ALASKA STATE CADASTRAL SURVEY /
ALASKA STATE LAND SURVEY / ALASKA TIDELAND SURVEY

ATTACHMENT
FOR
SPECIAL SURVEY INSTRUCTIONS

Conformance with: 11 AAC 53, Survey and Platting Standards,
Version: February 20, 2019

In the execution of the survey under the Special Instructions the surveyor is authorized and directed to perform the survey as set out in the Special Survey Instructions, the State of Alaska's Survey and Platting Regulations, and such Supplemental Instructions as may be issued during the progress of work.

LIMIT AND CHARACTER OF WORK

The survey is limited to the establishment and monumentation of the boundaries as shown on the Plan of Survey, the location of all improvements within the parcel, and the preparation of the survey plat. In the event that any needed BLM or GLO survey corner is missing or has been destroyed, it shall be reestablished per the appropriate BLM Manual of Surveying Instructions.

HISTORY OF SURVEYS

See the Special Survey Instructions.

METHOD OF SURVEY PROCEDURE

The survey shall be executed by a Professional Land Surveyor registered to practice in the State of Alaska.

It is the surveyor's responsibility to ensure research is complete.

The survey and plat shall substantially conform to 11 AAC 53, the Special Survey Instructions, this attachment to the Special Instructions, the Final Finding and Decision and any Amendments, the development plan, and the Plan of Survey.

See the Special Survey Instructions for parcel descriptions.

Field ties shall be made to all monuments which control the survey. The ties and monumentation shall be shown on the plat. Adjoining parcels shall be retraced sufficiently to ensure that they are not encroached upon. All significant improvements and encroachments within this survey shall be field located and shown on the plat.

No markings of any kind shall be added to recovered monuments.

The Basis of Bearing shall be between any two recovered monuments for which there is a record bearing; preferably the longest line of record or alternately the Basis of Bearing may be determined using high precision Global Navigation Satellite System (GNSS) between two monumented positions. The Basis of Bearing must be clearly noted on the plat in **bold lettering**. The Datum, epoch, and conversion method information (if applicable) must also be noted on the plat.

Geographic NAD 1983 coordinates (and if applicable NAD 1927) are required to be shown at a monumented Corner, or Witness Corner, of the ASLS/ATS/ASCS. The Basis of Coordinates shall be derived from a field tie to a NGS survey monument, or from a tie to a **primary** monument with record coordinates (shared OPUS Solutions are acceptable), or coordinates computed from record tie information to a rectangular monument in the PLSS. The Basis of Coordinates must be clearly noted on the plat in **bold lettering**.

Geographic coordinates may also be derived from survey-grade GNSS observations if sufficient to process through OPUS. Observations shall be on a **primary** monument, set or recovered, which shall be shown on the plat with ties to the survey. Note that if the point for the Basis of Coordinate is a random control point it MUST be monumented with a primary monument. Documentation accompanying the first plat submittal must include the "NGS OPUS Solution Report." The NGS Opus Solution Report shall show sufficient GPS data for minimum of an OPUS-RS solution.

For additional information regarding OPUS and the NGS OPUS Solution Report, see http://www.ngs.noaa.gov/OPUS/about.jsp

Control monuments on record with the National Geodetic Survey (NGS) may be researched on-line at http://www.ngs.noaa.gov/datasheets/ and shared OPUS solutions are available at http://www.ngs.noaa.gov/OPUS/view.jsp

If GNSS technology is used, it shall conform to the Federal Geographic Data Committee (FGDC) publication Geospatial Positional Accuracy Standards, Part 1, Reporting Methodology, FGDC-STD-007.1-1998; Part 2, Standards for Geodetic Networks, FGDC-STD-007.2-1998; and Part 3, National Standard for Spatial Data Accuracy, FGDC-STD-007.3-1998. Copies are available at the following website:
http://www.fgdc.gov/standards/projects/FGDC-standards-projects/accuracy/part1/chapter1
http://www.fgdc.gov/standards/projects/FGDC-standards-projects/accuracy/part2/chapter2
http://www.fgdc.gov/standards/projects/FGDC-standards-projects/accuracy/part3/chapter3

(As applicable to Municipal Entitlement Surveys) A table shall be shown on the plat showing total acreage of approved municipal entitlement lands and the total acreage of the riparian buffer within the approved municipal entitlement lands. Two such tables shall be shown. One for lands to which the state holds patent and a separate table where the state only holds Tentative Approval.

