

## ***Tanana Chiefs Conference, Inc. Cadastral Survey Program***

### **HISTORY**

Under the Alaska Native Claims Settlement Act (ANCSA), The U.S. Department of the Interior, Bureau of Land Management was ordered to survey the areas selected or designated for conveyance to Village Corporations. The exterior boundaries of the selected areas must be monumented at angle points and at intervals of approximately two miles on straight lines. Within the areas selected, all parcels designated as primary place of residence, primary place of business, cemeteries, historical sites and any other lands to be patented under ANCSA are to be surveyed as well.

Prior to the enactment of the Alaska Native Land Claims Settlement Act, Native Allotments were provided for by laws passed in 1887, 1906 and 1910. Any applications that were pending as of the date of ANCSA could still be approved and a patent issued in accordance with the prior law. Native Allotment surveys are classified as "Special Surveys" by the Bureau of Land Management. Unlike Village Corporation land selections, which are required to conform to the principles of the Public Land System, the allotments are exceptions to the rectangular survey system. They are irregular in relationship to the rectangular survey system and are excluded from the area returned on township plats.

Now, under contract to the Bureau of Land Management, Tanana Chiefs Conference is performing the survey of both allotments and village selected lands within the Doyon region. The Cadastral Survey program provides training and employment opportunities for eligible applicants, and exercises Native preference in the selection process.

### **SURVEYING INDIAN LANDS**

The survey of an allotment (or other selected lands) takes place after a lengthy administrative review by the Bureau of Land Management. The survey is authorized by the issue of "Survey Instructions", by which the BLM directs the field surveyor in the methods to be used and the configuration of the parcel to be monumented.

TCC survey crews then perform any preliminary work, such as riverbank location, required to design the parcel boundary to enclose the acreage specified. When lot design is completed, TCC crews traverse around the boundary, clearing the property line and setting monuments at angle points in the parcel boundary. During this time, BLM Inspectors work with claimants and TCC personnel to assure that any last minute questions or problems are addressed in a timely manner. BLM personnel also inspect nearly every survey performed to confirm that contract regulations are being met.

After the survey is executed, a graphic representation, called a "plat" is submitted for review by the BLM. An example of a plat prepared for U.S. Survey No. 10814, near Tanana, Alaska, is contained on the back of this sheet. This document contains all the information a claimant, neighbor or interested party would need to determine the location of the boundaries of this allotment. The plat is 100% computer-generated, using available computer-assisted drafting techniques and word processing software.

The survey and plat is an important step in the process of receiving patent to an allotment or other selected lands. The plat is referred to in the patent document and is considered to be an integral part of the conveyance action. The TCC Cadastral Survey Program, now in its second year, is performing the important service of completing the survey of Indian lands, while concurrently teaching valuable skills.

DATE \_\_\_\_\_

# U.S. SURVEY No. 10814, ALASKA

This plot contains the entire survey record.

The survey of the boundaries of Township 4 North, Range 22 West, Fairbanks Meridian, Alaska, was executed by C.A. Herzbach, Registered Land Surveyor, for International Technology, Ltd., in 1978 under Contract No. YA-512-CT8-141, awarded June 14, 1978, and Special Instructions for Group No. 292, dated October 7, 1977, and approved October 25, 1977.

This survey was executed by Eric Stahlke, Registered Alaska Land Surveyor No. LS-6945, for Tanona Chiefs Conference, Inc., August 6 through August 10, 1993. In accordance with the specifications set forth in the Manual of Surveying Instructions, 1973, Special Instructions dated June 18, 1991 and approved August 25, 1992, under Contract No. 1422-N851-C3-3030, awarded April 16, 1993, and Notice to Proceed dated April 19, 1993.

Field assistants were:

- Michael P. Frame, Land Surveyor
- Lawrence K. Bakkedahl, Survey Technician
- Robert L. Albert, Survey Technician
- Victor J. DeWilde, Survey Technician
- Lawrence Guthrie, Survey Technician

Area: 79.97 Acres.

The azimuth was obtained from direct observation of the sun, using the hour angle method, and refers to the true meridian.

The geographic position of corner No. 1, identical with cor. No. 3, Lot 2, U.S. Survey No. 10811, as determined from a direct tie to U.S.C. & G.S. Triangulation Station "Mission Hill 1942", is:

Latitude: 65°12'02.34" North  
 Longitude: 152°03'00.44" West

The magnetic declination was observed during the execution of this survey.

