Quality Matters

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Materials and Testing Welcomes New Field Quality Assurance Administrator

Resulting from Materials and Testing's recent reorganization effort, a statewide quality assurance administrator position has been added to the section's organizational structure to facilitate the administration of the statewide QA program in the field. Luanna Cambas has been selected to serve in this position and will focus on functional administration of the department's quality assurance program in the districts.

Cambas brings valuable diverse experience to the section. She spent four years in the heart of New Orleans in a construction gang as an assistant project engineer inspecting construction of structural bridges, PCCP and asphalt roadways, overlays, embankment, electrical signals and lights, levees, bridge painting work, and a tunnel. For the following eight years, she served as the District 02 laboratory engineer, directing material sampling and testing functions, documenting the district-wide QA/QC program, certifying asphalt and concrete plants, and providing support to construction. Most recently, she served as the bituminous construction engineer in the headquarters construction section, providing support to the asphalt community.

The MatLab welcomes Luanna Cambas

To improve the MatLab's service to the districts, Cambas will serve

cont. on page 4

Smooth Ride... That's What I Want!

Who doesn't want a smoother ride on the highway? All of us know we should have highways that last a lifetime without potholes, cracks, buckles, etc.—the things that make for a rough ride. Achieving that smooth ride, particularly one that lasts, takes great effort in the laboratories and in the design, construction, and maintenance of the roadway. One method DOTD uses to get a smoother-riding highway is to measure roadway roughness and require that it fall within a certain specification range.

cont. on page 6

IN THIS ISSUE

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MatLab Joins LSU AgCenter to Host Compost Symposium

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Wouldn't it be nice to solve one problem by using a product that would otherwise wind up in a landfill and become another problem? Experts from around the country were featured in a program that was designed to bring together design, construction, maintenance, and environmental personnel to share experiences and opinions on one of the transportation industry's most pressing problems: erosion control. The goal was not just to find solutions to the erosion control problem, but to promote the use of compost, a material that many agencies are paying to dispose of. A joint effort of the LSU AgCenter and the Materials and Testing Section, the Symposium on the Use of Compost in Erosion Control was held on April 6, 2005, at the W.A. Callegari Environmental Center, a field and laboratory facility located on the AgCenter's Ben Hur farm. The Callegari Center was established to research, develop, and facilitate the implementation of composting and compost use.

The symposium's purpose was to educate both DOTD and non-DOTD designers and field personnel about the effectiveness of using compost in erosion control applications.

DOTD Chief Engineer Bill Temple called a meeting of representatives from Louisiana's composting industry, the LSU AgCenter, and several DOTD sections, including Environmental Impacts, Hydraulics Design, Landscape Design, and the Materials and Testing Section. At the meeting, Bill Carney, Ph.D., Director of the Callegari Center, and Glenda Jeffcoat of NuEarth Organics, Inc., a New Orleans area composting company, explained how the Texas DOT and other states had struggled with these same erosion control problems and how they had worked out a solution that helped both the TxDOT and the compost industry. The first task identified by the group was to educate both DOTD and non-DOTD designers and field personnel about the effectiveness of using compost in erosion control applications.

The MatLab's Geotechnical Investigation Engineer, Bert Wintz, consulted with Carney and Jeffcoat on an effective way to reach these groups— a way to reach the designers as well as the contractors in a way that would encourage information exchange between the two groups. After identifying groups of potential attendees and scheduling speakers from other DOTs to share success stories, they invited key DOTD personnel, landscaping contractors, and suppliers.

The program was headlined by Barrie Cogburn, a landscape architect for the Texas DOT, and Scott McCoy, an environmental specialist from the Texas Commission on Environmental Quality (TCEQ). Cogburn and McCoy explained how their state agencies have worked together to use commonly composted materials to help solve many of

TxDOT's erosion control problems. After some basic explanations of what compost is— and what it is not— the two shared their stories of trials and tribulations in figuring out what would work and what wouldn't. They also explained how they gained the support of the TxDOT administration in their efforts to implement a progressive program of using compost in a variety of erosion control applications while ensuring compliance with the TxCEQ's regulations.

Also included in the program was Ron Alexander, a nationally recognized leader in the development of specifications and test procedures dealing with composting materials. Alexander described the development of a national program established by the US Composting Council (USCC) to certify that laboratories are capable of testing composted materials as prescribed by the procedures established by the USCC and AASHTO. The USCC also has guidelines and requirements for composting facilities to follow to ensure that compost delivered is "cured" and safe for use, free of undesirable seeds or other pathogens. Alexander has worked with states like Texas to develop the contract specifications that ensure only good quality material is placed along our highways. The foundation of the specifications that have been implemented in Texas is the "Seal of Testing Assurance" Program, which was established by the USCC "to bolster confidence in compost use, as well as professionalism in the compost industry." Ron explained how a state agency could specify material for a project, and, by using the STA program, expect that the material purchased and placed on the project would be what the designers intended.

