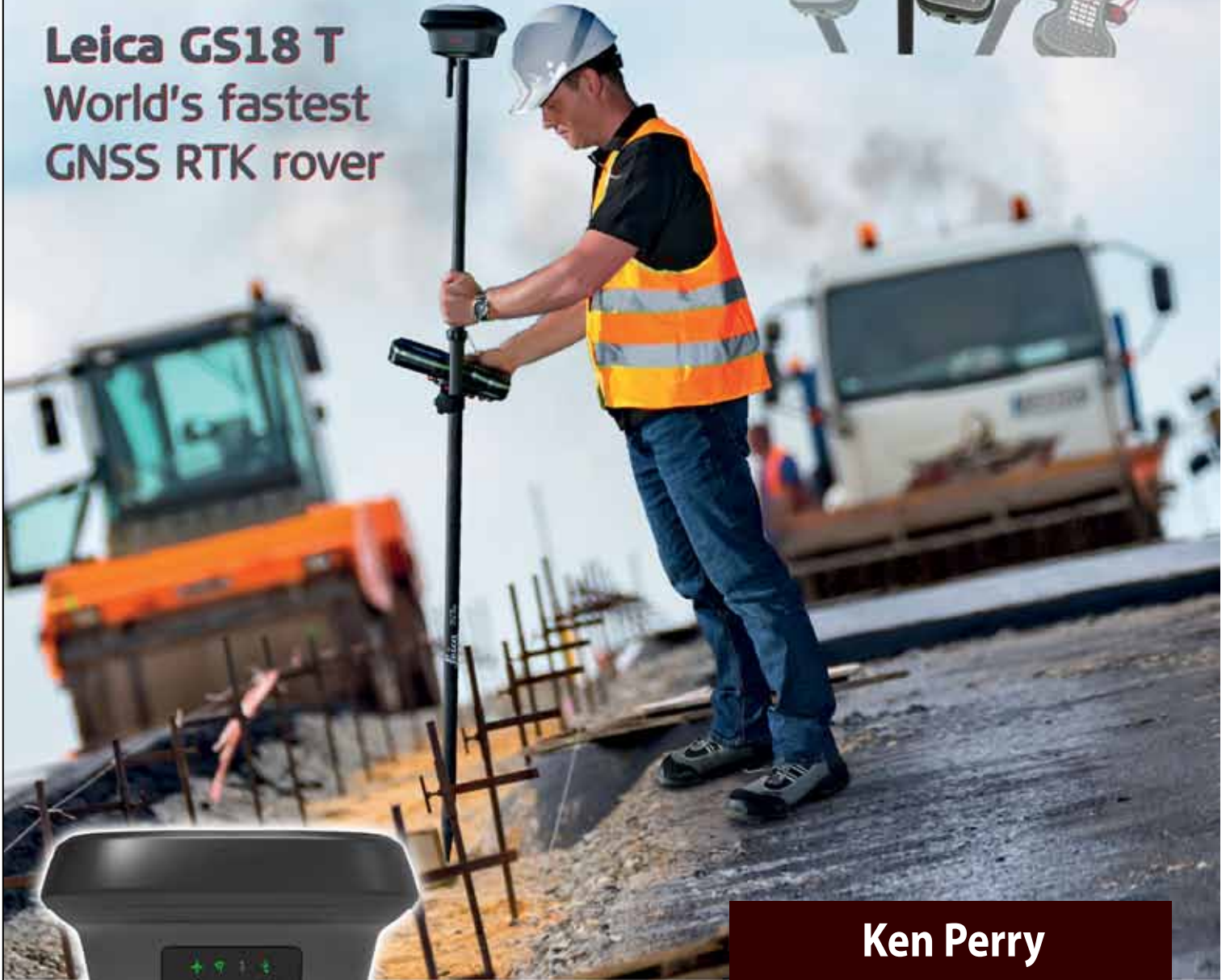




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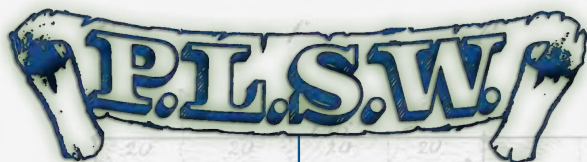


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On The Cover

Wyoming's NE Corner Monument

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SOUTH DAKOTA STATE LINE  
by: the Northeast Chapter

## 2020 PLSW SUSTAINING MEMBERS

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Full Page	\$810	\$210
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Quarter Page	\$310	\$80
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Employment	Free	Free

Special Rates apply for PLSW Chapters and cover placements.

