RESTRICTED

H. L. Dietze JS   884

David L. Narver, Jr.   Triangulation Records

June 1, 1953

Reference is made to O/S 6208 and enclosures. These records
have been checked and the following comments are made to
assist in standardizing the procedure and computations in
order that the survey can be accomplished with minimum effort.

The records of directions indicate that the field party has a
good understanding of the observing procedure. The small
spread in the direct and reverse readings and the small number
of rejections are an indication of good field work. This will
pay off in reducing the number of reobservations.

Three copies of a set of instructions on computation of tri-
angles and the side check test are enclosed. If these instruc-
tions are followed it will result in more efficient use of the
records at this office and simplify the Jobsite computations.

A revised computation of the triangles for the S. How-Nan
quadrangle is enclosed. The numbering of the triangles and
the order of listing them on the form should be noted. This
is standard procedure and makes it much easier to use the
records as the triangles used in the final computation and adjust-
ment are listed at the top.

The requirements of the side check do not involve a quadrilateral
adjustment of the angles and it is satisfactory to distribute the
closing error of a triangle equally between the three angles. More
refinement in the adjustment would have little effect on the side
check and requires more time of the computer. The side equation
test is not necessary at this stage.

In determining the angles to be adopted at a station it should be
remembered that they are computed from the differences in directions
which have been observed from an initial station. An adopted angle
must be the difference in the directions between two adopted direct-
ions and cannot be the difference between an adopted and a rejected
set. On the triangle computation form sent in from the Jobsite the
angle at S. How from Nan to N. How is listed as 142-01-59.2. This
is the sum of the set No. 2 direction from Nan to Oboe and the dif-
ference between the set No. 1 direction from Nan to N. How and the
rejected set No. 1 direction from Nan to Oboe. The directions from
Nan to N. How as recorded by sets 1 and 2 are rejected. The direct-
ions recorded in observing are from an initial station to the various
other stations and not from station to station as with a repeating
instrument. It is permissible to accept the direction to Oboe from
one set and to N. How from another but the rejected sets must be
eliminated from the angle computations. The adopted directions should

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be 58-06-43.4 to Oboe and 142-01-58.0 to N. How. A comparision
of the two computation sheets should clear up this point. Ap-
plication of this rule results in a closing error of 5.6 seconds
for the S. How - Nan - N. How Triangle. However, as the quad-
rangle is not included in expansion of the net and does
meet the conditions of the side check, reobservation to
eliminate this small excess of 0.6 second could not be justified.
This condition is the exception and generally the closing error
must be within the specified tolerance.

When a direct or reverse reading has been rejected it is cus-
tomary to list the original value and the trial mean including
this position on the abstract of directions. Then when the
rejection has been made a line is drawn through the rejected
values and the new values entered above them. When a position
is rejected before obtaining the trial mean it is not shown on
the abstract. The record of directions is easier to check if
this method is followed.

                         David L. Narver, Jr.
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DLNJr:LSH:dc
Enc. 3 sets Triangle Computation Instructions
      3 Prints Triangle Computation Sheet

cc: Project Manager JS
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