This survey is situated approximately one mile northerly of the village of Tanana, within Township 4 North, Range 22 West, Fairbanks Meridian, Alaska.

The land is generally rolling hills to the north and level along the southerly portion, with vegetation consisting of spruce, spruce, birch, alder and willow. The soil consists of silt, with permafrost scattered throughout.

Access to the parcel was by automobile.

Acceptance of this survey does not purport to transfer any interest in submerged lands to which the State of Alaska is entitled under the Equal Footing Doctrine and Section 6(m) of the Alaska Statehood Act, P.L. 85-508, notwithstanding the use, location, or absence of meander lines to depict water bodies.

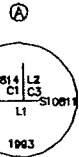
UNITED STATES DEPARTMENT OF THE INTERIOR  
 BUREAU OF LAND MANAGEMENT  
 Anchorage, Alaska

The survey represented by this plot, having been correctly executed in accordance with the requirements of law and the regulations of this Bureau, is hereby accepted.

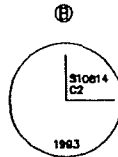
For the Director

Date

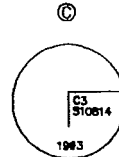
Deputy State Director for Cadastral Survey, Alaska



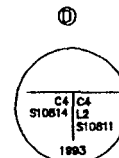
Set a stainless steel post, 28 ins. long, 2 1/2 ins. diam., 28 ins. in the ground, with brass cap mkd. as shown, from which,  
 A spruce, 5 ins. diam., bears N. 51 1/4° E., 47 ins. dist., mkd. C3 L2 S10814 BT.  
 A spruce, 3 ins. diam., bears N. 44° W., 61 ins. dist., mkd. X BT.  
 Deposit a magnet in a white plastic case at the base of the stainless steel post.



Set a stainless steel post, 28 ins. long, 2 1/2 ins. diam., 28 ins. in the ground, with brass cap mkd. as shown, from which,  
 A spruce, 10 ins. diam., bears N. 27 1/4° E., 163 ins. dist., mkd. C2 S10814 BT.  
 A tamarack, 4 ins. diam., bears N. 77 1/2° W., 76 ins. dist., mkd. X BT.  
 Deposit a magnet in a white plastic case at the base of the stainless steel post.



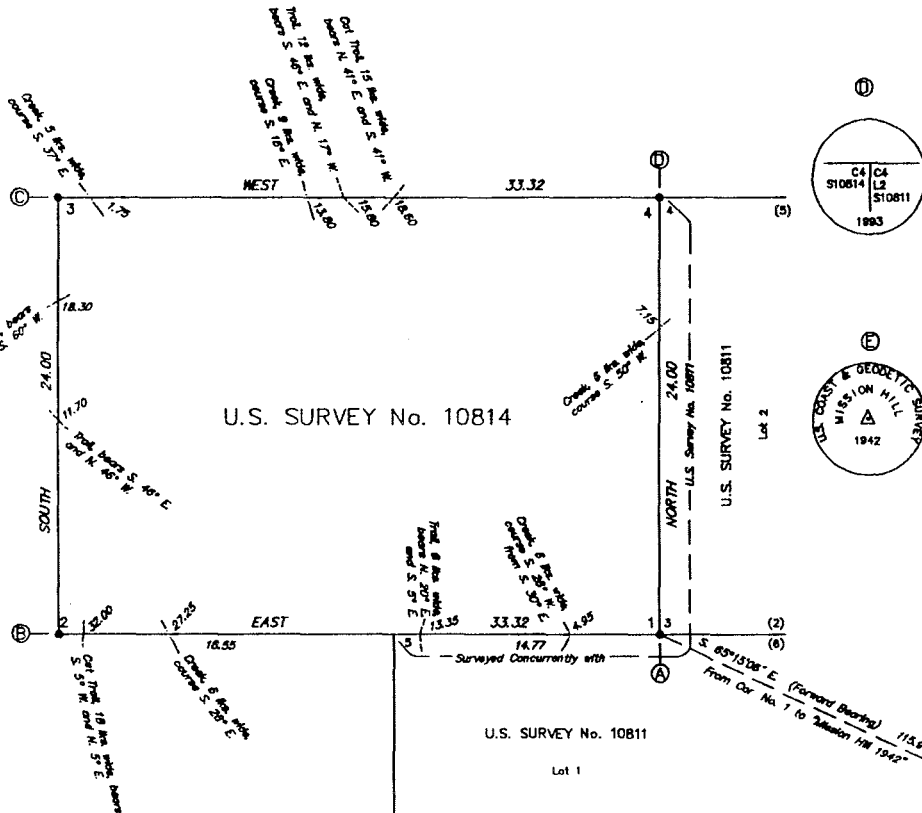
Set a stainless steel post, 28 ins. long, 2 1/2 ins. diam., 28 ins. in the ground, with brass cap mkd. as shown, from which,  
 A spruce, 4 ins. diam., bears N. 42 3/4° E., 40 ins. dist., mkd. X BT.  
 A spruce, 4 ins. diam., bears S. 36 1/4° E., 70 ins. dist., mkd. C3 S10814 BT.  
 Deposit a magnet in a white plastic case at the base of the stainless steel post.