For more information please contact Jack Studley.

PLSW (Professional Land Surveyors of Wyoming; PO Box 8, Cheyenne, WY 82003) is a statewide organization of Land Surveyors registered to practice in the Equality State of Wyoming. PLSW is dedicated to improving the technical, legal, and business aspects of surveying in the State of Wyoming. PLSW is affiliated with the National Society of Professional Surveyors (NSPS) and the Western Federation of Professional Land Surveyors (WestFed).

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## PRESIDENT'S MESSAGE



Winter, at last. A season to enjoy holidays with family and friends, and a much-needed reprieve from the long and busy days of summer. I hope you've all had a wonderful holiday season, and are looking forward to 2020. This year will be the 100th WES, and I hope to see many of you there.

Lyle J. Casciato, PLS, CFedS  
President, Professional Land Surveyors of Wyoming



## ANNOUNCEMENTS

### CONGRATULATIONS!

The members of the Professional Land Surveyors of Wyoming would like to recognize the achievement of the following new Wyoming registrants:

Jason Gustafson	Hammond, WI	LS 17467
Donald Brush	Morrill, NE	LS 17509
Thomas Stuemky	Laramie, WY	LSIT 180
Bart Jensen	Vernal, UT	PELS 13489
Vincent Cavanaugh	Cheyenne, WY	LS 17697



### JOB OPENING DESCRIPTION

Lecturer, Asst - (19004827)

The University of Wyoming invites diverse applicants to consider our employment opportunities. We are also especially interested in candidates who have experience working with diverse populations and/or diverse initiatives.

#### JOB PURPOSE:

Assistant Lecturer of Land Surveying

#### ESSENTIAL DUTIES AND RESPONSIBILITIES:

The Department of Civil and Architectural Engineering at the University of Wyoming invites applications from qualified candidates for a position as assistant lecturer in land surveying. The responsibilities of the position include: teaching undergraduate courses in land surveying; serving as Director of the Land Surveying program, including hiring and training part-time temporary instructors, and conducting assessment related activities; and providing service to the department.

#### SUPPLEMENTAL FUNCTIONS:

Housed within the Department of Civil and Architectural Engineering, the Land Surveying program serves approximately 40 students seeking a Certificate in Cadastral Surveying, several students pursuing a Minor in Land Surveying, and dozens of other students taking individual courses. Most courses are offered online. The program includes one full-time faculty member (this position), plus several part-time temporary instructors who work remotely.

For additional information, please see: <http://www.uwyo.edu/civil/landsurvey/>

At the University of Wyoming, Assistant Lecturers have a six-year probationary period

with annual reviews and the possibility of skipping the reappointment reviews in the third and fifth years. Upon promotion to Associate Lecturer, the position includes a three-year rolling contract. Visiting Assistant Lecturers have a one-year contract with annual reappointment reviews. In each case, reappointment is contingent both on meritorious performance and on the continued consistency of the position with the University's programmatic needs and priorities.

#### MINIMUM QUALIFICATIONS:

Registration as a Professional Land Surveyor.

Bachelor's degree. Note: Candidates without a Master's degree may be hired with the title Visiting Assistant Lecturer.

#### DESIRED QUALIFICATIONS:

Master's degree, for the position of Assistant Lecturer

Supervisory experience

Teaching experience

#### REQUIRED MATERIALS:

Complete the online application and upload the following for a complete application: 1) a letter of application, 2) a detailed resume or curriculum vitae, 3) a statement of teaching interests, and 4) contact information for three professional references. Review of applications will begin December 15, 2019 and continue until the position is filled. Submit applications in a single PDF file.

