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Georgia Department of Transportation

STATE OF GEORGIA

OFFICE OF MATERIALS AND TESTING

RTTTQP

Georgia Department of Transportation
Roadway Testing Technician Training
And Qualification Program

GDOT Roadway Testing Technician Training and Qualification Program

Developed from AASHTO DESIGNATION: R 25-00

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Approval is provided as to form and contents:

Approved for the Georgia Department of Transportation by:

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State Materials and Testing Engineer, TQP Manager

1. SCOPE AND LIMITATION

1.1 This document communicates the evaluation and qualification procedures for personnel engaged in sampling and testing of roadway items such as embankment, subgrade, graded aggregate base, and asphaltic concrete for the Georgia Department of Transportation (GDOT).

1.2 This document does not address the requirement for CONSULTANT laboratories but GDOT does recommend that they obtain accreditation through the AASHTO Materials Reference Laboratory (AASHTO Resource) process for the areas mentioned above.

1.3 This guideline does not purport to address all possible events and procedures inherent in the administration and use of a Technician Qualification Program (TQP).

2. REFERENCE DOCUMENTS

2.1 Implementation Manual for Quality Assurance, AASHTO

2.2 Quality Assurance Guide Specification, AASHTO

2.3 Georgia DOT Sampling, Testing and Inspection Manual (STI).

2.4 American Association of State Highway and Transportation Officials (AASHTO)

Standards:

- T 99, Moisture-Density Relations of Soils Using a 5.5-lb Rammer and a 12 inch drop
- T 191, Density of Soil In-Place by the Sand-Cone Method
- T 272, Family of Curves – One Point Method
- T 310, In-Place Density and Moisture Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

2.5 American Society for Testing and Materials (ASTM) Standards:

- D 2950, Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods

3. INTRODUCTION

3.1 This guideline is provided to:

(a) Describe the adopted procedures for the GDOT Roadway Testing TQP.

(b) Describe the activities and organizational needs for the operation of a technical qualification program that provides a flexible and effective means for ensuring qualified personnel perform sampling and testing.

(c) Describe coverage for the Roadway Testing Technician Test, the basic field tests performed to identify material or product characteristics, for acceptance and/or payment under project contracts incorporating CONSULTANT testing. The basic tests required are shown in Appendix A.

A successful TQP requires the full support and commitment from agencies and industry that have a vested interest in technician training and qualification. Involvement of all those with a common interest in technician training and qualification helps in understanding the multiple perspectives of

the team members, and this in turn helps develop policies and procedures that will be supported by their respective organizations.

3.2 Background:

Historic roles and responsibilities of industry and agencies have changed for sampling and testing activities under QA specifications. GDOT QA specifications allow the use of contractor test results in making acceptance decisions for materials and construction quality control in roadway sampling and testing.

Qualification programs and associated training have been shown to be an effective tool for improving the quality of construction by verifying that essential knowledge and skills are possessed by agency or industry personnel who monitor, inspect, and control construction operations. Qualification programs for personnel have proven to be useful, common "yardsticks" for measuring expertise and performance among public transportation agencies, private construction contractors, and independent materials laboratories.

The need for TQPs as an equitable means for test result comparison and credibility between contract parties has become apparent. Provisions requiring the use of qualified technicians involved in construction project testing and inspection activities are included in GDOT's Field Testing Technician Qualification Program.

4. PROGRAM ORGANIZATIONAL STRUCTURE AND MANAGEMENT

4.1 TQP Manager - The TQP Manager will be the GDOT State Materials Engineer. The TQP Manager or their designee will coordinate the activities of the Roadway Testing Technician Program.

4.2 Location - All correspondence related to the Roadway Technician Program should be directed to the State Materials Engineer, 15 Kennedy Drive, Forest Park, Georgia 30297.

4.3 Funding - Course fees, when necessary, will be reasonable but adequate to enable the program to become self-sufficient. Areas where operational support may be available include the following:

(a) Continued financial support from the agency and industry;

(b) Continued use of contributed facilities, equipment, etc. from the agency and industry.

4.4 Organizational Task Groups -- Task groups will be established and used to develop training programs, plans, and policies for the Roadway Testing Technician Program as needed.

5. TRAINING AND QUALIFICATION POLICIES

5.1 In developing GDOT's Roadway Testing TQP, the following guiding principles will be followed:

5.1.1 Focus - In order to support the overall objective of improving the quality of the construction of highways through the improved work performance of those involved with the construction project, the TQP must be directly work related. The scope and content of all qualification testing must be based on realistic and practical work needs. Because the TQP focuses on work performance, everyone involved - managers, supervisors, program administrators, and participants- should treat qualification activities as natural extensions of their work duties and responsibilities.

