

**Title 20—DEPARTMENT OF INSURANCE, FINANCIAL  
INSTITUTIONS AND PROFESSIONAL REGISTRATION  
Division 2030—Missouri Board for Architects, Professional Engineers,  
Professional Land Surveyors, and Professional Landscape Architects  
Chapter 18—First and Second Order Horizontal and Vertical Control**

**PROPOSED AMENDMENT**

**20 CSR 2030-18.040 Acceptance and Publication by [DNR] Missouri Department of Agriculture.** The board is amending the rule title, and sections (1), (2), (3), (5), (6), and (7).

*PURPOSE: This rule is being amended to reflect publication by the Missouri Department of Agriculture instead of the Missouri Department of Natural Resources.*

- (1) The following information will be submitted for each control survey that is to be evaluated for inclusion into the Missouri Geographic Reference System (MO GRS) as a first or second order station.
  - (C) A north arrow and graphic scale should appear on the sketch. All station symbols should be labeled with the station name. *[with an inset used when]* **When** stations are spaced too closely together to be clearly depicted on the network sketch, **an inset shall be used.**
- (2) A report shall be submitted for each project and shall be signed and sealed by the **professional land** surveyor or **professional** engineer in responsible charge. The report shall be the main source of information for judging whether or not the stations should be accepted as MO GRS stations. It shall be the responsibility of the **professional land** surveyor or **professional** engineer to supply sufficient information in the report to facilitate inclusion of the stations in the MO GRS.
- (3) The report shall contain a clear description of the survey procedures and equipment used in the field. This includes, but is not limited to, the information entered into the field log and auxiliary information such as logistics, preanalysis *[and]* satellite selection results (if Global Positioning System (GPS) survey), personnel involved, and difficulties encountered.
- (5) The following shall be included for GPS surveys. The version number and date of the GPS software used must be reported. For GPS surveys, the **professional land** surveyor or **professional engineer** must also specifically report the baselines rejected for the project. All parameters used for any coordinate transformations shall be presented and any scaling of the covariance matrix by the **professional land** surveyor or **professional engineer** must be described in detail. If the covariance matrix has been scaled, the scale factor used must also be presented. These results must be reported for all single base line and network solutions. Statistical testing of the survey results from the network

solution, including analysis of variance factors, semi-major axis of [2-d] **two-dimensional** (horizontal) or [3-d] **three-dimensional (horizontal and vertical)** ninety-five percent (95%) relative confidence regions between all directly connected pairs of [points] **stations**, residuals and residual outliers shall be provided. In addition, the results of any self-validation checks must be reported, including, but not limited to, comparisons of any repeated single base line solutions.

- (6) For traverse surveys, all field data used to determine directions, distances, azimuths and elevations, **as well as** the adjustment calculations, shall be submitted along with the name of the software used in the adjustment. The data submitted shall show the final results of the adjustment and the error analysis.
- (7) Only those stations meeting the requirements of [10 CSR 30-4.030, 10 CSR 30-4.040, 10 CSR 30-4.050 and 10 CSR 30-4.060] **2 CSR 90-62.030, 2 CSR 90-62.040, 2 CSR 90-62.050, 2 CSR 90-62.060** will be accepted for publication in the MO GRS.

*AUTHORITY: sections 327.041 and 327.272, RSMo [Supp. 1993] 2016. This rule originally filed as 4 CSR 30-18.040. Original rule filed May 3, 1994, effective Dec. 30, 1994. Moved to 20 CSR 2030-18.040, effective Aug. 28, 2006. Amended: Filed November 18, 2016.*

*PUBLIC COST: This proposed amendment will not cost state agencies or political subdivisions more than five hundred dollars (\$500) in the aggregate.*

*PRIVATE COST: This proposed amendment will not cost private entities more than five hundred dollars (\$500) in the aggregate.*

*NOTICE TO SUBMIT COMMENTS: Anyone may file a statement in support of or in opposition to this proposed amendment with the Missouri Board of Architects, Professional Engineers, Professional Land Surveyors, and Professional Landscape Architects, PO Box 184, Jefferson City, MO 65102, via facsimile at (573)751-8046, or via email at moapels@pr.mo.gov. To be considered, comments must be received within thirty (30) days after publication of this notice in the **Missouri Register**. No public hearing is scheduled.*