Set a stainless steel post, 28 ins. long, 2 1/2 ins. diam., 28 ins. in the ground, with brass cap mkd. as shown, from which,  
 A spruce, 4 ins. diam., bears N. 20 3/4° E., 82 ins. dist., mkd. X BT.  
 A spruce, 8 ins. diam., bears S. 46 1/4° E., 148 ins. dist., mkd. C4 L2 S10811 BT.  
 A spruce, 4 ins. diam., bears S. 81 1/4° W., 143 ins. dist., mkd. C4 S10814 BT.  
 Deposit a magnet in a white plastic case at the base of the stainless steel post.



Recovered on iron post, 2 ins. diam., projecting 0.6 ft. above the ground, with 3 1/4 ins. brass cap mkd. as shown.



U.S. SURVEY No. 10814

U.S. SURVEY No. 10811

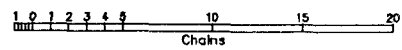
Lot 1

Lot 2

I, ERIC STAHLKE, Registered Alaska Land Surveyor No. LS-6945, HEREBY CERTIFY upon honor that in pursuance of Special Instructions dated June 18, 1991 and under Contract No. 1422-N851-C3-3030, awarded April 16, 1993, I have executed the survey depicted on this plot in strict conformity with said Special Instructions, the Manual of Instructions for the Survey of the Public Lands of the United States, 1973, and in the specific manner described on this plot.



Date \_\_\_\_\_ Registered Land Surveyor \_\_\_\_\_



## **OPPORTUNITIES IN SURVEYING: TCC contracting boosts tribal employment and training**

In the past, surveys of Native allotments and village corporation entitlement lands were performed by private survey firms under contract with the Bureau of Land Management (BLM). Over half of the ANCSA lands were surveyed and platted under that system, which included no Native-hire preference.

The Indian Self-Determination and Education Assistance Act, adopted by Congress in 1975, requires that federal programs, contracts and grants to Indian organizations or for the benefit of Indians, give preference and opportunities for training and employment to Indians, to the greatest extent feasible. The act is commonly referred to as "Public Law 638" or "PL 638". The federal agencies that comply with PL 638 are primarily the Bureau of Indian Affairs (BIA) and Indian Health Service (IHS).

Public law 638 also requires that preference in the award of subcontracts and subgrants shall be given to Indian organizations and to Indian-owned economic enterprises. The non-profit Native corporations across Alaska, such as Tanana Chiefs Conference, are contractors for BIA and Indian Health Services under PL 638 and can therefore give hiring preference to Natives.

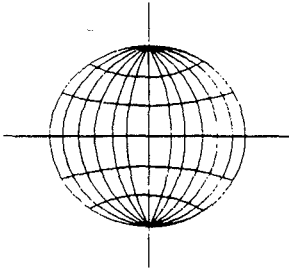
A December 1991 report prepared for the Senate Select Committee on Indian Affairs of the United States Senate included a comprehensive listing of the government programs that are at least in part for the benefit of Native people. The report, entitled "Federal Programs of Assistance to Native Americans", lists the Survey of Indian Lands under the Bureau of Land Management as an opportunity to qualify for funding under PL 638. Tribal organization contractors are now availing themselves of this opportunity to provide training and employment in the completion of the field surveying, monumentation and platting of the Indian lands in Alaska where such work remains to be done.

