The "error of closure" of a survey may be defined, in general terms, as the ratio of the length of the line representing the equivalent of the errors in latitude and departure (as found by a table of latitudes and departures) to the length of the perimeter of the figure constituting the survey; but, with due regard for the controlling coördinate governing lines of a rectangular survey, pronounced accuracy in latitude will not be permitted to offset gross error in departure, or vice versa, and, in order to be consistent with this fundamental theory, a double test must be applied in place of the one expressed in general terms. The "limit of closure" fixed for the United States rectangular surveys may be expressed by the fraction 1/2 provided that the limit of closure in neither latitude nor departure exceeds 1/640, and where a survey qualifies under the latter limit the former is bound to be satisfied; thus an accumulative error of 12½ links per mile of perimeter, in either latitude or departure, will not be exceeded in an acceptable survey. The limit of closure as thus expressed may be applied to various specific conditions as heretofore stated.

The latitudes and departures of a normal section shall each close within 50 links; of a normal range or tier of sections, within 175 links; and of a normal township, within 300 links. The boundaries of each fractional section including irregular claim lines or meanders, or the meanders of an island or lake in the interior of a section, should close within a limit to be determined by the fraction \$\frac{1}{640}\$ when the error in either latitude or departure is considered separately; the same rule will be applied to all broken or irregular boundaries.

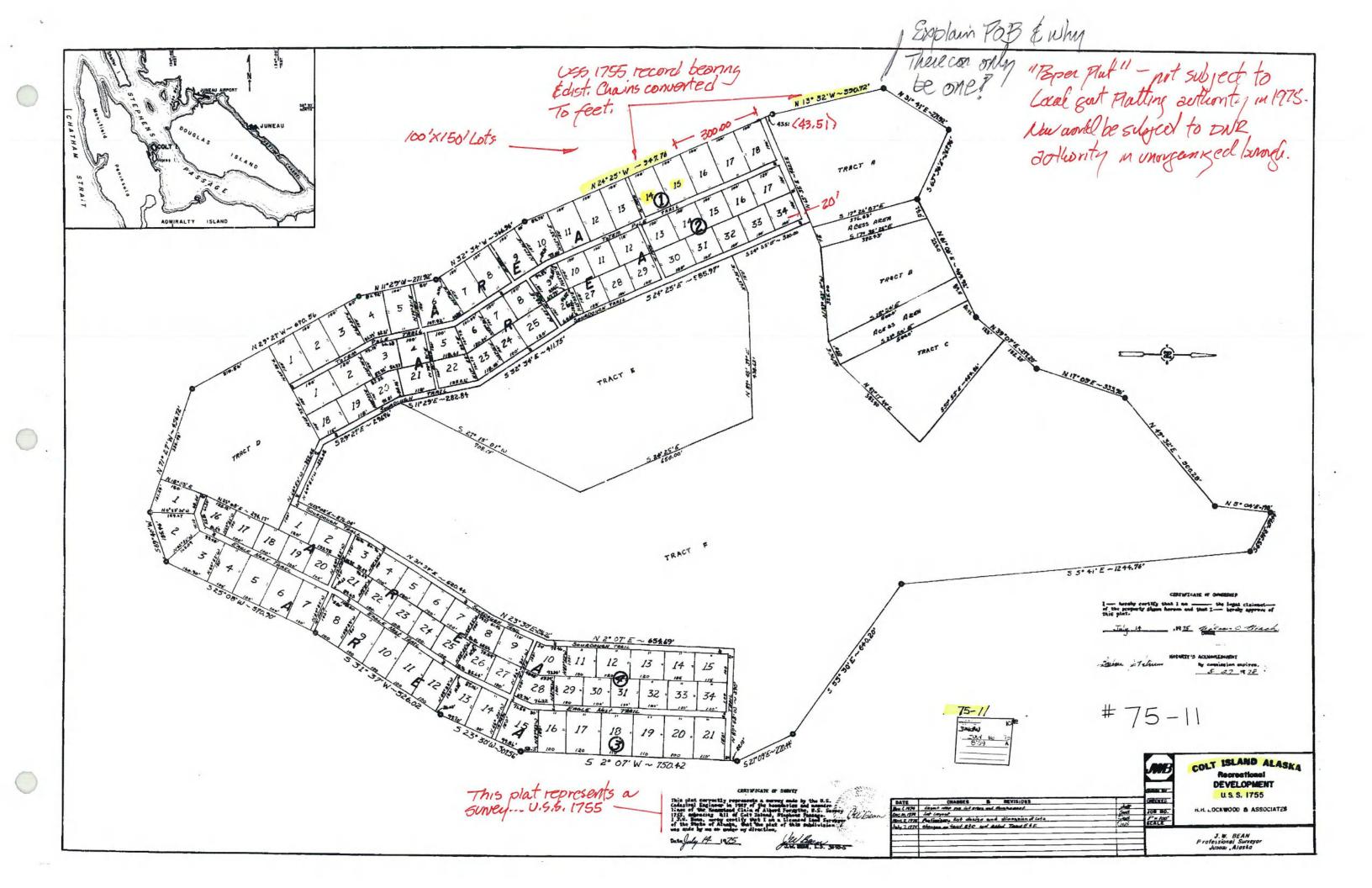
Surveyors are required to compute all doubtful closings while in the field in the immediate vicinity of a particular line, or series of lines, in question, and to accomplish all necessary corrective work before concluding a survey.