5.1.2 Consideration of Prerequisites – There are no prerequisites for certifying for RTT. Although there are recommended steps before official examination for RTT. In addition to RTT training, work experience may be used as an integral part of the qualification process to ensure technicians have the required knowledge, skills, and abilities. This assurance may be accomplished by establishing pre-qualification relevant work experience or education requirements, establishing work experience criteria pre-requisites for participation in advanced qualification levels, or requiring relevant work experience to maintain and validate the requalification process.

6. TRAINING

6.1 A well-planned and supportive training program is needed for a successful qualification program. A good training program will ensure qualified technicians will be performing sampling and testing on GDOT construction projects.

6.1.1 RTT training will be accomplished by on-the-job training and the *RTT Study Guide*.

6.1.2 Technicians will not be required to have any credit hours to maintain their certification after they have successfully completed both the written and practical portions of the examination and become certified. All certified RTT technicians will become active technicians thus forward.

Regardless of re-certification status, for the purpose of fulfilling the requirements of SOP 30 as required by the FHWA, active technicians (those who performed acceptance testing in the last calendar year) are required to have an IA evaluation during each calendar year.

7. EXAMINATION AND METHODS

7.1 A successful qualification program must have documented policies and procedures for examination methods to ensure consistent and fair administration by all examiners and proctors.

The TQP manager or their designee shall direct and coordinate all qualification examination activities. This includes scheduling of examinations; registration of applicants; maintaining and

ensuring of security of examination materials; notifying participants of their success or failure in their examination; and maintaining all completed examination materials.

Written and performance examinations will be given to determine if the applicants possess the knowledge and skills necessary to satisfy the established qualification requirements.

7.2 Examination Controls and Integrity – To avoid conflicts of interest, the examiner should not be the immediate supervisor of those being qualified. Examination procedures are as follows:

a) GDOT will be responsible for the development of and revision of qualification exams including updating or changing exams when there is a change in a test method or specification. The Technical College System of Georgia will administer the Roadway Testing Technician written exam. Available dates and times for exams can be requested through the Technical Colleges in Georgia. GDOT OMAT/TM Branch will administer the performance exam. The locations administering the written exams are located on GDOT website. For more information go to:

http://www.dot.ga.gov/PS/Training/TechnicianCertification/RoadwayTech

b) Applicants will be allowed no more than 3 hours for the Roadway Testing Technician written examination.
c) Cheating on an exam will result in permanent revocation of any Georgia DOT issued Certification and the inability to apply for any Georgia DOT certification in the future.
d) Examinations for Roadway Testing Technician will be proctored at the Technical College System of Georgia. A proctor will always be present in the room while administering the test.
e) Examinations will be given on an as-needed basis, but no less than twice a year.
f) Applicant must pass written portion of exam before taking the Field portion of exam. Passing the written portion is a grade of 75 or higher. If applicant passes written portion but fails field section, applicant is required to retake the field portion only (if the retest is done after 30 days and before 90 days of first exam).
g) Individuals will be notified of examination results by email.

7.3 Examination Methods – Written and performance examinations should be given to ensure that applicants have a complete understanding of the materials and calculations as well as the ability to perform test procedures. Care and good judgment are needed in developing fair and impartial written and performance examinations.

Prior to the examinations, the proctors should thoroughly explain to the applicants the examination process and rules noted in 7.2 above including:

(a) Time limits
(b) What the exams will be comprised of
(c) Minimum score necessary to pass (d) Penalty for cheating; and (e) The retesting policy.

7.3.1 Written Examination – The written examination will be open-book provided by the Department and will have a designated time limit. Examinations may consist of various types of questions, including true/false, multiple choice, essay, fill-in-the-blank, word problems, and calculations. To protect examination integrity, course participants cannot retain a copy of their completed written examinations. The TQP will maintain several equivalent versions of the test and alternately present different versions to examinees.

7.3.2 Performance Examination – Performance examinations measure the applicants' ability to properly perform the prescribed test methodology. All proctors and examiners should evaluate each applicant's proficiency by using standardized checklists that identify specific test method steps or tasks. The degree of detail of the performance checklists will be influenced by whether the performance examination is open-or closed-book. Time limits will be set for the complete performance of each test method. The examinee may be asked to explain various steps of the procedure to reduce the full test time. The performance exam must be taken with 90 days of the written exam or the entire test will have to be re-taken.