Reservations: See the Special Survey Instructions.

Subject to's: See the Special Survey Instructions.

The surveyor shall research the public record sufficiently to show on the plat the current legal identifiers of contiguous parcels.

TECHNICAL SURVEY REQUIREMENTS

All lines surveyed and retraced using terrestrial methods for the survey shall be surveyed with a minimum accuracy of 1:5000, and/or corner positions recovered or established with non-terrestrial methods (with a least square adjustment) shall have a Relative Positional Accuracy at the 95 percent confidence level of 0.13 feet plus 100 ppm (per 12 AAC 36.250). The surveyor must select the proper equipment and methods to achieve the required degree of accuracy for the survey, with the actual field closure reflected in the field notes and/or survey report. Legible, annotated copies of all field notes and computations, a sketch showing traverse point relationships, as well as good photographs or legible rubbings of monuments recovered and established, must accompany the first plat submittal. All GNSS data; including raw data files, adjustment files, final coordinate file, and OPUS solution reports shall be submitted in a digital format only, no hard copies please.

The field notes and/or survey report shall include 1) the accuracy classification to which the data was gathered, 2) the survey methods used to obtain the data, 3) the dates the survey work was performed, and 4) the datum (with epoch if applicable) used for the survey.

Previously existing monuments and accessories found in a disturbed condition must be returned to the original position and condition as nearly as possible or replaced so as to perpetuate the position.

All angle points on the exterior boundary of the survey must be monumented with a primary monument. No portion of the survey may be more than 1,320 feet from a primary monument.

A primary monument must consist of a minimum two inch diameter metal pipe, at least 30 inches long, with a minimum four-inch flange at the bottom. A minimum two-and-one-half inch diameter metal cap must be permanently attached at the top. If both the cap and the pipe are of non-ferrous metal, then additives with magnetic qualities must be permanently attached at both the top and bottom of the monument. Every primary monument cap must be permanently stamped with the survey designation across the top, the corner identification in the center, and the surveyor's registration number and the year set on the bottom. This data must be oriented so that it may be read when the reader is facing north.

If the point for a primary monument is in a place that would be impractical to monument because of natural obstacles, such as water bodies, a witness corner must be set. The witness distances must be shown on the plat of survey from the true corner position to the monument as set. Except where otherwise required in the Special Survey Instructions and the Plan of Survey, witness corners must be set on a survey property line and at a distance considered reasonable and practical from the true corner point. Witness corners must comply with the standards for primary monuments. If it is impractical to set a primary monument due to surface or shallow subsurface rock, one of the following may be substituted, with monument accessories as required: (a) a cap grouted into firm rock; or (b), a durable tablet containing a minimum of 1,000 cubic inches of concrete and a cap marking the actual corner point.

Care shall be taken to ensure that all primary monuments are firmly set and that the hole is backfilled completely with material that is dense enough to support the monument in an upright position for an extended period of time. In instances where monuments are being set in frozen ground and the excavated material is not sufficient or suitable for backfilling the hole, it will be required to import material from offsite such as bagged pea gravel or other rocky material.

All primary monuments must be referenced to three bearing trees or objects, if available, using methods that will secure a closure error no greater than 1:2000. Reference monuments must be set if no trees or other suitable objects exist within 100 feet.

(1) If bearing trees or objects are used, they must be located as nearly as possible at equal angles, and may not be farther away than 100 feet from the monument. The distance to trees or objects must be measured at waist height, and in the case of trees, measured to the center of the tree, with distances reduced to horizontal equivalent. The surveyor shall have the option of marking the bearing trees with non-ferrous metal tags of at least nine square inches in size facing the monument and clearly and permanently marked with the bearing, distance, and corner nomenclature, or of scribing the trees as per applicable Articles of the BLM Manual of Surveying Instructions, 2009. Reference monuments must be set if no trees or other suitable objects exist within 100 feet.

(2) If reference monuments are necessary, two monuments meeting the requirements for secondary monuments must be used. These monuments must be placed on a property line or at right angles to the monument within the property being surveyed, and may not be further than 100 feet from the monument being referenced. In addition, they must be marked with the nomenclature and distance to the monument being referenced.