Above: Barrie Cogburn, Texas DOT
Left: Demonstration by Bob's Tree Service
Below: Rod Tyler, Filtrexx

The final speaker was Rod Tyler of Filtrexx, a nationwide firm that promotes and provides products that use compost in a variety of applications. For example, Filtrexx Soxx® is a nylon mesh tub that expands as it is filled. Tyler demonstrated how, when filled with composted material, it can effectively control the flow of sediment in a variety of construction and maintenance activities. This issue will become more important with the US EQP and LDEQ implementing and enforcing the increased requirements for temporary erosion control measures for construction activities. Hefty fines can be levied for failure to implement an effective temporary erosion control plan.

The event concluded with demonstrations of the equipment provided by Bob's Tree Service, an authorized Filtrexx installer. Compost was applied as mulch around a tree, which will increase moisture retention, resist weed growth, and ultimately serve as fertilizer for the tree— all with one application of one product. Then they demonstrated how a Filtrexx Soxx® was filled with the same blown compost to be used

cont. on page 4

MatLab Welcomes Luanna Cambas *(cont. from page 1)*

as a consultant and advisor in her new position to help resolve problems and ensure consistent statewide application of the QA program. To do this, she will frequently communicate and interact with laboratory and construction engineers and use mature engineering judgment to evaluate and resolve complex and technical material engineering problems in the statewide materials acceptance program and quality assurance of contractor's work. She will be actively involved developing, maintaining, and implementing statewide quality assurance procedures such as materials database and reporting processes, quality assurance manual creation and updates, specifications, sampling procedures and frequencies, and testing procedures that are directly related to laboratory and field testing for acceptance of materials and contractor's work.

In addition, she will administer the MatLab's laboratory accreditation programs and the department's Independent Assurance (IA) program throughout the state to assure testing competency of personnel and standardization of testing procedures and equipment that are used in the material acceptance process. This task includes establishing IA standards, directing annual inspections of testing laboratories, providing guidance and assistance to laboratory engineers in resolving discrepancies and other problems associated with the aspects of these programs, and administering the statewide testing equipment repair and calibration program. These programs are critical to maintain compliance with federal mandates and, thus, have an effective quality assurance program.

Cambas will also administer the testing programs of two AMRL accredited laboratories— the MatLab's Soils & Aggregate Laboratory and Physical Testing Laboratory. The Soils & Aggregate Laboratory provides test data for geotechnical design as well as construction quality assurance testing of soils, aggregate, and erosion control materials. The unit currently holds national accreditation in over 28 different aggregate and soils tests. The Physical Testing Laboratory is responsible for quality assurance testing of steel products, Portland cement concrete and concrete-related materials, and numerous other materials used in the construction and maintenance programs. It currently holds national accreditation in over 40 concrete and cement procedures.

DOTD Materials Administrator Doug Hood welcomed Cambas, noting, "We are confident that the addition of Cambas will improve communications with and support for field staff in the administration of the department's quality assurance programs for materials."

Compost Symposium (cont. from page 3)

as a perimeter control device as an alternative to silt fencing, or for inlet protection instead of hay bales. Depending on the application, various amounts of compost can be blown into the tube. For situations needing higher flow rates and a more flexible, ground hugging shape, less material is inserted. Tyler emphasized that he and his company will work with the DOTD and the contractors to design and specify the type of product needed for practically any situation.

Over 50 people attended the symposium, representing diverse agencies, including DOTD, DEQ, DNR, Landscape Contractors, consultant firms, and suppliers. DOTD sections included were Materials and Testing, Landscape Architecture, Road Design, Hydraulics, Construction, and Maintenance. Several Districts were also represented, as well as the Louisiana Timed Managers. The Baton Rouge newspaper, *The Advocate*, covered the event and featured it on the front page of their Web site the day following the event. Plans are underway for additional meetings on erosion control and landscaping topics, with follow-up on the use of compost in both of these areas. Because of the success of the open forum style of this symposium, future meetings will likely be in a similar format.

Environmental Spotlight: Vibration Monitoring Program

The Vibration Monitoring Program conducted by the MatLab's Environmental Evaluation Unit (EEU) serves DOTD and the public by monitoring and evaluating construction generated vibrations that impact nearby structures. The purpose for vibration evaluations is to maximize the continuity of construction, to minimize or avoid structural damage, and to prevent unnecessary litigation.

Construction activities such as pile driving and concrete breaking often send vibration waves through the ground and into the foundation of residential and business structures. Depending on the frequency, intensity, duration, proximal location, and structural strength of the impacted structures, these vibrations can potentially cause damage. Although the relationships between these factors are very complicated, the EEU can use sensitive seismographic equipment to determine the relative probability that a given activity will or will not cause vibration damage. One of the primary goals for conducting monitoring during the early stages of construction is to determine the risk factors and communicate the findings to the project engineer in time for him to reduce vibration levels at critical junctures. This is often done, for example, by lowering the hammer on the pile driver or the concrete breaker until a safe distance from the structure is reached.