Tanana Chiefs Conference is one of the first tribal organizations to successfully contract surveying services with the BLM, having now completed survey projects in the villages of Tanana and Chalkyitsik during 1993 and 1994. TCC implemented a training program for prospective surveyors in connection with the survey contracts. The training program, which involves classroom studies, formal training workshops and on-the-job training, employed six tribal members from the TCC region in 1993. During 1994, four of the six trainees from 1993 entered their second year of training/employment and an additional six new trainees from Chalkyitsik were employed for the season's survey work at Chalkyitsik. TCC has successfully negotiated a contract for 1995 to provide surveying services in the Tok/Tanacross area.

Trainees are selected from a pool of applicants of interested locals from each village to be surveyed, TCC-region tribal members, and the general public. Native preference for training and employment is exercised. If you are interested in becoming a part of this exciting new employment opportunity, please contact:

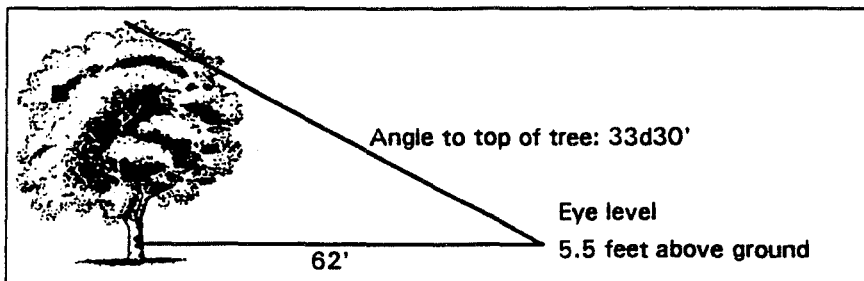
Tanana Chiefs Conference, Inc.  
Real Estate Services/Cadastral Survey Project  
122 First Avenue, Suite 600  
Fairbanks, Alaska 99701

## ***The Facts and Figures about SURVEYING AND MAPPING***



The science of surveying and mapping is an ancient one, commonly used by the Egyptian and Mayan civilizations, among others. For 5000 years, surveyors and mapmakers have measured and graphically portrayed the known world, pushing the limits of knowledge and technology ever forward. Although surveying and mapping is usually associated with the location or establishment of property boundary lines, there are a myriad of applications in engineering, road construction, natural resource management, and geographic information systems (GIS). The knowledge of surveying principles and mapping techniques are valuable tools in related fields such as right-of-way research, land title analysis, community or commercial land management and tax assessing. Thus, the door of opportunity swings wide for those who wish to apply their knowledge in the surveying and mapping fields to other employment possibilities. The Surveyor of today has the opportunity to use the very latest in measurement technology, including electronic measuring devices, satellite positioning and computerized mapping tools. However, the principles of surveying and mapping are grounded in mathematics, specifically the areas of trigonometry and geometry.

Suppose you wanted to determine the height of a certain tree in your yard. How would you do it? You would use the science of surveying and the principles of trigonometry in the following manner: stationing yourself from the tree at a point where you can see the entire tree, measure the distance from the tree to your vantage point. From where you are stationed, also measure the angle from your eye level to the top of the tree.



Using the science of measurement (surveying) and the principles of trigonometry, you can calculate the height of the tree to be about 47 feet. This same methodology can be used to calculate the height of microwave towers or buildings.

This is one small example of the practical uses for surveying in our modern world. Surveyors measure and monument such varied projects as:

- property lines for a lot in a residential subdivision
- topographic mapping (3-D) for curb & gutter construction
- tangents and curves for the centerline of a road
- boundaries of large tracts of public lands by use of global positioning systems (GPS)

The work of the surveyor is not limited to field measurements and the placement of monuments. Routinely, drawings and documents are prepared to graphically display the data gathered and the computations performed by the surveyor. Mapping is essential to derive the maximum use of the information compiled.

Historically, mapmaking was a revered profession - sailors and explorers depended on the expertise of the cartographer to guide them to their destination. In our modern times, the mapping technician demonstrates to the user the conditions which the surveyor encountered at the time of survey. Modern mapping is very computer-oriented, reducing the production time of a precise graphic representation to a fraction of the effort required as recently as a decade ago.