(3) In addition to the accessories required above, witness posts of the minimum size of a nominal two-by-four, or fiberglass reinforced Carsonite witness posts, six feet in length with four feet protruding above ground, are required for all primary monuments. They shall be set at right angles to the line and no farther than one foot from the monument.

Secondary monuments must consist of at least a five-eighth inch metal rod, three feet long, with a one-and-one-half inch cap attached at the top. Care shall be taken to ensure that all secondary monuments are firmly set and will remain in an upright position for an extended period of time.

If applicable all property corners must be numbered on the monuments and designated on the plat in a consecutive, preferably clockwise, direction.

Any additional survey or monumentation requirements of the local Platting Authority must also be conformed to.

PLAT REQUIREMENTS

The surveyor shall construct the plats in accordance with the following:

(1) The plat must be of archive quality biaxially oriented polyester film (Mylar) that does not exceed 32 x 36 inches. Margins shall be 1½ inch on the left and ½ inch on the top, right and bottom.

(2) Use the standard DNR legend, an example of which is available on the DNR Survey Section webpage at <http://www.dnr.state.ak.us/mlw/survey/> .

(3) All sheets must have the official division title block, border configuration and standard legend.

(4) All line work on the plat must be in black ink (no gray scale).

(5) All lettering on the plat must be in black ink (no gray scale) and be accomplished with mechanical lettering equipment.

(6) All line work and lettering must be of professional quality and all line widths and lettering sizes must be of such size that all information can be clearly shown without overlap or confusion. All lettering must be minimum size 80 Leroy ®, or equivalent, with No. 100 recommended. Size 80 lettering must be uppercase.

(7) When more than one sheet is required, an index sheet must be added showing the entire limits of the survey, and each sheet showing the sheet number and total number. When more than one sheet is submitted, only the last need have the approval certificates, but all sheets must include a surveyors stamp and be the same size.

(8) The plat must be in an appropriate engineering scale, preferably of one inch representing a multiple of 100 feet. If larger than 100 scale the plat must be in a multiple of 10 feet.

(9) Details, as necessary, must be shown at an appropriate indicated scale.

(10) The plat must have a vicinity map in the upper right hand corner. The map shall be at least four inches on each side with a scale of 1:63,360, showing sections, townships and ranges, boundaries such as national forest or municipal boundaries, and other prominent physical or natural features such as roads, lakes, or rivers. The source and date/revision date of the base map must also be indicated.

(11) Nomenclature of the survey need appear in the title block only, unless the division specifically states otherwise.

(12) The Basis of Bearing must be indicated. Bearings shown must be true bearings as orientated to the basis of bearing, and distances must be in US Survey Feet reduced to the true horizontal equivalent.

(13) The Basis of Coordinates must be indicated. NAD 1983 (and if applicable NAD 1927) coordinates must be shown at a monumented Corner, Meander Corner, or a Witness Corner to Meander Corner.

(14) Bearings must be shown to the nearest second and distances to one hundredth of a foot. Boundary line distances must be shown from monument to monument. Witness distances must be shown from monument to the true point.

(15) In compliance with PL 94-168, entitled "Metric Conversion Act 1975," a metric bar scale shall be shown on the plat, positioned directly above the title block. A corresponding foot scale shall be shown and similarly placed, and have a unit scale which is identical to that used in the drawing on the survey portion of the plat. Two equations shall be shown: 1 meter = 3.280833 U.S. survey feet, and 1 U.S. Acre = 0.4047 hectare.

(16) The date of plat preparation and standard north arrow must be shown on the plat. A recent magnetic declination must be shown below the north arrow with a date and source. The current declination may be computed utilizing the N.O.A.A. National Geophysical Data Center website (http://www.ngdc.noaa.gov/geomag-web/).

(17) The applicable Certificates must be shown with the headings capitalized and underlined unless revised by the Special Survey Instructions:

CERTIFICATE OF OWNERSHIP AND DEDICATION

I, the undersigned, hereby certify that I am the Director, Division of Mining, Land and Water and that the State of Alaska is the owner of (AS APPLICABLE) ASLS No. 20xx-xx/ ASCS No. 20xx-xx/ATS XXXX, as shown hereon. I hereby approve this survey and plat for the State of Alaska, and dedicate for public or private use as noted, all easements, public utility areas, and rights-of-way as shown and described hereon.