Primary Location: US-WY-Laramie

Job: Academic

Posted Salary Range From: \$63204


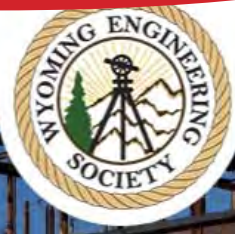
Hiring Manager: Anthony Scott Denzer

# 2020 WES CONVENTION FOR SUREVEYORS (IN 5 EASY STEPS)

100th Annual Convention - Wyo

← → [wyomingengineeringsociety.org/convention/100th-annual-convention/](https://wyomingengineeringsociety.org/convention/100th-annual-convention/)

1. Go HERE



## CONVENTION

## 100th Annual Convention

As fall draws to a close, and we settle into winter, I'd like to encourage you to block out February 5-6-7, 2020 in your calendar as we prepare to gather in Cheyenne for the 100th Annual Wyoming Engineering Society Convention. 100 years of WES is quite an achievement, and the board, standing committees, and executive director have been working hard to make this year's convention worthy of this milestone. We have some new changes this year that we are excited to share with you in February. So please register for the convention and be prepared to have a great time!

Gary Grigsby – Executive Director

### 100<sup>th</sup> Annual Convention

Wednesday, February 5th  
through  
Friday, February 7th, 2020

***Little America Hotel and Convention Center***

**Future conventions:**

101<sup>th</sup> convention – February , 2021 – Sheridan  
101<sup>th</sup> convention – February , 2022 – TBD

**To learn about the convention, and register,  
select one of the following:**

- Local volunteer COMMITTEES make the convention possible
- The PROGRAM promises to keep participants busy and informed
- EXHIBITS PROGRAM
- **REGISTRATION is s**
- ACCOMMODATIONS

2. CLICK HERE

### 3. FILL THIS OUT

Personal Information - Wyoming x +

web.cvent.com/event/f795c16... Guest

Welcome Attendees to the 100th Annual Convention!!!!

**Wyoming Engineering Society**

February 5, 2020—February 7, 2020  
7:30 AM-12:00 PM

Little America Hotel and Convention Center  
2800 West Lincolnway  
Cheyenne, WY 82009

**Personal Information**  
(Fill out the information below, then click Next to continue.)

First Name:

Last Name:

Title:

Email Address:

☐ I'm registering on behalf of this person

Business Phone:

Company Name:

There are 5 registration types for you to choose from:

- Attendee - Non Member:** use this registration type if you do not choose to belong to WES but want to attend the conference.
- Attendee - Paying Dues:** use this registration type if you would like to register for the convention and pay your current dues for 2020. If you are an owner or dues payor at the registration desk (pay back dues before you will be allowed to attend).
- Attendee - Pre Paid Dues:** use this registration type if you have already paid your 2020 dues or if you are an Honorary Member.
- Exhibitor:** use this registration type if you would like to purchase a table/booth at the WES convention.
- Exhibitor Staff:** use this registration type if you are additional staff and would like to purchase Exhibit tickets.
- Speaker:** use this registration type if you have agreed to present at one of the sessions.
- Student:** use this registration type if you are currently attending the University of Wyoming or a Junior College in the region.

Registration type:

### 4. PAY THIS

- The registration fee this year will include the two lunches, Wednesday and Thursday, and the Thursday night hosted reception.
- The convention registration desk will open at 8:00 am on Wednesday, February 5, 2020.
- The ASCE Continuing Education Program on Friday morning, February 7, is not covered under the WES registration. A separate registration fee is required.
- Annual membership dues are \$60.00/year.
  - Members - \$60.00 (2019)
  - Student Members - \$10.00
  - Honorary Members - none
- Individuals must have an official registration badge for admission to convention events and the exhibit area.
- Registration fee will be refunded if cancellation is requested prior to 5:00 pm on January 20, 2020. Registration fees will not be refunded after that time. There is a charge for using a credit card to register and that fee will not be refunded.
- Annual dues payments will not be refunded.
- If you are registering for the Order of the Engineer, registration will close on January 24th, 2020 so that the rings can be ordered. You will need to enter your ring size if you register for this session.

## 5. ATTEND THIS

Wednesday, February 5:

2:35- 3:30 pm

Hixon Manufacturing, Shannon Hixon

Subject: Drone advances and applications.

*This class will discuss the recent advances in drone technologies and their application and use in the land surveying fields.*

3:50- 4:45 pm

William Stone, S.W.Regional Advisor, NOAA/NGS

Subject: 2022 Datums

*This class will discuss the upcoming datum modifications, their purpose and application in the Geodetic and Professional Land Surveying fields.*

Thursday, February 6:

8:20 – 10:30 am

PLSW Annual Business Meeting

10:50 – 11:45 am

PLSW Board of Directors Meeting

1:20- 2:15 pm

Jason Dysthe, Frontier Precision

Subject: How to prepare for NGS's 2022 Datums in Office & Software

*This class will give a historic overview of NGS Datums in North America. The session will focus on the initiatives of NGS 2022, including pending datums to replace NAD83 and NAVD88. We will discuss ways for Land Surveyors and Geospatial Professionals to prepare for these upcoming changes with recommended standard operating procedures for both field and office applications.*

2:35- 3:30 pm

Joe Scott, Nat. Res. Program Supv., Wyo. Oil & Gas Conservation Commission

Subject: Certification of Agency map submittals.