7.4 Re-Examination Policy-Written/Performance – Whenever a participant fails a written/performance qualification examination, an allowance will be provided for retesting. The policy is as follows on the next page:

Note: The failure waiting period begins at the last test failure

RTT and QCT Waiting Period After Testing Failure

After 2 years of attempting and failing the certification process, following the above waiting periods, the failure waiting period can start over with a “1st attempt” if training documentation , including performance checklist done by a certified technician for each testing procedure listed in the study manual of the certification, is done on the technician seeking certification and provided to GDOT for review. Otherwise after 3 failing attempts the waiting period is 1 year between attempts.

The number of retests allowed, and the time limits are needed to avoid frivolous, trial-and-error attempts and encourage the participants to properly prepare for testing.

7.5 Notification of Results – Notification of an applicant's successful or unsuccessful completion of the qualification requirements will be mailed to the applicant promptly after completion of the examination. If the applicant is unsuccessful, the procedure for re-examination will be explained in the letter.

7.6 Confidentiality of Records – Personal information and records of the examination are generally considered to be confidential and not to be released publicly. Confidential information includes:

(a) Personal and professional information provided by the participant applying for testing and qualification; and
(b) Specific test results and scores for participants.

7.7 Examination Materials Security – Proctors are always to maintain the security of exam materials. No copying of portions of the exam is acceptable. After the performance test, examiners and proctors may inform the applicants of their weaknesses and the details of correct procedures.

7.8 Examiner and Proctor Qualifications –Examiners for the performance examination must be qualified in that examination area. Examiners will be the Technical College System of Georgia or others deemed appropriate by the TQP Manager.

7.9 Examination Appeals – An applicant wishing to register a complaint or protest regarding an examination or examiner must do so in writing to the TQP Manager within 14 days of the incident. The written complaint must specify the examination date, the examiner, and the nature of the complaint or protest.

Complaints and protests should be reviewed, and a recommendation made to the Chairman of the Appeal Board. All complaints and protests will be promptly answered in writing.

8. QUALIFICATION

8.1 This document serves as the written policy for administration of the GDOT Roadway Testing TQP. Each Qualifying Agency that issues through their TQP the status of qualification or certification must maintain a written policy for administration of their TQP.

8.2 GDOT will maintain a registry of trained technicians who have successfully completed a training program. The registry will include:

(a) Name, Driver's License Number or qualification identification number and address;
(b) Courses, and dates completed; (c) Course content:
Test methods included: Lecture or laboratory; Written examination; and Performance examination.

8.3 GDOT shall provide the qualified technician with documentation of the qualification in the form of a registration card and certificate. The document will include an expiration date.

The Qualifying Agency requires the registered technician to maintain a current address on file as a condition of registration. Send change of address notice to: TQP Manager, Georgia Department of Transportation, 15 Kennedy Drive, Forest Park, GA 30297.

9. CONFLICT RESOLUTION

9.1 Incorrect Procedures- Roadway Testing Technicians will be made aware of incorrect sampling and testing methods or failure to comply with Roadway Testing Technician responsibilities at the time the incorrect procedure is identified. The Roadway Testing Technicians' Manager will be made aware of these discrepancies at the same time. The Roadway Testing Technician will be instructed on how to correct discrepancies. (See Diagram 1 for description of process)

9.2 Discussion meeting - If the Roadway Testing Technician continues to fail in performing the duties as required, a meeting will be held at the District Lab in the District where the discrepancies occurred. The Roadway Testing Technician and the Roadway Testing Technician Manager/Liaison will be invited to discuss the discrepancies to alleviate the problem or communicate the correct procedure. The meeting will be formally documented, and possible future disciplinary action will be noted in the follow-up letter.

9.3 Progressive Actions- If further problems are encountered:

(a) The Roadway Testing Technician will be required to re-take the performance and/or written certification exam for failing to demonstrate the abilities of a Roadway Testing Technician.

(b) Certification may be suspended for a period.

9.4 Intentional Falsification of Records: Falsification of records or acceptance test results will result in permanent revocation of Roadway Testing Technician Certification. A certified letter will be sent to the Roadway Testing Technician, the Roadway Testing Technician Manager/Liaison, and the Corporate Head of the company that employs the Roadway Testing Technician providing notification of permanent revocation and the appeal process. If the Director of Construction permanently revokes the technician's RTT certification then the same technician will permanently lose all his/her GDOT issued certifications due to falsifying test results.

