

**Georgia Department of Transportation
Office of Materials and Research**

Standard Operating Procedure (SOP) 45

Approval of Non-contacting Laser and Sonar-type Electronic Grade and Slope Controls

I. General

It is the responsibility of the Bituminous Construction Branch of the Office of Materials and Research to monitor the quality of all Bituminous Materials and related construction and equipment on Georgia Department of Transportation (GDOT) projects. Qualified Products List 91 (QPL 91) is maintained to reference approved Non-Contacting Laser and Sonar Type Grade and Slope Controls. Non-Contacting Laser and Sonar Type Grade and Slope Controls that appear on this list have been evaluated by the Office of Materials and Research for their capability of meeting the appropriate Georgia Department of Transportation Specifications.

II. Prerequisite for Approval

A. Inspection of the Equipment

It is the equipment supplier's responsibility to partner with GDOT approved asphaltic concrete producer(s)/contractor(s) to provide suitable projects on which their equipment may be evaluated. The equipment supplier in conjunction with the asphaltic concrete producer(s)/contractor(s) shall request in writing to the State Materials and Research Engineer that the equipment be evaluated. This request shall include the following:

1. List of GDOT Projects the Non-Contacting Laser and Sonar Type Grade and Slope Controls will be used on, including project description and work schedule. A minimum of three projects must be evaluated prior to approval consideration. Individual circumstances may require additional test projects prior to approval. A one to one comparison of the technology being evaluated with a currently approved Grade and Slope Control device will be required on at least one of the test section projects.
2. Contractor representative contact information that is responsible for the project.
3. Equipment specifications and operation manual.
4. Availability to attend an informal meeting to discuss Department expectations and policies.

The equipment shall be maintained in a satisfactory operation condition and be capable of its intended function at all times during production.

B. Project Related Test Section

The test sections shall consist of the following:

1. Placement of a minimum 12 ft. wide mat to evaluate smoothness and pavement profile.
2. Conformance to specification requirements referred to in Section 400.
 - Meet project acceptance smoothness requirements as specified in the contract.
 - Provide an improvement in smoothness over the preconstruction ride measurements in EACH SUBSEQUENT LIFT over the original pavement.
 - Maintain the required cross slope and pavement profile detailed in the project typical section.
 - Equipment should provide the bituminous pavers with an automatic screed control actuated from devices that will that will maintain the paver screed at a pre-determined transverse slope and elevation to obtain the required surface.
 - Equipment should provide transverse slope controller capable of maintaining the screed at the determined slope within ± 0.1 percent.
 - Equipment should permit the following four modes of screed control

- Automatic grade sensing and slope control
 - Automatic dual grade sensing
 - Combination automatic and manual control
 - Total manual control
- Non-contacting laser or sonar-type device should be used with at least 4 referencing mobile stations and be a minimum of 24 feet long.

C. Implementation

If the Non-Contacting Laser and Sonar Type Grade and Slope Controls satisfy all the applicable requirements, it will be listed on the approved list for QPL 91 “Non-Contacting Laser and Sonar Type Grade and Slope Controls”. It should be noted that, the system may be removed from a project at anytime the Engineer determines it is not meeting requirements set forth in this document. If it is determined that previously approved Non-Contacting Laser and Sonar Type Grade and Slope Controls systems fail to consistently meet specified requirements, they will be removed from the approved qualified products list (QPL-91) at the direction of the State Materials and Research Engineer.

D. Minimum Number of Projects

Prior to a Non-Contacting Laser and Sonar Type Grade and Slope Controls being placed on the QPL, a minimum of three (3) GDOT Let projects meeting all specified requirements must be achieved.

III. QPL-91 “Georgia’s List of Approved Non-contacting Laser and Sonar-type Electronic Grade and Slope Controls”.

The Office of Materials and Research will publish a list of approved Non-Contacting Grade and Slope Controls. The list will be published periodically, and as systems are added or removed from the list, notice will be given by letter. This list will designate the Manufacturers’ name, name and model of the system, and any requirements associated with the use of that particular device (example number of referencing mobile stations and a minimum beam length).

Georgene M. Geary, P.E.
State Materials and Research Engineer

Thomas B. Howell, P.E.
Director of Construction