*This class will discuss the certification requirements for maps submitted to the agency, and how they interact with the overall Agency agenda, procedures and goals.*



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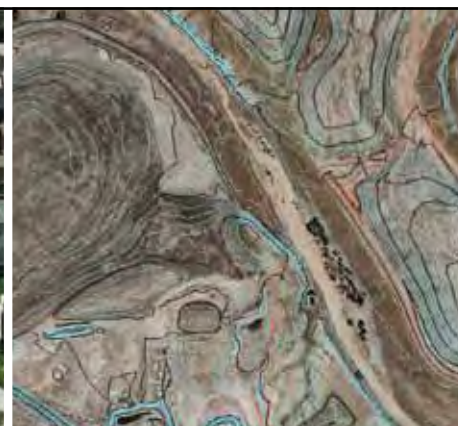
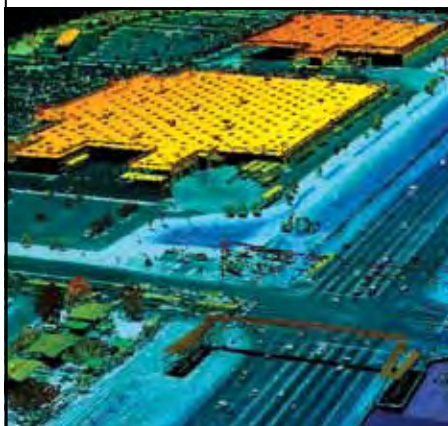
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<b>LADIES</b>						<b>\$65</b>				<b>\$70</b>	
<b>STS</b>						<b>\$125</b>				<b>\$130</b>	
<b>SHIPPING</b>						<b>\$15 PER</b>				<b>\$15 PER</b>	



# MONOLITHS OF THE WYOMING/ SOUTH DAKOTA STATE LINE

by: the Northeast Chapter

In 1904 two separate contracts were awarded for the Resurvey and Re-Establishment of the Wyoming/South Dakota boundary. Edward F. Stahle and Frank S. Peck were the surveyors that would oversee the surveys. Stahl was given the South 104 miles of the boundary and Peck was given the North 101 miles of the boundary. They would be re-tracing Rollin Joseph Reeves original survey of the state line in 1877.

Mr. Reeves has an interesting background of surveying through the western states during the 1870's - a very risky time period for land surveyors. He executed several state lines surveys, Minnesota, Washington/Idaho, Wyoming/South Dakota, Colorado/Utah and the Wyoming / Montana lines. He also worked on the 7th Standard Parallel and extended the 5th Standard Parallel 90 miles West in Washington.

Reeves also surveyed the 42,000-acre Mesita de Juana Lopez Grant in 1876, in New Mexico. He agreed to survey the Wyoming/South Dakota state line, but only with the promise that adequate military escort be provided. With a 20-man military escort, he surveyed the first 132 miles until they were attacked by Indians at the Belle Fourche River, killing 5 men, destroying his instruments and field notes, and stealing everything else. Reeves had to wait 9 days before he could resume the survey by extending backsights to the Northeast corner of Wyoming. The notes were restored by use of the notes of the field crews. Reeves later filed a claim against the Federal Government for the loss of his equipment and time. Monuments used in this survey were wood post mostly with a few stones set. When Mr. Reeves surveyed the Colorado/Utah state line he also had a military escort. His supply caravan included 150-horses and was



*Northeast corner of Wyoming. In 1993 a Retracement and Dependent Resurvey saw the rehabilitation of this monument, a triangular concrete pad was poured around the monument, a BLM brass cap was placed in the top of the monument, three reference monuments were set one in each of the states that border this monument ( Montana, Wyoming and South Dakota). The Northeast Chapter of PLSW visited this site on August 24, 2019 to check on the condition of the monument and found it to be in good health.*





*Plaque that was set at the base of the Northeast Corner of Wyoming*

staffed by an African American Cavalry Company. Mr. Reeves surveyed the Wyoming/Montana state line in 1879-1882 and this was probably his last adventure as a government surveyor.