9.5 Appeal Process- The Roadway Testing Technician will have the right to appeal any adverse action which results in suspension or permanent revocation of certification by responding to the Director of Construction within 10 calendar days after receiving notice of the proposed adverse action. Failure to appeal within 10 calendar days will result in the

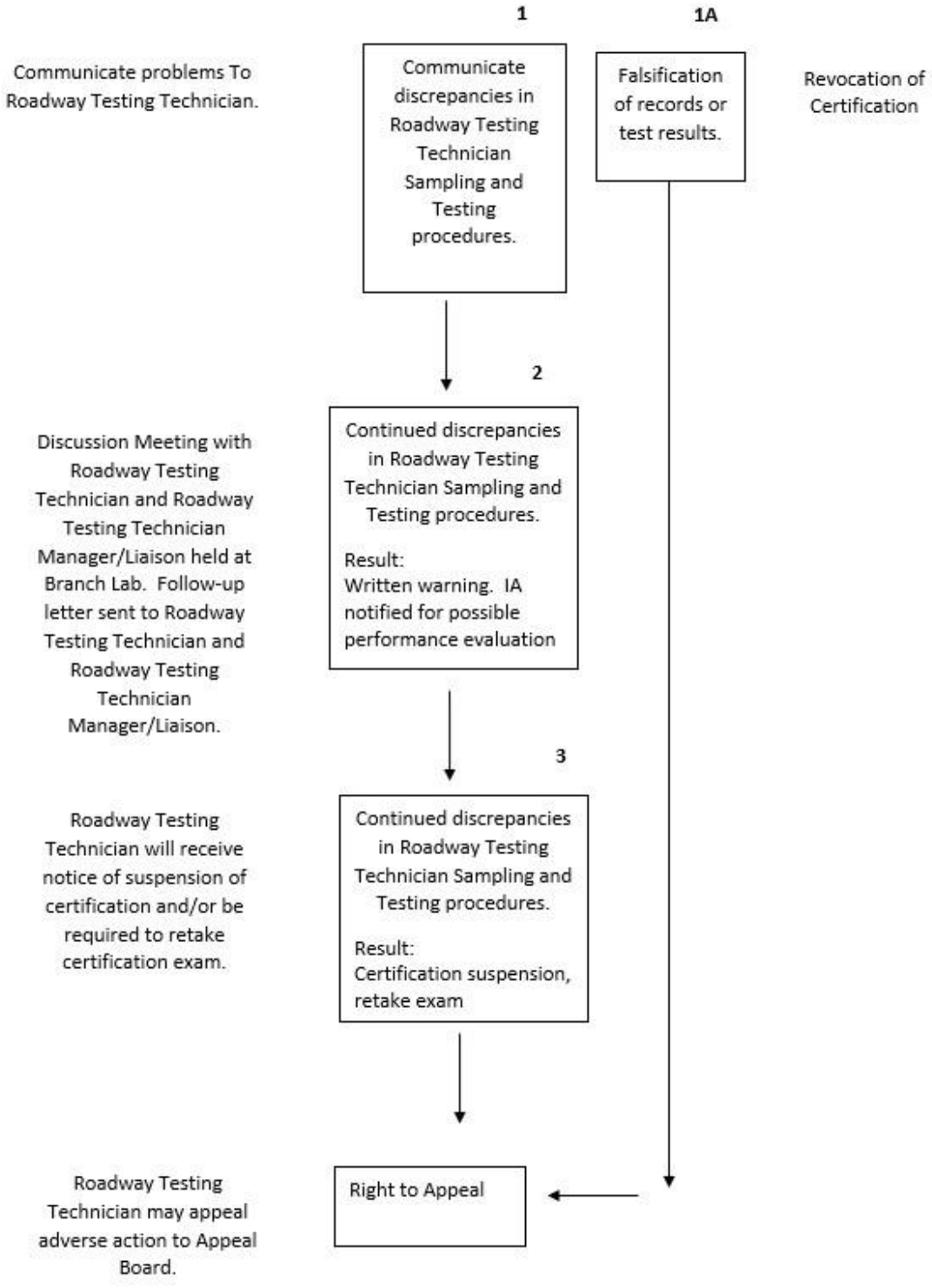
proposed adverse action becoming effective on the date specified in the notice. Failure to appeal within the time specified will result in a waiver of all future appeal rights regarding the adverse action taken. The Roadway Testing Technician may appeal in writing or in person at:

Director of Construction, Georgia Department of Transportation, One Ga. Center, 600 West Peachtree NW, Atlanta Ga. 30308. The Director of Construction may be reached by phone at 404-631-1970 between the hours of 8 a.m. and 4 p.m. (Monday through Friday) in order to schedule an appointment.

