

A Colonial Surveyor in President Jefferson's Public Lands

My apologies to Mark Twain, as in parts of my journey to obtain CFedS Certification I felt like the Connecticut Yankee, in King Arthur's Court, but in reverse. That is, I was the learner and my predecessors were the teachers. Also, my appreciation for *American Surveyor* Magazine's motto "A Foot in the Past...An Eye to the Future" prompted me to write about the journey that I recently completed.

I first learned about the Certification as a Federal Surveyor (CFedS) through contact with Public Land Surveyors at various websites and bulletin boards, and in columns by PLSS surveyors such as Jeff Lucas. I decided to undertake the CFedS program for several reasons. First, I like to learn, especially about land surveying. Then there was the chance to be the first surveyor in Massachusetts to obtain it. Mostly it was to learn something new with the hope that federal regulations will change in the future to require a CFedS on any Indian land or Federal Land surveys. There are Indian Lands in Massachusetts, as well as a huge Federal Park known as the National Seashore, as well as various military bases. I have worked in and around the National

Seashore and with the Army Reserves at several of their facilities, but have yet to take part in any local Indian projects.

The cost of the course is \$1,200, plus an additional \$100 for the printed materials. Printed material comes on the program's external hard drive. For convenience I chose to have the BLM *Manual* (1979) and the *Glossary of BLM Surveying and Mapping Terms* printed and bound for my use. That cost me about \$50 at the local print shop.

There are seven modules in the course, and you must pass a quiz before moving from one section to the next. You can take a quiz as often as necessary until you pass, but you must wait 24 hours before retaking it. The sections are logically organized, and within each module are several video clips of instructors lecturing on the subject. Sometimes there is more than one instructor. The printed materials are verbatim of the video lectures. I found it most helpful to watch the video and follow in the book, then reread the material.

Course One, "History, Records and Administration" provides an outline of the course as well as where to find the historical

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Section Corner in the Alaska Kilbuck mountains, photo by Daryl K. Moistner (www.nevadasurveyor.com)

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records needed for preparing a survey. There is also discussion about the Bureau of Indian Affairs (BIA) and the responsibility that the Department of the Interior has to the Indian nations.

Course Two is “Boundary Law and title Examinations.” This subject was pretty familiar to me until I got to Federal Boundary Law and started dealing with chains (still used as a unit of measurement, and for good reason!), Latitudinal Curves and allowing for convergence of meridians, and then “Controlling Intermediate Monuments.” If you run a constant bearing based on true north (as is everything in the BLM) you are running a curved line.

Course Three deals with “Survey Evidence Analysis”. The big one, Course 4, covers “Restoration of Lost Corners.” I got hung up on that one for a while, but only because I was over-thinking the material. Once it ‘clicked’ with me, and I found the logic, I was able to pass the quiz. “Introduction to Water Boundaries” is next and I found this the easiest course for me. It’s the only one that I passed on the first attempt. Course 6 deals with “Subdivision of Sections”, which was most fascinating to me. Area relationships

are very logical, and calculating protracted boundaries along with Fractional Calculations made complete sense. I really felt a part of the BLM thought process! Course 7 is a catch-all on “Boundary Standards” which brought all the previous sections together but placed an emphasis on Indian Trust Certificates. We reviewed the convergence of meridians and True Bearings of lines.

There are many differences between PLSS and Colonial surveying. Because I’m a ‘flat lander’, that is, a cadastral surveyor, the earth doesn’t curve for my projects! (Okay, when laying out townships, the earth is curved and the supposed straight lines that you run better curve with it. When you run a constant bearing based off of Astronomic North you are going to run a curved line and you have to compensate for that convergence of meridians. This is not our make-believe grid of State Plane coordinates, this is establishing large townships and then subdividing those townships into sections).

Meander lines are meant to approximate the high watermark at water bodies that can’t be run through. I had previously thought that they were similar to our random traverse lines and that they didn’t matter. But the purpose in running

them was to evaluate the potential for usable upland, farm land, or other more valuable land than the swamp or water body that was encountered. And by the way, the left/right bank is determined from looking downstream, not upstream.

Just like any profession, or specialized branch of a profession, the PLSS has many of its own definitions, therefore the Glossary of BLM Surveying terms is a “must have” for the exam. Do you know the difference between a *thalweg* and the *thread* of a stream? Which one is held for a property line?