Education opportunities in surveying and mapping are plentiful for those interested in pursuing a career in this field. College level courses are available, as well as associate, bachelor and graduate college degrees. Many professional organizations, such as the Alaska Society of Professional Land Surveyors (ASPLS), the American Congress on Surveying and Mapping (ACSM) and the International Right-of-Way Association (IRWA) provide short course training several times a year on topics of interest in surveying and mapping.

# the council

DENA' NENA' HENASH ——— OUR LAND SPEAKS

VOLUME 19, NUMBER 5

TANANA CHIEFS CONFERENCE

JULY 1994



*James Wright of Ruby/Fairbanks and Alvin Dayton of Koyukuk load a helicopter with equipment in preparation for a day's work surveying townships in the wild country surrounding Chalkyitsik. Wright and Dayton are staff of the Tanana Chiefs Cadastral Survey Program, which began after TCC became one of the first regional tribal non-profit organizations to contract to survey Native lands for the Bureau of Land Management. See story, page eight.*

## Cadastral Survey Project uses new technology, employs villagers

In its second year of operation, the Tanana Chiefs Conference Cadastral Survey Program seems to be fulfilling its promise.

The program, operated under Tanana Chiefs Real Estate Services, is adapting new technology to perform accurate surveys of Native lands while providing substantial benefits to villages and tribal members. These advantages include employment and training opportunities, purchase, lease and rent of local goods and services, and project administration by TCC, rather than an outside firm with no commitment to the villages.

Last year, Native allotments around Tanana were surveyed under the program after TCC became one of the first regional tribal non-profit organizations to negotiate a 93-638 contract for the work from the federal Bureau of Land Management. In the Tanana area, survey staff completed the work on 44 parcels containing about 100 allotments.

In years before TCC contracted to perform the surveys, the BLM would either do the surveys themselves or contract the work out to private firms that would bring in their own workers. With TCC contracting, the survey program has achieved a high level of Native hire, benefiting the village economies, and providing training and career exploration opportunities for tribal members.

Surveying lands within some 5,000 square miles surrounding the Yukon Flats village of Chalkyitsik is the huge challenge facing the program this summer. The land is wild and remote and lands to be surveyed are far-flung throughout the area. Still, it has been going well, according to Eric Stahlke, survey project manager. The project is logistically difficult because of Chalkyitsik's remote location and the work is both highly technical and physically demanding.

The BLM agrees the job has been going very well. Ron Walter, one of two on-site BLM inspectors, is impressed with the quality of the Tanana Chiefs program.

"They're doing a real bang-up job," Walter said.

The Chalkyitsik project involves surveying 65 parcels containing about 100 allotments, plus 19 townships, mostly made up of regional and village corporation lands. A township is a block of land measuring six miles by six miles.

Surveys for the allotments are handled somewhat differently from those for the townships.

Survey work on the allotments actually began in November, when travel was easier over the frozen terrain by snowgo and ski plane. Work continued in April when the weather began to warm again and resumed again following breakup on June 1.

This survey project was the first one for which the BLM allowed work to progress during the frozen months, said Stahlke. He said that they initially had some resistance to the idea, but he

believes the crews demonstrated through their success that it can be done accurately. He said he hopes that option will now continue to be open to the TCC program.

"By using snowgo and ski plane in the winter, we accomplished two goals," said Stahlke. "We saved money that would have been spent on helicopters in the summer, and we were able to put more local people to work during the slow time of the year."

Using the recently available technology of global positioning systems (GPS), the project has been able to advance much more rapidly in the wild, remote environment of the Yukon Flats than it could have with older tools and methods, said Stahlke.

With so few existing surveys in the area, one of the greatest challenges of the project is tying new points to existing survey monuments elsewhere. With GPS, long-distance measurements can be made quickly and precisely, because the surveyor using the equipment can receive satellite signals pinpointing his or her position on the earth.

An innovation that is apparently being pioneered by the TCC survey team is the use of an on-board laptop computer tied in with a GPS unit. Crew members in the helicopter can monitor their position relative to the boundary points where they must establish survey monuments. Using this method in finding these points on the rectangular surveys of corporation and state lands, the crews this year have maintained an average of 85 percent success in dropping markers from the helicopter within 33 feet or nearer their precise targets.