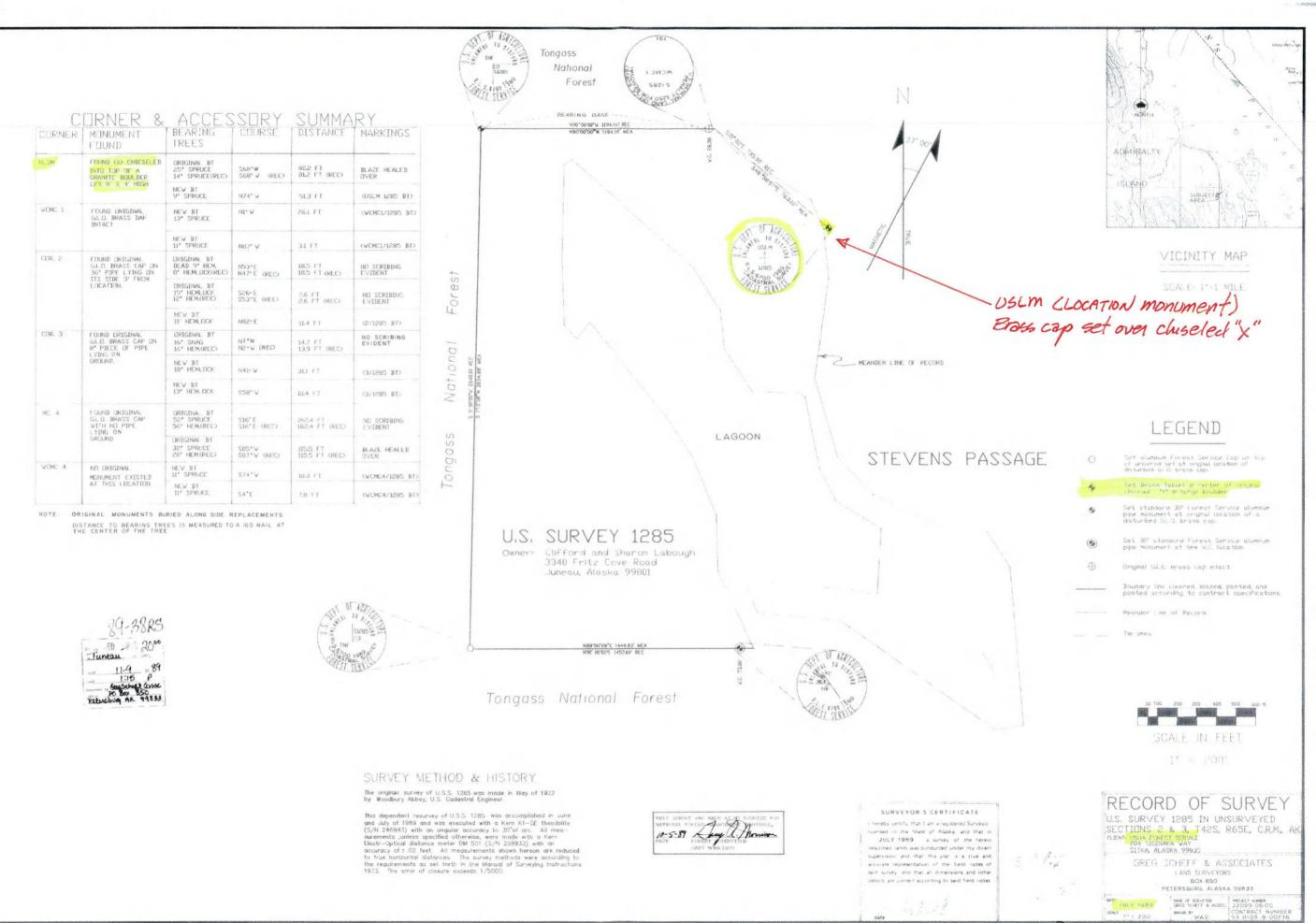
MARKING LINES BETWEEN CORNERS.

