



**STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION**

COMMISSIONER'S OFFICE
SUITE 700, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-2848

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

April 4, 2017

Ms. Pamela K. Kordenbrock
Division Administrator
Federal Highway Administration-Tennessee
404 BNA Drive, Suite 508
Nashville, Tennessee 37217

**Re: Lindsey Transportation Solutions
X-Lite End Terminal**

Dear Ms. Kordenbrock:

The purpose of this correspondence is to inform the Federal Highway Administration (FHWA) of recent issues that the Tennessee Department of Transportation (TDOT) has experienced with the above referenced energy absorbing tangential guardrail end terminal.

As you know, FHWA issued a letter of eligibility for the X-Lite Flared Terminal and X-Lite Tangent Terminal on September 7, 2011, thus these products had been properly evaluated by NCHRP-350 TL-3 evaluation criteria. As stated in the letter from Michael S. Griffith, FHWA Safety Office, ***“Both systems described above and detailed in the enclosed drawings are acceptable for use on the NHS under the range of conditions tested.”*** Subsequent modifications of the end terminals led to additional approvals by FHWA dated March 29, 2013 and January 28, 2014. As a result of the acceptance letters, the X-Lite terminals were added to TDOT's Qualified Product List (QPL) in June, 2013.

In June, 2016, TDOT's field staff expressed concerns to our Headquarters Construction Division regarding installations of X-Lite terminals involving two (2) crashes resulting in three (3) fatalities where the guardrail penetrated the vehicle cabin. Between July and October, 2016, TDOT staff conducted field inspections and had discussions with Lindsey Transportation Solutions executives and staff several times attempting to clarify guardrail end terminal installation details. Lindsey Transportation Solutions was unable to resolve our concerns regarding a lack of bolt torque specifications in their installation instructions. We note that in FHWA's September 9, 2011 acceptance letter regarding the X-Lite Terminal, under the standard provisions of acceptance, that ***“the manufacturer is expected to supply potential users with sufficient information on design and installation requirements to ensure proper performance.”***

Ms. Pamela Kordenbrock

April 4, 2017

Page 2

TDOT concluded that unclear instructions *may* cause installation deficiencies, which could result in the terminal performing differently from the original tested conditions.

As a result of unclear installation instructions, and TDOT's migration to the 2016 edition of AASHTO's Manual for Assessing Safety Hardware (MASH), the X-Lite (TX) Terminal was removed from TDOT's QPL on October 25, 2016.

Additionally, our experience with the X-Lite Terminals has revealed in-service performance that we believe does not provide adequate protection of motorists on our network of roads. Our concern is based on crashes where we have observed the impact head of the unit separating horizontally from the adjacent w-beam guardrail, sliding past this adjacent section of w-beam which then could and has penetrated a vehicle cabin. Since the end terminal was removed from our QPL, two (2) additional crashes resulting in fatalities and other non-fatality crashes have prompted TDOT to take further action.

We have made the decision to remove installed X-Lite (TX) terminals from the state highway systems through contracts in our March 31, 2017 bid letting.

In FHWA's September 9, 2011 acceptance letter regarding the X-Lite Terminal, under the standard provisions of acceptance, it is noted that "if in-service performance reveals unacceptable safety problems that FHWA reserves its rights to modify or revoke acceptance."

It is also our understanding that the Virginia Department of Transportation (VDOT) removed the Lindsey Transportation Solutions X-Lite End Terminals from their Approved Products List on September 1, 2016.

While Tennessee will soon see these products removed from the state highway system, in light of these circumstances, I believe it appropriate to notify FHWA of our inability to receive satisfactory installation information from the manufacturer and that in-service performance of this device is resulting in unacceptable safety levels for the Department. We are available to provide additional information with regard to these concerns should you request them.

Sincerely,



John C. Schroer
Commissioner

JCS/CER/jc

Ms. Pamela Kordenbrock

April 4, 2017

Page 3

cc: Mr. Paul D. Degges, P.E., Deputy Commissioner/Chief Engineer
Mr. John Reinbold, Legal Counsel
Mr. Jeff C. Jones, P.E, Assistant Chief Engineer-Design
Mr. Chuck Rychen, Assistant Chief Engineer-Operations
Mr. Will Reid, P.E., Director of Construction
Assistant Chief Engineers/ Regional Directors
Mr. Bud Wright AASHTO