The Department receives many complaints from the public regarding vibration damages to their property. The EEU investigates these complaints and provides their findings to the Office of Risk Management, which determines whether or not compensation is warranted. In many cases, cracks in floors, walls and other structural features were likely caused by foundations settling over a period of time. In some cases, construction-generated vibrations exceed the maximum for regulatory guidelines and have the potential to cause damage. It should be noted, however, that the human body detects earth born vibrations at levels much lower than those capable of causing structural damage. As a result, the perception of these vibrations inside homes and offices lead many people to believe damage is more likely than that predicted by our seismographic monitoring. Additionally, the general public does not realize that damage potential from earth-born vibrations drops off dramatically with distance. Although it is quite possible that construction-generated vibrations could damage sensitive structures at distances of 50 feet or less, it is highly unlikely that damage would occur if the same structure existed 300 feet or more from the source of vibrations.

Most requests for vibration studies come from project engineers in anticipation of construction activities that may produce vibrations capable of impacting nearby structures. In regard to such requests, project engineers must notify the EEU in a timely manner so monitoring can be set up and conducted in coordination with the specific activities generating vibrations.

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Vibration monitoring in progress at Picardy Avenue Interchange (SP 450-10-0111)

Smooth Ride (continued from page 1)

IRI profilers on display at the 2004 LTRC Pavement Conference

Historically, DOTD's pavement roughness specifications have been based on the Profile Index (PI) measurement, which is is a measure of the roadway profile and its deviations from a smooth plane. Existing DOTD roadway surface tolerance specifications provided for the use of the "walk behind"— the approved California Type Ames Profilograph-calibrated and operated in accordance with DOTD Test Reference-TR 641. The results were recorded in PI units (inches/mile).

Another measurement standard, the International Roughness Index (IRI), simulates a vehicle's response to the roadway surface deviations. Therefore, the IRI is an expression of the "rideability" of the roadway. While PI is measured by a profilograph, IRI is measured by a profiler, which is mounted on a motorized unit.

To insure the required quality construction of our roadways, we must measure the smoothness with "certified" equipment. In the case of IRI, a certified profiler is used (reference DOTD TR-644). The equipment certification process is handled by the MatLab's Testing Equipment Unit (TEU). The surface used for testing is determined and characterized by LTRC. LTRC also provides the method of evaluating the data accumulated from the test paths and the standards to which the profiler must be compared.

Certifying a profilograph at the TEU office took one DOTD employee about an hour, and certification was granted on the spot. On the other hand, certifying a profiler takes three employees about three to four hours, and certification is finalized at a later date by mail. The complex profiler computer data has to be evaluated with DOTD/vendor computer programs and compared to required standards for the pass/fail decision.

Since the profilograph has been used for many years, operators and data evaluators have been certified through formal training programs; that's not yet the case with the profilers. In Louisiana, one type of manual profilograph was used. Today, three suppliers provide many models of profilers in use in Louisiana. Louisiana does not specify a required supplier or model for profilers. At this time, a training program for operators and evaluators is under development.

DOTD desires to use IRI exclusively for the measurement of roadway surface roughness. In mid-2003, DOTD contracts began requiring that IRI data be collected and meet specifications. Several contractors

Profiler certification in progress

already had profilers, and many others began buying units because of the new requirements. By April 2005, 17 units were available for use in Louisiana. The units were from three profiler suppliers and included seven different models/types.

Like any significant change, the transition to IRI has been challenging. The MatLab has been working toward an annual certification event in late April and early May. This year, a profiler certification is scheduled for October 24-28. Contractors may contact William Raborn to schedule profilers for calibration checks.

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Worksheet Revisions for 502 Asphaltic Concrete

Worksheet revisions for 502 Asphaltic Concrete are nearly complete. The revised worksheets are used in both the MATT System and the Mustang Spreadsheet for recording sampling and testing results for computer entry.

Revisions to the worksheets were finalized at the recent District Laboratory Engineers meeting. Changes are currently underway to include their comments and recommendations as discussed at the meeting. Once incorporated, the worksheets will be reproduced, then set up for stock purposes. Users will be notified when the revised worksheets are available for order at the Materials and Testing Section Warehouse.

Note that the title of the LA Superpave Aggregates worksheet has been changed as identified on worksheet 03-22-0748 above.

The latest version of these worksheets, along with all 502 Asphaltic Concrete worksheets can also be downloaded from our Web site at http://matlab.dotd.state.la.us.

The revised worksheets include:

03-22-0732
Tensile Strength Ratio (TSR)

03-22-0747
Sand Equivalent for Asphaltic Concrete Sands

03-22-0748
Superpave Asphaltic Concrete Aggregates

03-22-3093
Superpave Asphaltic Concrete Verification Report

03-22-3095
Theoretical Maximum Specific Gravity

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2005 District Laboratory Accreditation Inspection Schedule

District	02	03	04	05	07	08	58	61	62	LTRC
Equipment Calibration	9/23	8/24	9/14	9/13	8/23	8/31	8/30	8/17	8/18	8/17
Portland Cement Concrete	8/31	9/1	8/23	TBA	9/7	8/24	8/22	8/29	8/30	N/A
Soils and Aggregate	8/30	9/26	9/13	10/18	9/20	10/11	8/23	10/24	9/6	N/A
Bituminous	9/27	10/19	9/21	10/05	10/20	9/20	10/4	9/8	9/6	N/A

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