



SECTION 627

CONTRACTOR SURVEYING AND STAKING

627.1 Description. This work shall consist of providing the necessary surveying and staking for the successful prosecution of the work.

627.2 Staking Requirements. Staking work shall be in accordance with general accepted surveying practices and provisions of the contract. The MoDOT's current General Construction Manual, Section 150, may be used as guidance and is available on MoDOT's web site.

627.2.1 The contractor shall preserve all right of way monuments, benchmarks control points and reference marks set by the engineer. If any monumentation is damaged, destroyed or disturbed by the contractor, the cost of replacement will be at the contractor's expense and will be deducted from the payment for the work.

627.2.2 All surveying shall be documented by the contractor in a written form acceptable to the engineer. During performance of the work, all surveying documents shall be available and supplied to the engineer upon request, at the contractor's expense. All documents shall be labeled with the route, state job number, county, contractor name, survey party supervisor and date.

627.2.3 The engineer will furnish and set control points with known coordinates. The engineer will furnish all coordinate data to lay out the job and locate benchmarks as shown on the plans. Except as specified herein, the contractor shall provide all other staking, including but not limited to, centerline stakes, additional lines, connections, ramps, slope stakes, grade stakes, construction benchmarks and reference stakes locating all drainage, roadway and bridge structures, and utilities necessary for the successful prosecution of the work. All alignment control established by the contractor shall be referenced, and a copy of the references shall be furnished to the engineer.

627.2.4 Any surveying or measurements necessary for computing pay quantities will be performed by the engineer. The contractor shall notify the engineer at least two working days prior to disturbing any areas used to calculate pay quantities.

627.2.5 All surveying work performed by the contractor shall be sufficient and accurate to construct the work in accordance with the contract documents. Any delays or additional costs to the project which result from insufficient or inaccurate staking or time lost for corrective action will be considered as a nonexcusable and noncompensable delay.

627.2.6 The construction centerline shown on the plans shall be accurately established and the control points of all curves shall be referenced. If it is necessary to introduce an equation in order to match the plan stationing or if a plan equation is changed, such changes will be at the written direction of the engineer.

627.2.7 If design errors are discovered while setting construction stakes, the contractor shall immediately notify the engineer. The engineer will determine the nature of the discrepancy and will make revisions to the plans as necessary. Any restaking required by such revisions

shall be performed by the contractor. Any reimbursement due to the contractor for additional staking due to design errors will be in accordance with [Sec 109.4.3](#).

627.2.8 After the centerline has been established and referenced, centerline elevations shall be taken at all stations and at any other points required to ensure the computation of accurate quantities. Centerline elevations shall be based on the plan datum. All benchmarks shown on the plans shall be checked.

627.2.8.1 In the event a difference of plus or minus 0.01 foot (3 mm) exists in elevation for any benchmark shown on the plans, check levels shall be run and shown in the notes. The elevations shall be corrected to plan elevation at each benchmark where any difference occurs, and shall be noted in the field notes. If a plan benchmark has been disturbed or if correction of the plan elevation is not feasible, a full explanation shall be made in the notes. The contractor shall furnish to the engineer a listing of benchmarks prior to beginning construction.

627.2.8.2 If original plan cross sections differ from existing conditions by an average deviation in excess of one foot (0.3 m), the contractor shall immediately notify the engineer. The engineer will be responsible for taking cross-sections where deviations are determined to exist.

627.2.9 After completing any bridge, box culvert or retaining wall staking, the contractor shall furnish to the engineer structural layout plan sheets which show the location of all points that have been staked. At the time of furnishing the marked layout sheets, the contractor shall meet with the engineer to review the layout a minimum of two working days before construction begins.

627.2.10 Upon completion of the project, the contractor shall provide to the engineer all original surveying field notes, layouts and computations in standard bound survey notebooks or in a form acceptable to the engineer.

627.3 Method of Measurement. The work provided in accordance with [Sec 105.8.2](#) will not be measured for payment, but will be considered a lump sum unit.

627.4 Basis of Payment. Contractor furnished surveying and staking will be paid for at the contract lump sum price and will be considered full compensation for the following:

- (a) Performing this work.
- (b) All material, labor, tools, equipment and incidentals necessary to complete the work.
- (c) For all effects, impacts, cumulative impacts, incidental and consequential costs, loss or damage arising from, relating to or produced by error or discrepancies in surveys or staking and plans based on such surveys or staking, and any cost, including time effects, to correct the errors or discrepancies.

627.4.1 Payment for contractor furnished surveying and staking completed, not to exceed the contract item amount, will be made upon written request by the contractor. Such a request shall be submitted to the engineer two business days prior to the progress estimate date.

627.4.2 Complete payment will not be made until the contractor has provided to the engineer all original surveying field notes, layouts, computations and notebooks.