The Director of Construction will hear the appeal and decide within 5 days of hearing the appeal. Decisions of the Director shall be final and shall be made in writing to the Roadway Testing Technician.

9.6 Technicians are required to be certified to perform testing on DOT projects. Certification does not guarantee that they will be acceptable to the Department to perform sampling and testing. The Department may request the removal of a technician from a project without revoking their certification for any reason deemed necessary.

Conflict Resolution Diagram



APPENDIX A – Qualifying Tests

Roadway Testing Technician

The following is a list of AASHTO, ASTM or GDT Test Methods that a Roadway Testing Technician must demonstrate proficiency in:

A.1 GDT-7, Method of Test for Determining Maximum Density of Soils (Method equivalent to AASHTO T 99 except test is conducted on minus #10 material instead of minus #4)

A.2 GDT-21, Method of Test for Determining Field Density of Soils Containing More Than 45 Percent Retained on the No. 10 Sieve (Or more than 10 percent retained on the 1" sieve) Method equivalent to AASHTO T 191

A.3 GDT-24, Method of Test for Determining the Theoretical Maximum Dry Density of Soils or Aggregate Containing More Than 5 Percent Retained on the 2-inch Sieve Using A 5.5 Lb. Rammer and a 12 In. Drop (**Technician must be able to obtain field sample, GDT-24 test will be conducted in the branch lab by GA DOT personnel.)**

A.4 GDT-39, Method of Test for Specific Gravity of Compressed Bituminous Mixtures (Method equivalent to AASHTO T 166)

A.5 GDT-42, Method of Test for Measurement of Thickness of Bases and Subbases (No AASHTO equivalent)

A.6 GDT-59, Method of Test for Testing Density of Roadway Materials with Nuclear Gauges (Similar to AASHTO T 310 for soils; No AASHTO equivalent for asphalt, very similar to ASTM D 2950) Technician must be capable of calibrating nuclear gauge to graded aggregate base and asphaltic concrete paving.

A.7 GDT-67, Method of Test for Family of Curves Method for determining Maximum Density of Soils (Method is equivalent to AASHTO T 272 except test is conducted on minus #10 material instead of minus #4)

A.8 GDT-73, Method of Random Selection and Acceptance Testing of Asphaltic Concrete (No AASHTO equivalent)

CERTIFICATIONS REQUIRED:

Nuclear Gauge Safety and current Hazmat Certification

APPENDIX B – Recommended Equipment List

WORK GLOVES
HEAT GLOVES
LONG STRAIGHT EDGE
ONE THIRTIETH CUBIC FT MOLD
MOLD BLOCK
MOLD RAMMER
WIRE BRUSH
SPATULA
SPOONS
CHISEL
THREE POUND HAMMER
TWELVE INCH RING
PIE PANS
PIZZA PANS
MIXING BOWLS
GAS STOVE & GAS BOTTLE
GAS REGULATOR

5000 GRAM SCALES
SCALE LEVELING DEVISE
PAINT BRUSH – 3 INCHES
SQUARE SHOVEL
ROUND SHOVEL
POSTHOLE DIGGERS
PICK
6 FOOT FOLDING RULER
PLATE
T-HANDLE
LAP TOP COMPUTER
POWER CONVERTER
TOKENS
THERMOMETER
FIRST AID KIT

FIRE EXTINGUISHER
LIGHTER, MATCHES
CALCULATOR
SPECIFICATIONS BOOK
SAMPLE, TESTING & INSPECTION MANUAL
TESTING MGMT PROCEDURES
PROPOSAL OR CONTRACT
CLIPBOARD
STAPLER
FILE FOLDERS
ACCORDIAN FOLDERS
STROBE LIGHTS
RUBBER BOOTS
MARKING CRAYON
MARKING PAINT
NUCLEAR GAUGE WITH DRIVING RING AND
APPROVED TRANSPORT CASE & BILL OF LADING

STANDARD CALIBRATION BLOCK
GAUGE BOOK
GAUGE CHARGER
SAMPLE BAGS
SOIL FERTILITY BAGS
SAMPLER CARD BAGS
HARD HAT
SAFETY VEST AND SAFETY FLAGS
FLASH LIGHT
RAIN SUIT