Dated _____ _____(Signature in black ink)_____
Director, Division of Mining, Land & Water

NOTARY'S ACKNOWLEDGEMENT

Subscribed and sworn to before me this _____ day of _____, 20_____.

By _____.

_____
Notary Public for Alaska
My Commission Expires _____

APPLICANT CERTIFICATE

(Use the singular or plural as applicable.)
(I/We), the undersigned, hereby certify that (I am/we are) the applicant(s) as shown hereon. (I/We) hereby approve this survey and plat.

ADL No. xxxxxx Tracts X, X & X

____(Signature in black ink)_____ _____
Applicant's Name or Date
Authorized Official and Title

NOTARY'S ACKNOWLEDGEMENT

Subscribed and sworn to before me this _____ day of _____, 20_____.

By Applicant's/Official's name to be handwritten in by Notary

_____
Notary Public for Alaska
My Commission Expires _____

SURVEYOR'S CERTIFICATE

I hereby certify that I am properly registered and licensed to practice land surveying in the State of Alaska, that this plat represents a survey made by me or under my direct supervision, that the monuments shown hereon actually exist as described, and that all dimensions and other details are correct.

Date ___(date)____ __(Mechanically lettered name)_____
Registered Land Surveyor

(Surveyor's Seal with Original Signature)

TAX CERTIFICATE

This subdivision lies outside of any taxing authority, at the time of filing.

Or

(Appropriate Taxing Authority Certificate)

(18) Any approval or any other certificates or notes that may be required by the local Platting Authority shall be drafted on the plat.

(19) The following notes will be required on the plat:

a. All bearings shown are true bearings as oriented to the Basis of Bearings and distances shown are reduced to horizontal field distances.

b. The error of closure of this survey does not exceed 1:5000, and/or corner positions have a Relative Positional Accuracy at the 95 percent confidence level of 0.13 feet plus 100 ppm.

c. For plats based on GNSS *(to be used in lieu of note19 a):*

BEARINGS: Are based on high precision Global Navigation Satellite System technology in the NAD 83 (*CORS Epoch*) datum, using (*brand model)* receivers, differentially corrected and processed using *(name of software),* Version ____ software. Local plane bearings are orientated to true geodetic North at (*monumented position on the survey).* Distances shown are reduced to horizontal field distances.

COORDINATES: The shown record coordinates are from _____, these coordinates were held and used to compute the protracted positions of the Rectangular (section, quarter & sixteenth) corners. The found NAD 83 (*2011*) coordinates (*Lat/Long*) are based on an OPUS Solution (Epoch: *2010.0000*) for the (*monumented position*) and used for verification only of the location. The coordinates were constrained to the National Spatial Reference System using the CORS reference stations: Xxxxx-1 (*PID #*), Xxxxx-2 (*PID #*), and Xxxxx-3 (*PID #*).

d. (If applicable) The natural meanders of the line of ordinary/mean high water (OHW/MHW) form the true bounds of (AS APPLICABLE) ASLS No. 20xx-xx/ ASCS No. 20xx-xx/ATS XXXX. The approximate line of OHW, as shown, is for area computations only, with the true corners being on the extension of the side lines and their intersection with the natural meanders.

e. (If applicable) A note shall be placed on the plat stating either:

Mean high tide was determined by time coordinated tidal observations on month day year as extrapolated from the NOAA Publication for the predictions of high and low waters for (year).

or

Mean high tide was determined from _____ tidal bench mark on month day year from data supplied by NOAA.

f. (If applicable) The tidal datum information shall be shown on the plat in a manner similar to the following:

Tidal Station Name Lat/Long	
MHHW	X.XX’
MHW	X.XX’
MLW	X.XX’
MLLW	X.XX’

(20) Both record and found bearings and distances shall be shown on the plat. In the event there are two sets of record data that of the latest plat of record will be shown with the plat nomenclature indicated. If record lines are not retraced or resurveyed but are used to compute closure, record monumentation along these lines must also be indicated.