On September 3, 1904 U.S. Surveyor Edward F. Stahle began the Resurvey and Re-Establishment of the South 104 Miles of the West Boundary line of South Dakota (omitting the 57th to 81st miles inclusive). They began the survey at the Southwest corner of South Dakota and proceeded northward. He was charged with setting Jasper monoliths (6'x10"x10") as mile post. Jasper Monoliths contract was with a Sioux Falls, South Dakota company who also did the surfacing, lettering and numbering on accordance with the Survey Instructions. The brass capped iron posts contract was with a St. Louis Firm. The stone monuments were shipped by rail to Edgemont, South Dakota where Mr. Stahle inspected them and arranged for the Jasper monoliths to be distributed along the boundary line. Stahle's survey was completed on June 22, 1905.

Stahl shut down his survey on September 20, 1904 and disbursed his crew and he then returned to Cheyenne for the winter. Up to this point all the mile markers were the Jasper monoliths. Stahle resumed the survey on May 21, 1905 at the 39th mile marker and from this point Stahle set Iron posts with brass caps. Upon reaching the 56th mile marker he found that a monument had already been set by the U. S. Geological survey when they surveyed the Black Hills Forest Reserve. He set his mile marker next to the U. S. Geological survey marker (double monumentation even back then). Stahle proceeded to retrace the state line to the 59th mile marker and found that they had all been set in a similar way. Stahle decided that he needed some guidance on how to proceed, so on May 31st he drove from his campsite to Newcastle Wyoming and addressed a communication to the Honorable Commissioner of the General Land Office requesting instructions. June 6th he received word back from the General Land Office instructing him to proceed to the 81st mile marker as the 56th to the 81st mile markers had



been set by the U. S. Geological survey. On June 8th he broke camp and proceeded to the 81st mile marker arriving on June 9th. The survey continued to the 104th mile marker which they monumented with an iron post with a brass cap. Stahle's crew consisted of 7 chainmen, 5 moundmen, 2 axmen and 2 flagmen. All the men signed Preliminary Oaths of Assistants, that are made part of the field notes and the same people signed the Final Oath of Assistants. Mr. Stahle was then awarded the contract to Resurvey and Re-Establishment of the Wyoming/Nebraska state boundary and set similar stone monuments. This survey commenced May 17, 1908 and was completed on July 8, 1908.

Frank S. Peck was awarded the contract for the Resurvey and Re-Establishment of the North 101 miles of the West Boundary line of South Dakota to the Northwest corner of South Dakota/Northeast corner of Wyoming. Mr. Peck began his survey on October 21, 1904 and completed the survey on November 3, 1904. They completed this task in only 14 days, at the astounding pace of 7.2 miles per day, including the setting of the monuments. Wow! Mr. Peck mentions in the field notes that "Preliminary to commencing the official re-survey of the West boundary of South Dakota, assigned to me under my contract dated June 11,

1904, I made a careful retracement of the line in order to locate the old corners and to familiarize myself with the conditions relative thereto, and at the different mile corners I set permanent hubs so that the teams delivering the monuments could deliver direct and avoid long delays". This may account for the very short time spent by the 8 man survey crew to complete the boundary survey. Mr. Peck states in the field noted that the stone monuments were furnished by Lowe & Handley of Sioux Falls, South Dakota.

The special instructions, dated July 1, 1904, were amended by three letters from the Honorable Commissioner of the General Land Office amending the special instructions, dated July 1, 1904. The first letter discloses the amount of the contract (\$10,100.00); the stone to be used is a fine grains quartzite known as "Sioux Falls Jasper", the dimensions of the monuments, as well as the type of lettering the height of the lettering and the depth of the V-shaped grooves and the location of the lettering on the monument. The second letter concerns the size and location of the pits that are to be dug at each mile marker. Peck was informed that there would be 4 pits, two across the line and one to the East and West of the monument. In response to these instructions Mr. Peck writes a letter to the Commissioner stating that 4 pits 36"x36"x12" deep, would make the mound too large. The Commissioner authorized 2 pits be dug North and South of the corner 8' distant.



