

Guardrail Committee Minutes

June 23, 2008

10:30 AM

Roadway Design Conference Room

I. Quick items to address from the last meeting's "To Do" List

- ◆ Review new special detail for standard drawing 862.01 (sheet 10 of 11).

A revised special detail for standard drawing 862.01 was passed out for Attachment No. 1. This drawing was revised to show the surface course and Prime coat extending to the back of the guardrail posts. The Guardrail Committee (GRC) reviewed both the revised Flexible Paved Shoulder and the revised Concrete Paved Shoulder Details. No changes are recommended for the revised Flexible Paved Shoulder Detail. Concerning the Concrete Paved Shoulder Detail, the line designating the Straight Seal should be made bolder and dropped down to depict that the thickness of the ABC needs to compensate for the thickness of the Straight Seal. Also, the note for the placement of wooden posts should remain.

While discussing this topic, the GRC discussed if there was a different application that could be used to help with reducing the amount of maintenance mowing in the areas with Shoulder Berm Gutter. Bill Bass, Division 4 - District 2 Engineer, noted that these areas are not that difficult to maintain. After some general conversation, the GRC decided that no changes should be made to our current design standard for the placement of Shoulder Berm Gutter to aid with reducing vegetative maintenance issues.

- ◆ Discuss the status of the Median Crossovers on I-95. Where do we go from here?

An email from Lee Jernigan to Tony Wyatt was attached for Attachment No. 2. It noted that funding should be found to close the subject gaps along I-95. The GRC noted that based upon the safety need to close the subject gaps along I-95 a safety project should be established once funding is available. Also, it appears high tension cable guiderail will likely be the best solution to close the gaps. If one of the grade separations along I-95 was struck, high tension cable guiderail could be removed fairly easily to open up the temporary cross-overs.

- ◆ Reuse of Cable Guiderail

ITRE training does not address cable guiderail repair. Ron Jacobs suggested that if the Department wanted to address repair the request could be sent through the State Road Maintenance Unit. Presently, there are a couple of Divisions that do their own repair. The remaining Divisions let theirs to contract. The contract inspection is performed by the District Office.

Pictures of areas that had substandard cable guiderail repair were sent to the Maintenance Offices where the deficiencies were noted. To make sure all maintenance offices are aware of this concern an email with pictures attached will be sent to all maintenance offices. Also,

John Arnold, State Road Maintenance - Training and Development Engineer, noted that he would pursue having cable guiderail repair added to their ITRE training.

II. New product review - Quest 115 Impact Attenuator Type 350 by Energy Absorption Systems, Inc

An informational flyer, a copy of the New Product Evaluation Application Form and a copy of the FHWA Acceptance Letter was provided as Attachment No. 3. The product has a FHWA approval and meets NCHRP Report 350 Test Level 3 requirements. It's a re-directive, Non-gating Crash Cushion. Based upon a review of this information, the GRC recommends that this product be approved by the New Products Committee for 'Trial Usage.'

III. New product review - NU-GUARD-27 & NU-GUARD-31

NU-GUARD-27 Strong Post Guardrail System is a Standard W-Beam guardrail system with offset blocks. It can be used with both weak and strong posts applications. NU-GUARD-31 Strong Post Guardrail System is a W-Beam guardrail system without offset blocks. It can also be used in both weak and strong posts applications.

Both products were reviewed by the GRC. They had concerns with the posts not being a one-for-one replacement for our standard guardrail posts. Furthermore, they were concerned with the comment in the FHWA acceptance letter which stated, "However, the described tendency of the posts to break off should be recognized and should be taken into account when selecting locations for installations. Also, this tendency may be more pronounced when the system is used in frozen ground or when the surface is paved." Based upon a review of this information, the GRC recommends that this product be approved by the New Products Committee for 'Trial Usage.' However, because of the comments noted in the FHWA acceptance letter, this product will require additional evaluation if used on a paved shoulder or in areas with freeze/thaw conditions within the subgrade (specifically in areas west of I-95).

IV. Finite Element Evaluation of Two Retrofit Options to Enhance the Performance of Cable Median Barrier

This research project is currently being conducted for the Research and Development Unit by the University of North Carolina at Charlotte. Simulations to evaluate back-side hits with the adjustment of the cable heights are being studied/validated first. Later front-side hits will be evaluated. Every vehicle has a different bumper height and the characteristics of a small vehicle vary from a larger vehicle. The Department is trying to develop a cable array that will increase the likelihood to capture a vehicle. The GRC reviewed the last research project meeting minutes (dated April 23, 2008). They also had the opportunity to view some slides and crash video/simulations from the research project.

Jay Bennett informed the GRC there is another new research project underway to evaluate eliminating the two lines of steel beam guardrail with a 6-lane median divided freeway and a 46-foot median.

V. Terminal Foundation Tubes

These terminal foundation tubes can be used whenever a Trinity or a Road Systems product is selected that has a wooden posts and a steel tube. Concerning the installation, the steel tube is longer and the soil plate is eliminated. The thickness of the tube has been reduced from 3/16" to 1/8". Whenever the subject foundation tubes are used a note should be attached to the installation document noting that it's okay for their usage.

VI. REACT 350

Vendors with Energy Absorption brought this product to the Century Center and gave a presentation. It is a self restoring, reusable crash cushion for wide hazards, which does not require total replacement parts. After being struck, the system needs to be pulled back out to approximately 120% of its original length to restore the round shape of its tubes. This product meets NCHRP 350 test level three requirements. An informational flyer (Attachment No. 7) for this product was provided to the GRC.

VII. Miscellaneous

Jay Bennett gave an overview of the Structure Design Tour and displayed pictures he had taken on the tour. He showed a couple of pictures of a Type III Structure Anchor Unit with a high skew. Jay noted that he often gets calls and questions as to whether or not it's okay to eliminate the first two posts. A note is on the Standard Drawing that states the first two post are not required for skew angles greater than 150 degrees or less than 30 degrees unless otherwise noted by the engineer.

To Do List

- Joel Howerton will make the revisions to standard drawing 862.01.
- John Arnold will pursue getting cable guiderail repair added to their ITRE training.
- Roger Thomas will forward the GRC's comments in regards to the new products to the New Products Committee.