(21) The exact marks on all primary monuments recovered and set must be shown on the plat with data pertaining to bearing trees and/or monument accessories established. (If applicable) a detail showing typical markings on secondary monuments recovered or set must be shown on the plat as well.

(22) All easements and rights-of-way shall be shown graphically on the plat in lieu of a "note" whenever possible to do so. This requirement applies to all easements and rights-of-way including those to and along public water bodies and shore lands. In unsurveyed sections, protracted section lines and associated easements shall also be computed and shown, with property line intersection dimensions, on the survey plat.

(23) The plat shall show the legal parcel identifiers for all lands surrounding the survey. Indicate all water body names adjacent to the survey.

(24) A public access easement shall be provided contiguous with the bed of public water and 50 feet upland of the ordinary high water mark of all public or navigable water. The easement shall be depicted in the plat graphics with a dashed line and shall be labeled “*50’ Public Access Easement reserved to the State per AS 38.05.127*.”

(25) The standard DNR Title Block must be used, an example of which is available on the DNR Survey Section webpage at <http://www.dnr.state.ak.us/mlw/survey/>. The sections and townships shown in the sample title block shall be modified as necessary, according to the surveyor’s field location of parcel boundaries with respect to protracted or surveyed sections and townships.

PLAT REVIEW PROCESS

Upon completion of the field survey and prior to submittal of the plat to a borough or municipal platting authority (if applicable), a blackline copy of the plat shall be submitted, with the applicable fee, to the Department of Natural Resources for review. If applicable a copy of the final platting board conditions of approval or meeting minutes, and filing fees, will be required with submittal of the final plat.

Legible, annotated copies of all field notes and computations, a sketch showing traverse point relationships, and photographs or legible rubbings of monuments recovered and established must accompany the first plat submittal. For plats where the basis of coordinates is derived from GNSS observations and not from monuments of record the "NGS OPUS Solution Report" must accompany the plat submittal.

The Plat Submittal Requirements and Plat Checklist, which are available on the DNR Survey Section webpage at <http://www.dnr.state.ak.us/mlw/survey/> must accompany the preliminary submittal. The Checked box shall be initialed by hand, by the surveyor, prior to submittal of the preliminary plats for review.

In accordance with 11 AAC 05.010(a)(13), plat review fees are $200 for the first parcel or tract, and $50 for each additional parcel or tract, with the second review at no charge. Third review and each additional review fees are $300 each for the first parcel or tract per plat, and $100 for each additional parcel or tract per plat. Please remit a check or money order payable to the Department of Natural Resources along with the first plat submittal, and if necessary the third and each additional submittal.

FINAL MYLAR PLAT SUBMITTAL

Along with the final plat Mylar, a digital file must be submitted with the entire drawing in *.dxf (drawing exchange format) or *.dwg (AutoCAD drawing format) in standard media electronic format (CD, or DVD) shall be submitted. In lieu of a disk, the surveyor may make the drawing available through a FTP site on the internet or by e-mail attachment.

The only additional drawing requirement is that the drawing file have special layer named "DNR". The following specifications apply only to the "DNR" layer; other layers need not be altered. The "DNR" layer must be in model space and not paper space when the submitted drawing is opened in AutoCAD. The "DNR" layer shall show the surveyed lines, interior lot/tract lines as well as the exterior boundary, the tie to the basis of bearing and the tie to the basis of coordinates. The basis of coordinates shall be labeled with its name/identifier, geographic coordinate values and datum. All parcels must close with lines having clean snapped intersections, with no overshoots or undershoots; snapped lines that close are preferred over polygons. On the "DNR" layer, do not include extraneous text (area, title block, bearings or distances, details, etc) other than the labels for the basis of bearing and the basis of coordinates.

The plat filing fee is $20.00 for the first sheet and $5.00 for each additional sheet.

MODIFICATION OF INSTRUCTIONS

Should conditions arise appearing to require additional instructions or interpretation of the Special Survey Instructions or this Attachment, or which make the instructions inoperable, a report shall be submitted promptly to the Survey Section Chief describing the situation and making recommendations for its resolution.

In the event that the survey is not completed, the Special Survey Instructions will become void at 5:00 p.m., AST, two years from the date of approval. Special Survey Instructions may only be extended once after their original issuance. A written request for an extension with justification and applicable fee is required.