

DEPARTMENT OF NATURAL RESOURCES
GENERAL RECORD OF SURVEY INSTRUCTIONS
PIPELINE AND UTILITY EASEMENTS

Authority - 11 AAC 53, Survey and Platting Requirements

In the execution of surveys under these instructions, the surveyor shall be guided by the State of Alaska's Survey and Platting Regulations, the provisions of the following Instructions, issued by the Division of Mining Land & Water and any supplemental instructions deemed necessary during the progress of work. It is the surveyor's responsibility to do the research of ownership, surveys of record, federal and state land status, recorded documents, right-of-way documentation, etc.

LIMIT AND CHARACTER OF WORK

Surveys are limited to the establishment and monumentation of the boundaries of parcels, or the centerline of project rights of way, plus ties to all improvements located within, and preparation of the survey plat. In the event that any needed Bureau of Land Management (BLM) or General Land Office (GLO) survey corner is missing or has been destroyed, it shall be re-established per the appropriate BLM Manual of Surveying Instructions.

HISTORY OF SURVEYS

The Professional Land Surveyor shall prepare the "History of Surveys" for all surveys performed under these instructions. The history shall list all surveys of record which include all or part of the lands being surveyed. The surveyor shall provide copies of the survey documents to DNR'S Survey Section when the survey is submitted for review.

MONUMENTATION

For the portions of the project on DNR managed land, primary monuments shall be set at all angle points, points of curvature on the exterior boundary and at all intersections of the boundary with surveyed boundaries of record, i.e. section lines, township lines, lot and tract lines. The physical intersection shall be determined in the field by making ties to existing monuments on each side of the intersect point. For easements of uniform width, the centerline or a centerline offset may be monumented in lieu of the easement boundaries.

On all lines over 1 mile in length, a primary monument shall be set at mid-point or so as to achieve intervisibility.

If any corners which require monumentation by these instructions are found not to have been previously set, they shall be field tied and fully described in the field notes. If the existing monument position is acceptable, accessories shall be recovered and/or established if necessary.

MONUMENTATION REQUIREMENTS FOR PIPELINE & UTILITY EASEMENTS FOR WHICH THE
RIGHT-OF-WAY IS CONTROLLED BY VERTICAL SUPPORT MEMBERS (VSM)

The nearest VSM each side of an angle point will be tied and used as a controlling monument. A survey monument cap (minimum 3/4" diameter) shall be permanently affixed to the top of the cross member at the point which is to control the centerline of the right-of-way. To achieve one mile maximum between monuments, intermediate VSM's shall be tied and used as controlling monuments.

For monument accessories, a VSM on each side of each VSM monument shall be tied.

Controlling VSM monuments shall have the VSM number permanently marked with an identification plate banded to the VSM.

Controlling VSM monuments and their accessory VSM's shall be field survey tied ie: Precise GPS position with bearing and distance shown on the plat.

A complete description of the VSM controlling monument shall be included on the plat, including diameter, height above ground, VSM number, cap description and markings.

METHOD OF SURVEY PROCEDURE

This survey shall be certified by an Alaskan registered land surveyor. Prior to conducting a survey under these instructions, the surveyor shall submit to DNR survey unit the appropriate fees and a plan of survey in AutoCAD (*.dwg) or drawing exchange format (*.dxf) on diskette, and hard copy. The plan shall show the ADL number of the project, the existing and proposed boundaries, existing and proposed monumentation, monuments to be field tied, method proposed to establish new monuments, the meridian, township, range and section where the project is located and the purpose of survey, (ILMA, Right-of-way permit, etc.). DNR's Survey Section shall review the proposed plan of survey and make any changes to be required. On approval of the plan of survey, the survey unit will commence survey tracking on the LAS system. This will include assignment of a survey number for the project, ie. EPF No. 200100XX. DNR Survey will notify the surveyor of the LAS File type and number and legal description to be shown in the title block. The original establishment of section corners and section lines shall not be performed under these instructions but require project specific special instructions.

BASIS OF COORDINATES shall be based on field ties to control monuments with values published in the National Spatial Reference System (NGRS). Geodetic coordinates are required to be shown at one corner of the survey. The coordinate datum shall be shown with each set of coordinates on the plat, ie NAD 1927.

BASIS OF BEARING shall be along the longest line of record from an approved survey which is to be field tied this survey and preferably two NGRS control

monuments. Bearings of all lines shall be referred to the true meridian. Alaska State Plane Grid bearings shall not be shown. All parcels shall be field tied to the basis of bearing. Geodetic true mean bearings shall be shown on plats of right-of-ways which exceed 1 mile in length.