*11 M South face.*

*Located in Section 27,  
Township 36 N, Range 60 W,  
Niobrara County, Wyoming.*

*11 M East face*





*"20 M" monument is located in Section 10, Township 38 North, Range 60 West, Niobrara County, Wyoming. About a mile South of where State Highway 18 crosses the State line.*



*"1904" on North Face.*



*"S D" on East face.*



*"WY" on West Face.*



*"20 M" South Face.*



With each monolith weighing in at 600-700 pounds, this must have been quite a difficult job. It would be interesting to find out how they managed to place monuments in the holes that had to be dug. It may be well to note that the North and South boundary of South Dakota had been monumented in a like manner prior to these two surveys being executed. The boundary between North & South Dakota once had 720 stone monuments on it. The monuments used on this line were 7 feet long, 10" square set 3 1/2 feet

in the ground and weighed closer to 800 pounds, they were set at section corners, quarter corners, mile corners and half mile corners. Gordon Iseminger, a professor of history at the University of North Dakota published a book in 1988 "The Quartzite Border: Surveying and Marking the North Dakota-South Dakota Boundary, 1891-1892", containing a complete discussion of the establishing and manumitting of this boundary. Some of the monuments have fallen, been moved for road construction, preyed on by vandals or



*14 M South face.  
Located in Section 10,  
Township 36 N, Range 60 W,  
Niobrara County, Wyoming.*



*19 M South face.  
Located in Section 15,  
Township 38 N, Range 60 W,  
Niobrara County, Wyoming.*



*A fallen soldier.  
These monuments have withstood  
everything that Mother Nature has  
handed out for over 100 years, but  
they cannot withstand mankind.  
Sad!*



*View of the North facing portion of the cap.*

*Black Hills Forest Reserve Boundary Post No. 140. This monument has three job descriptions:*

- 1) Boundary Post No. 140.*
- 2) Mile Marker 69 M.*
- 3) Initial point for the Black Hills Baseline.*

*Getting to this Monument is a 2 mile round trip from the end of the road thru deadfall & timber. This is the monument that boundary walker, Emmett Bennett was looking for when he died.*

*View of the East facing portion of the cap.*

*View of the South facing portion of the cap.*

stolen. Some were sequestered as yard ornaments. One stands on the Marshall County Courthouse lawn in Britton, South Dakota, another at The Post, an event space and former museum in Mandan, North Dakota.

In the May/June 2000 issue of South Dakota Magazine there is a story of The Boundary Walker. Emmett Bennett retired from the Postal Service in 1970. He walked the streets of Rapid City for 25 years delivering the mail. Upon retirement Emmett resolved to rediscover and map the lost and forgotten markers that encircle the entire state of South Dakota except for the southeast corner where the Big Sioux and Missouri rivers provide a natural boundary. Emmett Bennett perished on one of his walks searching for monuments on the South Dakota-Wyoming boundary on the last day of September 1998. You can go online to <http://www.southdakotamagazine.com/boundary-walker> to read this very interesting story in its entirety.

A very interesting web site to visit is [www.dahp.wa.gov/sites/default/files/glosurveyorsnotes.pdf](http://www.dahp.wa.gov/sites/default/files/glosurveyorsnotes.pdf). This document contains brief bios on many of the surveyors that surveyed in the state of Washington, including an extensive background

on Reeves and the trials of his personal and professional life. Check it out. I think that you will find it very interesting and informative. I must thank James Jacob for sending me a link to the web site.

Thanks, to everyone that helped me with research, photos and editing. During the course of writing this article I was introduced to a wonderful book by C. Albert White "Initial Points of the Rectangular Survey System". Chapter 31 is on the Black Hills Meridian and Baseline and gives directions on how to get to the Initial Point.

