

METHOD OF NUMBERING COUNTY BRIDGES AND MAKING BRIDGE AND DRAINAGE MAP*

By J. C. McLean

IN order to secure a more complete bridge and road designation the following method has been adopted. This bridge map covers an area of approximately 840 square miles and involved gathering data from twenty-three townships.

Field Work

The county was divided in six districts for the field work, five of which consisted of four townships each, and the sixth the three flat townships along the Missouri River. A field party was placed in each district consisting of an automobile driver, and recorder, together with such tapes, maps, notebooks, etc., as were required for their use. The general plan used in collecting the field data was to take one township at a time and complete it, so arranging the route traveled that every mile in the township would be covered with as little duplication as possible. Township line data were taken only on the north and east lines except in the case of an adjoining county where the south line was also taken. In this way there was no overlapping of routes, and each mile was covered only once.

Recording of Field Data

A sample form of the field notes showing the nature and extent of the data taken is shown in Fig. 1.

One sheet was used for each bridge or culvert, and the recorder after making his entries would mark a cross such as is shown at "A" in the figure, at the exact location of the bridge in the given mile. This could be done quite accurately, as the section used in the field notes was drawn to a scale of $1\frac{1}{2}$ in. to the mile. Each section is divided into quarters, which aided greatly in definitely locating the position in the mile and tracing the streams through a given section. After locating the bridge on the mile the recorder would then by eye trace and record the course of the stream in and out of the bridge as far as he could see in either direction, noting the direction of flow, and the point where it crossed the section lines as the case might be.

In case of any draw crossing the road with no bridge or culvert spanning it, a similar record would be made to scale, showing the point where it crossed the road and the nature and extent of the drainage.

In addition to the bridge data, all cemeteries, school-houses, churches, road changes, ditches, laterals, gravel pits, etc., were recorded in their respective locations and to scale. Taking data of this kind required as a rule between 4 and 5 days per township for one party at a cost of \$6 per day for car and driver, \$4 for an assistant and about \$3 for expenses, making a total cost of \$13 per day or between \$50 to \$60 per township.

Scale, Legend and Numbering

A scale of 2-in. to the mile was adopted for the final map; this size was found to be sufficiently large for the requirements and very convenient for field use. Four symbols were used for the bridge designation as follows:—

Permanent Bridges—Circle with small black square inside and two lines extending through it forming a cross.

Permanent Culverts—Circle with black square inside.

Temporary Bridges—Small black square.

Temporary Culverts—Small hollow square.

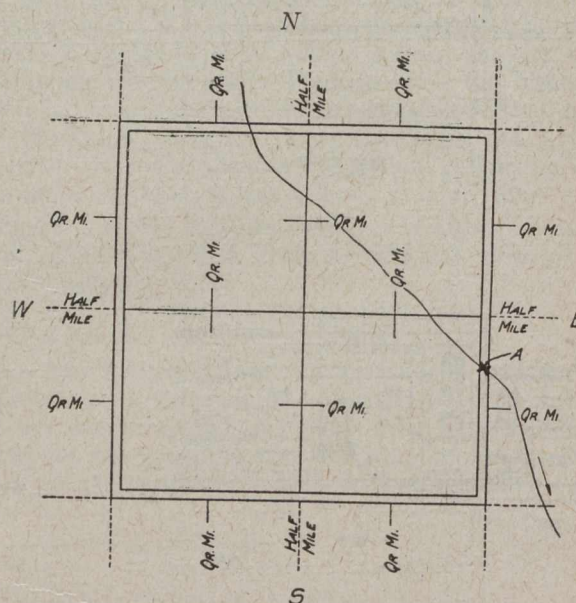
Spans 16 ft. and over were classified as bridges, and under 16 ft. as culverts. It will be noted that these symbols are convertible, for instance a temporary bridge is built and is later changed into a permanent type, this change can be made on the map by simply the addition of two lines and a circle to the temporary symbol. Likewise to change from a temporary culvert to a permanent culvert it is only necessary to fill in the centre of the temporary symbol and inclose it in a circle.

WOODBURY COUNTY, IOWA

Bridge Inspector's Report

Township	Drainage Area	191
Type	Height Grade to Bed of Creek	Topography Clear Roadway
No. Spans	Total Length of Spans	Length of Bridge
No. Bents	Condition of Bridge	Stream Cutting or Filling

Show in this diagram EXACT location of bridge and Stream



REMARKS

Additional Remarks on Other Side

Inspector

Fig. 1—Sample Form of Field Notes

The system of numbering adopted provided each township with a letter of the alphabet as a key which will be used to designate that particular township. The numbering of the bridges began in each case in the northeast corner of the township, thence west on the first tier of sections to the township line, thence east again to the township line, the numbers increasing progressively from the northeast corner. Additional bridges which will be added from time to time will be given the number of the bridge in the section nearest them with numerals prefixed. Thus for an additional bridge near L62, would be L62-1, L62-2, etc. No attempt was made to either number or locate the farm entrance culverts. Where well defined draws crossed the road with no

*Service Bulletin of Iowa Highway Commission.