No additional retracement of previously surveyed boundaries is required except as necessary to locate aliquot part boundaries or right-of-way intersections and to obtain adequate closure.

Record information shall be shown on the plat for those boundaries of remainder parcels which do not require field retracement. Adjustment of record data in order to close plat boundaries will not be accepted. If adequate closure is not obtained without adjustments to record data then additional field survey will be necessary.

Field ties shall be made to all lines of existing surveys which share common boundaries with this survey.

A field survey of section, township and range lines will be required, in the event that the parcel is bisected by a surveyed line.

The surveyor shall perform the necessary research to determine how to properly establish all legal rights-of-way and shall submit supporting documents to Cadastral Survey with the first plat submittal.

TECHNICAL SURVEY REQUIREMENT

All lines surveyed and retraced by this survey shall be surveyed with a minimum accuracy of 1:5000. The surveyor must employ closed traverse or other field survey procedures which self-check the survey and justify the claim of achieving the required degree of accuracy, with the actual closure reflected in the field notes. Field notes will be kept in a professional manner so that they are legible, understandable and so they clearly depict, step by step, the manner in which the survey was performed. Good photographs or legible rubbings are required for each monument and will be submitted with the preliminary plat.

Clear reproductions of the original indexed field notes and annotated computations must be included with the preliminary plat submittal and a sketch map showing traverse stations and numbers annotated and/or cross referenced with the computations and field book page numbers for easy checking. Field notes will include the following: All major improvements and major topographic features, complete description of corner monuments recovered/and set and bearing tree data.

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 exterior boundaries must be monumented with 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 and a permanent magnet must be 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 at 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 existing monument, as set, to the true corner position. Witness corners must always 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.
- (B) A durable tablet containing a minimum of 1,000 cubic inches of concrete and a cap marking the actual corner point.

All primary monuments must be referenced to three bearing trees or objects, survey tied to 1:2000 accuracy, if available.

- (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 nonferrous metal tags of at least nine square inches in size, facing the monument and clearly and permanently marked with the corner nomenclature and distance, or scribing the trees as per articles 4-85, 4-87 and 4-88 of the BLM's Manual of Surveying Instructions, 1973. 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.

In addition to the accessories required above, witness posts, a minimum size of a nominal two by four, or fiberglass reinforced carsonite witness post six feet long, with four feet protruding above ground, are required for all primary monuments. They must be set at right angles to the line and, where appropriate, no farther than one foot from the monument.

Secondary monuments must consist of at least a five-eighth inch metal rod, 30 inches long, with a one and one-half inch cap attached at the top.

Boundary corners must be numbered on the monuments and designated on the plat, in a consecutive, preferably clockwise, direction.

Significant improvements within survey boundaries will also be field tied and shown on the plat when appropriate.

Any additional survey or monumentation requirements of other appropriate governmental agencies must also be conformed to.

PLAT REQUIREMENTS

Plats shall be constructed by the surveyor in accordance with the following:

- (1) The base sheets must be of good quality mylar at least three mils thick and be one of three standard sizes: 18" x 24", 24" x 36", or 31 ½" x 34". There are no exceptions to the standard size requirement.
- (2) The sheets must have the official Division of Mining Land & Water title block, border configuration, and standard legend.
- (3) All line work on the plat must be in the appropriate black drafting ink.
- (4) All lettering on the plat must be in the appropriate black ink and be accomplished with appropriate mechanical lettering.
- (5) 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. In order for all plats to microfilm properly, all lettering must be a minimum size of 80 Leroy, or equivalent, with No. 100 recommended.
- (6) When more than one sheet is required, an index sheet must be added showing the entire parcel, with the sheets in numerical order, 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 be the same size.