After dropping such markers, the crews lower chain saws and a loud beeper to the site and the helicopter pilot finds the nearest landing site. That's when the crews use handheld GPS units and hike up to a mile and a half through swamps, thick, grown-over burns full of deadfall, thick black spruce, or whatever happens to be between them and the site. When they reach the new site, the crew then clears a 50-foot circle for the helicopter to land when it returns and temporarily marks the boundary point.

Still, the work is not complete. Each evening Stahlke uses a computer to make any minor corrections necessary to plant the permanent marker in the exact spot it needs to go.

Economic benefits of the project to Chalkyitsik are



Denise Druck of Chalkyitsik has good aptitude for the surveying field, according to her supervisor, Kris Staffeldt.

significant, with some 15 residents of the village employed full or part time.

James Nathaniel, Sr., chief of the Chalkyitsik Tribal Council, and a project employee, said the survey work is a help to the village, where jobs are most often hard to come by. Nathaniel works in the village preparing monuments to be planted and performing other shop and field duties vital to the project.

Stahlke, the project manager, said Nathaniel is like a jack-of-all-trades whose talents are very valuable to the effort. He had similar praise for others on the staff, many of whom have no prior experience with such a project.

Four members of the field staff, Alvin Dayton of Koyukuk; James Wright of Ruby; Eugene Witt of Fairbanks; and Victor DeWilde of Huslia, were trainees on last year's Tanana survey and they liked the work well enough to return this year. Victor DeWilde and James Wright attended an intensive three-week surveying training at Kotzebue in May through the program. Alvin Dayton said the work is demanding, but it's a good job. He intends to stick with the program as long

See Survey, page five

Karen Tilton, Cadastral Survey office manager, works with survey program apprentice Susan Hayden on computer-assisted drafting.



Survey manager and crew member talk for one of the field crews. Stahlke talks with Victor DeWilde of Huslia.



Denise Druck of Chalkyitsik is one of three local cooks working

## Survey...

*From page eight*

as he is able.

With the guidance of the Chalkyitsik Tribal Council, Stahlke hired eight new apprentices from Chalkyitsik for the program this year. They are: Almeria Christensen, Stewart Thomas, Denise Druck, Spencer Henry, Susan Hayden, Bryan Joseph, Julie Mahler and Robert Moses.

Additionally, three cooks from Chalkyitsik, Agnes Druck, Lilly Herbert and Martha McKeown, and their helpers, Peggy Carroll, Debbie Juneby and Roxanne Francis, also from Chalkyitsik, are working this summer keeping the crews well fed.

Charlene Fisher from Beaver, now living in Chalkyitsik, is employed as an office worker, and William Simon of Chalkyitsik takes care of maintenance for the old Chalkyitsik school buildings where the project is based. The program leases the buildings from the Yukon Flats School District.

The crews surveying Native allotments along and near the Black and Porcupine Rivers have their transportation and cooking provided by Jim Ward, Sr. of Fort Yukon and William Joseph of Chalkyitsik.

Lee Folger of Tanana joined the project

this year as an office technician.

One of the crew leaders new to the program this year is John Flink, who is originally from Ruby and Galena, but has spent a number of years in southern California.

While some of the apprentices are working with the program on a single-summer basis, others want to continue from year to year, and several have expressed interest in college education that would enable them to pursue a career in the surveying field.

"This kind of work is not for everyone, but for those with the aptitude and desire to follow through with their education, there will be work in surveying in Alaska," said Stahlke.

Karen Tilton, a registered surveyor who is office manager for the program, said one important attribute for someone considering surveying as a career is good aptitude for math.

Target completion date for the Chalkyitsik project is August 25.

Perry Ahsogeak, director of TCC Real Estate Services, said he is seeking tribal resolutions to authorize TCC to negotiate contracts with the BLM for lands surrounding some of the Upper Tanana villages, where next year's survey projects may take place.

The Cadastral Survey Program does seem to be fulfilling its promise to the villages and residents of the Tanana Chiefs region. With 24 Native employees out of a total on-site staff of 33, the project is defining Native land boundaries using professional standards while bringing economic benefits and opportunities to the people of the region.