

# Guardrail Committee Minutes

September 20, 2006

10:30 AM

Roadway Design Conference Room

## **I. Follow up to Depressed Median Guardrail Issues with Divided Highways of 6 Lanes or more.**

We reviewed attachments (**Attachment No. 1**) provided by Garry Lee. They were as follows: 1) A typical Section and plan sheet from the Greensboro Outer Loop project, which showed an eight lane median divided freeway with a 46 foot median, 12 foot full depth paved shoulders, two lines of steel beam guardrail and 6:1 median slopes. 2) Two sketches to show the difference in median slopes between a 6 lane median divided facility with 12-foot full depth shoulders; one sketch with full superelevation and the other with normal crown. 3) Roadway Standard Drawing 862.01 (sheet 6 of 11) modified to address a 46-foot median with 6 or more travel lanes. 4) Two typical sections (one with normal crown the other with maximum superelevation) showing the placement of two lines of steel beam guardrail with six or more travel lanes, a 46' median and 12 full depth paved shoulders. The typicals showed how the median slopes could be increased to address positive pavement drainage for pavement designs. Roger Thomas provided additional attachments in regards to this subject. They were as follows: Pictures and a typical section from a completed project along I-85 south of Salisbury (TIP Project I-2511BA). The project was an eight-lane median divided freeway with a 46' median, 10' full depth paved shoulders, a single line of double-faced guardrail, and 10:1 median slopes.

**Action:** *The Guardrail Committee noted there was three likely scenarios to address the guardrail placement on median divided highways with six or more travel lanes.*

- 1) *A single line of double-faced guardrail placed to one side of the median ditch.*
- 2) *A high-tension cable product with reduced dynamic deflection placed to one side of the median ditch along the shoulder break point.*
- 3) *The placement of two lines of steel beam guardrail placed at the edge of the paved shoulder.*

**Scenario 1:** *It was noted that there was a concern with achieving positive pavement drainage. The other concern discussed was that the flatter median slopes required for the guardrail placement would require more underdrains, which in turn would likely require deeper drainage structures.*

**Scenario 2:** *Need to develop guidelines and details for placement at the shoulder break point. Also need to investigate which post placement (driven or socket) should be specified in our contracts. Presently, Brifen is in the process of designing anchor units for different soil types.*

**Scenario 3:** *With this type of guardrail placement, we need to investigate if the median slopes need to be adjusted to achieve positive pavement drainage. We also need to make sure we address vegetative maintenance concerns.*

- *Joel Howerton will check with FDOT and VDOT to see how they address this type of median barrier placement.*
- *Garry Lee will provide a sketch showing the placement of 2 lines of steel beam guardrail and the minimum distance between the back of the posts.*

## **II. Review cable guiderail placement on a recently completed TIP Project R-1030D.**

The Guardrail Committee reviewed pictures and a plansheet where the placement of the guiderail was revised based upon field conditions. The plans called for cable guiderail on a 46-foot median divided facility. Due to the placement of an overhead sign support, the cable guiderail was placed on the high side of the median along the outside of a horizontal curve. Based upon the Division Construction Engineer's field observation, the guiderail placement gave the appearance that a vehicle could vault over top the cable guiderail (**Attachment No. 2**).

**Action:** *The Guardrail Committee viewed pictures showing how the plans were revised to remove the cable guiderail and place a single line of steel beam guardrail on one side of the median. To eliminate having a vegetative maintenance issue a line of steel beam guardrail was not placed on the low side of the horizontal curve.*

## **III. Follow up to Vegetative Maintenance Concerns**

Ron Allen gave an update of the results from the meeting held with the Pavement Technical Committee on August 23, 2006. As a result of the meeting, guidelines and details on how to address paving areas with an overhead sign support and steel beam guardrail are being developed. The new detail will be provided to the Guardrail Committee for their review prior to having it submitted to the Implementation Committee. To address paving to the face and beneath steel beam guardrail on the outside and inside paved shoulders additional studies and coordination with other units are underway.

**Action:** *The Guardrail Committee will continue monitor the progress the Vegetative Maintenance Concern Committee.*

## **IV. Follow up to U-Teck**

Dennis Jernigan provided pictures and additional information in regards to this product's performance.

**Action:** *Pictures showed various guardrail installations with the subject product. It appears that over time vegetation still grows up around and in the cracks between the product and the posts.*

**V. Review NP-06-4604. T31/39 Guardrail by Trinity Highway Safety Products Inc.**

The Guardrail committee reviewed information (**Attachment No. 3**) on the T-31/39 Guardrail, which is a proprietary strong post w-beam system that has been successfully crash tested to both NCHRP Report 350 TL-3 and the proposed "350 update" criteria. The w-beam is attached directly to the steel yielding line posts eliminating the need for offset blocks.

**Action:** *The Guardrail Committee decided to defer their comments until they could get additional information. One concern noted to investigate was how this product would perform with the placement of shoulder berm gutter.*

**VI. Miscellaneous**

Dennis Jernigan brought to the attention of the Guardrail Committee additional issues and concerns. They were as follows:

- Need to add a line item to our projects for additional guiderail post to be used in conjunction with Roadway Standard Drawing 865.01 (sheet 1 of 12).

**Action:** *A standard Special Provision has been written for additional guiderail posts. Also, a pay item (per each) has been added to the Transport pay item list. A memo will go out noting when to include this item and the way to calculate it. It was suggested that the number of median hazards be counted and multiplied by 3.*

- Requested that a field inspection question be added to address what type of measures should be taken on dead-end roadways. In some instances, guardrail is added with a terminal end section. Recently projects have been let that do not show how these areas should be addressed.

**Action:** *A field inspection question will be added to address this issue.*

- Questioned whether there is enough prime coat called for on Roadway Standard Drawing 862.01 (sheet 10 of 11) to hold the ABC in place.

**Action:** *Joel Howerton will check with Clark Morrison to further investigate this issue.*

Ron Allen questioned if the Guardrail Committee Members would be interested in taking a field trip to visit various project sites and review their guardrail installations. This site visit would allow the committee members the opportunity to see vegetative maintenance issues and guiderail/guardrail placement concerns on site. Ron also suggested inviting David Harris.

**Action:** *Ron asked the committee members to email Roger Thomas and himself with recommendations of different types of guiderail/guardrail installations and projects they would like to see during a field trip.*

### **To Do List**

- Joel Howerton will check with FDOT and VDOT to find out how they are addressing guardrail placement on depressed median divided highways with 6 or more lanes. He will also gather additional information in regards to NP-06-4604 (T31/39 Guardrail). Furthermore, he will check with Clark Morrison in regards to the amount of prime coat called for on Standard Drawing 8672.01.
- Virginia Mabry and Garry Lee will investigate further if the median slopes need to be adjusted to achieve positive pavement drainage for the placement of two lines of steel beam guardrail placed at the edge of the paved shoulder.
- Roger Thomas and Joel Howerton will address developing guidelines and details for the placement of high-tension cable to one side of the median ditch along the shoulder break point.
- Roger Thomas will draft a letter for Jay's signature to address adding a pay item for additional guiderail posts. He will also look into adding a new field inspection question to address what design measure should be taken on dead-end roadways.

Minutes prepared by Roger Thomas, PE

Minutes approved by Ron Allen, PE