Several of the concepts with the CFedS course will be very familiar to any surveyor. Junior and Senior rights are very important as is the concept of Simultaneous Conveyance. One of the most important aspects of PLSS is to “protect the plat” and the same with holding original monuments. An original monument cannot be wrong! These are some very near and dear concepts that I practice already.

Why would a colonial surveyor take part in the CFedS when it’s not required anywhere yet? For one reason, it’s not often we can be the “first” at something at a state level. But more important, I’ve enjoyed the challenge of learning something new. Recently I read a newspaper

article about the tribal council Chairman of the Wampanoags who testified before Congress and requested that tribal lands be placed in trust with the Department of the Interior. I understood what was being discussed as well as the benefits of the trust for the Wampanoags. The Wampanoags are a local tribe with lands at the southwestern part of the Cape as well as off Cape. They have found that their lands have been transferred out of the reservations to private owners and they now have no land left under federal protection. "Today we lack a single acre of federally protected territory" Chairman Cedric Crowell stated. There are several facets dealing with trust land that CFedS can accomplish, such as Land Description Certificates, Chain of Survey Certificates, Certificate of Inspection and Possession, and the Boundary Assurance Certificate.

To the other end of Cape Cod lies the National Seashore with approximately 45,000 acres on that sand bar that stretches from Chatham at the southeast tip up through Provincetown at the northern end. Should the Cape Cod National Seashore ever have a project that would benefit by having a CFedS on board, they now have access to one in their own backyard.

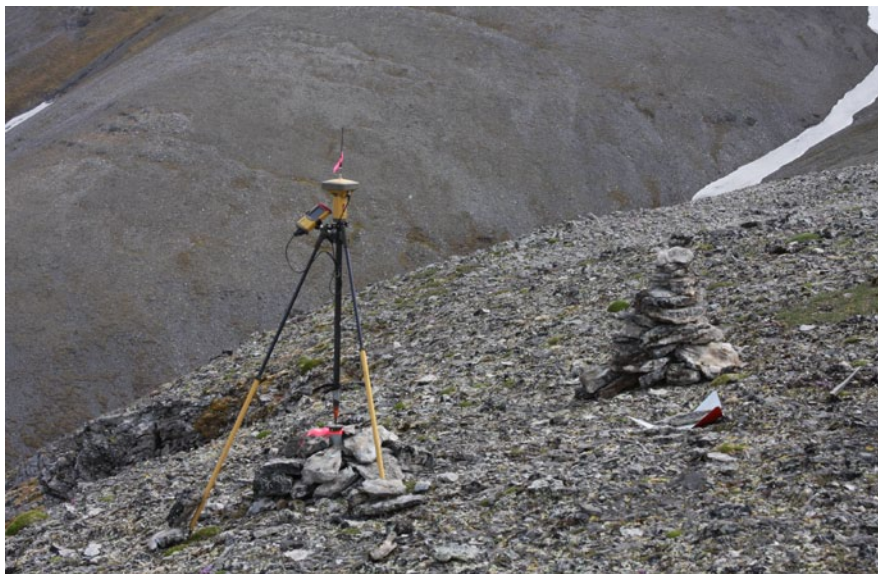
Those are two compelling reasons alone, not to mention the education I received by a talented staff at the BLM. The program is divided into twenty-week groups. Every other week, more or less, there is a conference call for that group where you review the course to date, what's coming up and questions get answered. This was invaluable to me. I joined two groups; mine and the one behind me so I could get extra help if needed. In addition, emails are answered promptly and if there's a difficult question then someone will call. (Thank you, Roger Green!)

Obtaining my CFedS certification was worth it to me, it will be worth it to you, if you love surveying as much as I do! *AS*

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Bearing Tree in Alaska, photo by Daryl K. Moistner



Anaktuvuk Alaska, Section Corner and Cairn, photo by Daryl K. Moistner



(Left) Township 6 & 7 North, Rangers 5 & 6 East, 1857 Township corner set by Jonathan P. Jones, Hallam Nebraska. (Right) Quarter Corner set 1857, recovered by Deputy State Surveyor Hugh Dillion in 1937. Photos by Jerry Penry (www.penryfamily.com)