## ATTENTION!

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#### LINEs AND POINTS ARTICLE ROTATION SUBMISSION SCHEDULE BY CHAPTER

Responsible Chapter	First Call Date	Last Call Date	Publication Date
Northeast Chapter	THANK YOU!! (SEE "MONOLITHS OF THE STATE LINE" IN THIS ISSUE)		
Northwest Chapter	March 1	March 15	April 1, 2020
West Chapter	June 1	June 15	July 1, 2020
Central Chapter	September 1	September 15	October 1, 2020
South Central Chapter	December 1	December 15, 2020	January 1, 2021
Southeast Chapter	March 1	March 15	April 1, 2021
Upper Platte Chapter	June 1	June 15	July 1, 2021



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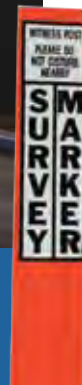
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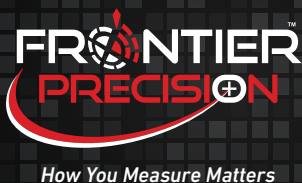
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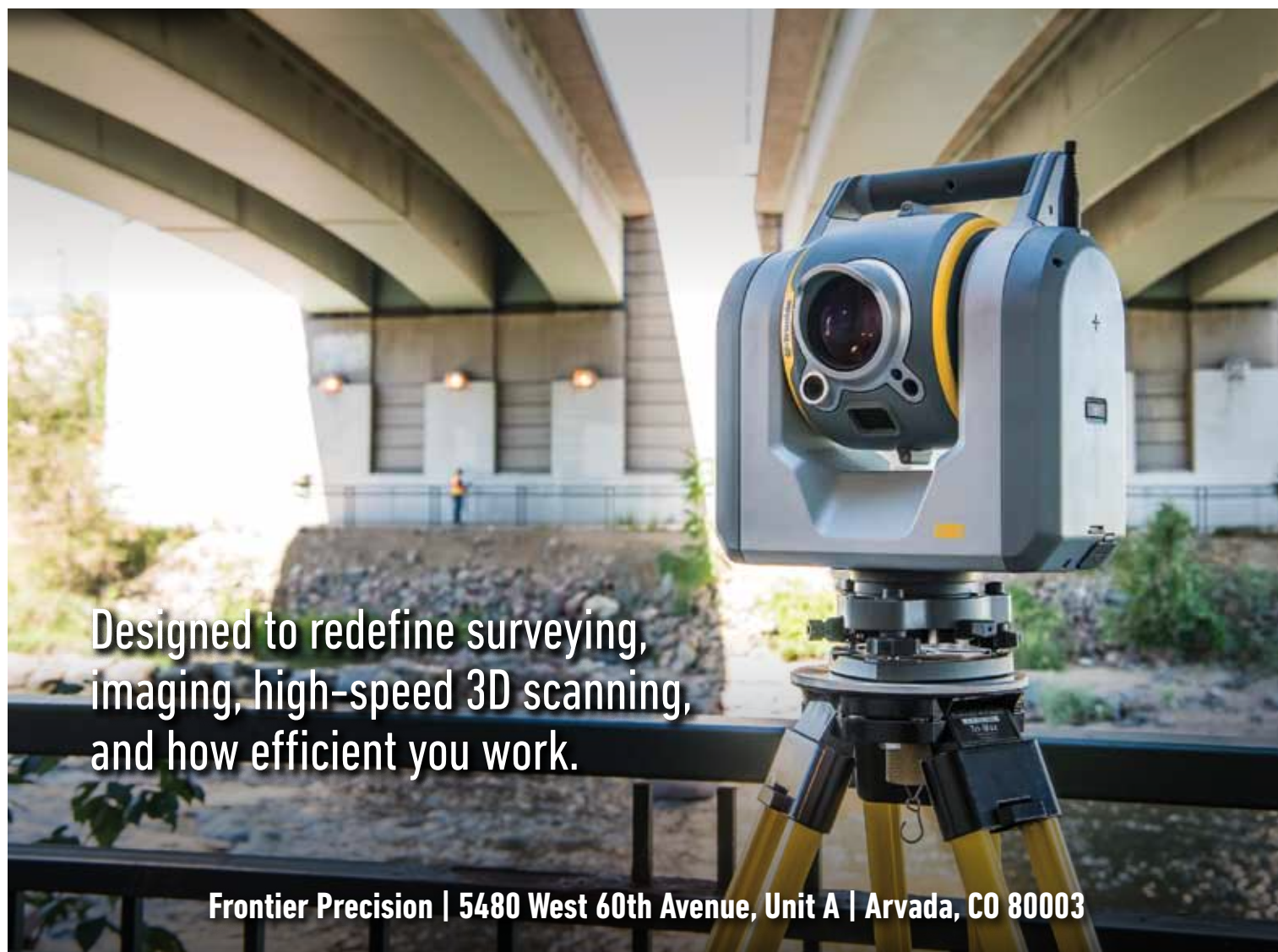
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