- (7) The plat must be in an appropriate engineering-type scale of one inch representing 50 feet or a multiple of 100.
- (8) Details, as necessary, must be shown at an appropriate indicated scale.
- (9) The plat must have a vicinity map of at least four inches on each side with a scale of one inch representing one mile in the upper right-hand corner, 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 year of the base map must also be indicated.
- (10) Nomenclature of the survey need appear in the title block only, unless the DNR specifically states otherwise.
- (11) The basis of bearings and basis of coordinates must be indicated. Bearings shown must be true bearings as oriented to the basis of bearing, and distances must be in the foot unit reduced to the true horizontal equivalent.
- (12) Bearings and distances must be shown within the accuracy commensurate with the class of survey being represented, boundary line distances must be shown from monument to monument.
- (13) In compliance with P.L. 94-168, entitled "Metric Conversion Act 1975," a metric bar scale must be shown on the plat, positioned directly above the title block.
- (A) The foot scale must be identical to that used in the survey portion of the plat, with the metric scale adjusted accordingly. Two equations must also be shown: 1 meter = 3.280833 U.S. survey feet and 1 U.S. acre = 0.4047 hectare.
- (14) The date of plat preparation and standard north arrow must be shown on the plat.
- (15) In order to clearly show the extent of survey, the exterior boundary lines of this survey shall be shown with heavy solid lines.
- (16) The lands are subject to all rights-of-way and easements of record. These shall be shown on the plat of survey.
- (17) All legal title boundaries within the survey shall be shown. This includes government section lot lines.
- (18) The DOT&PF highway project number, materials source number, etc. shall be noted on the plat (as applicable).
- (19) Certificates must be shown substantially as follows, with the headings capitalized and underlined:

APPROVAL CERTIFICATE

This plat has been reviewed and found to be in compliance with applicable provisions of law, and is hereby approved.

Dated _____ (signature in black ink)
Director
Division of Mining Land and Water

APPLICANT CERTIFICATE (IF applicable)

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

ADL No. _____.

Applicant

Date

NOTARY'S ACKNOWLEDGMENT

Subscribed and sworn before me this ____ day of _____, 19____.
For (Claimant's or 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 _____

Registration Number _____

(Signature in black ink)

Registered Land Surveyor

(Surveyor's Seal)

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

- a. This survey was accomplished in accordance with A.S. _____ and SI No. _____.
- b. All bearings shown are true bearings as oriented to the basis of bearing, and distances shown are reduced to horizontal field distances.
- c. The error of closure of this survey is not greater than 1:5000.
- d. All parcels of land owned by the State of Alaska, located within 50.00 feet of, or bisected by a protracted or surveyed section line, are subject to a 50 foot (50') easement, each side of the section line, which is reserved to the State of Alaska for public highways under A.S. 19.10.010 unless otherwise vacated and noted on the plat.
- e. This survey does not constitute a subdivision as defined in AS 29.71.800 or AS 40.15.900.

(22) Both record and found bearings and distances will 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.

(23) The exact marks on all monuments recovered and set must be shown on the plat with data pertaining to bearing trees and/or monument accessories established. If particular monumented corners were not utilized as part of the field survey, record monuments must be indicated. No markings of any kind shall be added to any recovered Survey monuments or existing bearing trees.

(24) 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.

(25) The plat shall show the current ownership and legal parcel identifiers for all lands surrounding this survey.

(26) The current Div of Mining, Land & Water "TITLE BLOCK" shall be placed in the lower right-hand corner of each sheet of the plat. It shall be labeled:

RECORD OF SURVEY (PROJECT NAME) EASEMENT CORRIDOR
WITHIN (UN)SURVEYED SECTIONS
T , R , .M., AK
_____ RECORDING DISTRICT

If the survey determines that additional sections or townships are affected by this survey the above description shall be modified accordingly.

Label the File No. block within the title block as follows: **EPF 200100XX**

(27) Upon completion of the field survey, two blue-line copies of the plat shall be submitted to Division of Mining, Land and Water for review, along with applicable fees.

(28) With the final (mylar) submittal of this plat, a 3 1/2" computer disk (dos format) with the final drawing in *.dxf (drawing exchange format) or AutoCAD *.dwg shall be submitted. If desired, in lieu of the 3 1/2" disk, the surveyor can make the drawing available at an FTP site on the internet.

The only requirement for the drawing is, it shall have a special layer named "DNR". These specs only concern the "DNR" layer. Other layers which you ordinarily use need not be changed. The DNR layer should show only the parcel boundaries of this survey (no text, or bearings and distances) and the tie line to the basis of bearing and basis of coordinates. Data must have at least one true geographic coordinate (text values and datum shown) in order to place the data in the correct geographic location in the database. Polygons must close and have no undershoots or overshoots. Data must have clean snapped intersections. On the DNR layer, only the area surveyed needs to be provided. No title blocks, annotation, symbols, bearing and distances, leaders, details etc.

MODIFICATIONS OF INSTRUCTIONS

Should conditions arise appearing to demand additional instructions, require interpretation of these instructions, or which make these instructions inoperable, a report will be submitted promptly to the Statewide Platting Supervisor, describing the situation with recommendations to resolve such problems. Supplemental survey instructions will be issued by the DNR for conditions not addressed by these General survey instructions.