235. The marking of a survey upon the ground in such a manner as to fix forever the position of the legal lines in relation to the earth's surface is the final step in the field work, and is accomplished in three ways, which, if well executed, will individually or collectively furnish the means of the identification of the survey at even remote future dates. Careful attention to these details is one of the most important phases of the surveyor's field work. (a) The regular corners of the public-land surveys are marked by fixed monuments

stant diligence in the workmanlike construction of lasting corners, and alertness in skillfully connecting the same with natural objects or improvements, to the end that the greatest possible permanency may be secured for the public-land surveys.

- 238. Accordingly, if a surveyor is called upon to alter the condition of a previously established point, the utmost regard should be shown for the evidence of the original location of the monument, and the corner will be carefully reconstructed by such additional means as may be appropriate, without destroying the evidence which served to identify its legal position. A complete record will be kept of the description of the old monument as identified, and all alterations and additions thereto.
- 239. Regulation monuments are employed to mark permanently the position of the quarter-section, section, township and meander corners, appropriate to the subdivision of the public lands, as described in Chapter III; also at such sixteenth-section corners as the requirements of the written special instructions or the exigencies of the survey of fractional sections may demand; also at all angle points along an irregular boundary line, and at intermediate intervals of 40 and 80 chains along such limiting boundary. A more extended discussion of the subject of "angle points" and other monuments to be established upon irregular boundaries will be found in Chapter VII.
- 240. The position of every corner monument will be "evidenced" by the best of such accessories as may be available, and where the corner point itself can not be marked in the usual manner an appropriate "witness corner" will be established. A "witness meander corner" will be established upon secure ground wherever the intersection of a surveyed line with the mean high-water elevation of a meanderable body of water falls at a point where the monument would be liable to destruction.
- 241. The field notes relating to the establishment of a corner monument will be introduced into the technical record of the survey at the logical place in the record where the true position for the corner is indicated as having been attained. The record of the monument itself will embrace a description of:
- (a) The corner material, including its dimensions, in the order of length and diameter of an iron post; or length, width and breadth of a stone; or the breast height diameter of a tree; (b) the depth set in the ground, with mention of additional support if any; (c) the significance of its position; (d) the markings upon the monu-





Juneau Plat 89-38 R.S.

