



JUL 07 2003

<p style="text-align: center;">SUPERSEDED BY EB10-021 EFFECTIVE 1/6/11</p>		<p style="text-align: center;"><i>New York State</i> <i>Department of</i> <i>Transportation</i> ENGINEERING INSTRUCTION</p>	<p style="text-align: center;">EI 03-020</p>								
<p>Title: WEAK-POST, CORRUGATED BEAM MEDIAN BARRIER- NOW ACCEPTABLE AS TL-3 (100 KM/H) BARRIER</p>											
<p>Distribution:</p> <table><tr><td><input type="checkbox"/> Manufacturers (18)</td><td><input type="checkbox"/> Surveyors (33)</td></tr><tr><td><input checked="" type="checkbox"/> Main Office (30)</td><td><input checked="" type="checkbox"/> Consultants (34)</td></tr><tr><td><input checked="" type="checkbox"/> Local Govt. (31)</td><td><input type="checkbox"/> Contractors (39)</td></tr><tr><td><input checked="" type="checkbox"/> Regions/Agencies (32)</td><td><input type="checkbox"/> _____ ()</td></tr></table>		<input type="checkbox"/> Manufacturers (18)	<input type="checkbox"/> Surveyors (33)	<input checked="" type="checkbox"/> Main Office (30)	<input checked="" type="checkbox"/> Consultants (34)	<input checked="" type="checkbox"/> Local Govt. (31)	<input type="checkbox"/> Contractors (39)	<input checked="" type="checkbox"/> Regions/Agencies (32)	<input type="checkbox"/> _____ ()	<p>Approved:</p> <p style="text-align: center;"> _____ P. J. Clark, Deputy Chief Engineer Design Division</p> <p style="text-align: right;">06/23/03 Date</p>	
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ADMINISTRATIVE INFORMATION:

- **Effective date.** This EI is effective with projects submitted for the letting of January 15, 2004. The policy information may be incorporated into projects let earlier.
- **Superseded issuances.** Portions of the HDM, §10.2.4.4 W-Beam Median Barriers, are modified.
- **Disposition of issued materials.** Changes to design policy will reside in the above mentioned subsection of the HDM.

PURPOSE:

- To communicate that Weak-Post, Corrugated Beam Median Barrier passed full scale crash test 3-11 (2000 kg test vehicle, 100 km/h, 25°) and therefore may be used on all classes of highway both on and off the NHS.
- To authorize changes to be made to the HDM reflecting the above at a future date.

TECHNICAL INFORMATION:

- **Interim Guidance.** New Weak-Post, Corrugated Beam Median Barrier may be installed, reinstalled, or retained (if in good condition) on all classes of highways, both on and off the NHS. Corrugated Beam Median Barrier is in the 606.17 contract pay item family and is depicted on Standard Sheet M606-7.
- **Policy.** See Interim Guidance above.
- **Other Information.** Dynamic deflection was 1.53 m in the test with 3.8 m post spacing. In general, reduced post spacing reduces deflection. Until a number is calculated or determined by test, it is conservative to use 1.25 m deflection for 1.9 m and all lesser allowed post spacings.

There are no end terminals approved for use with this median barrier if the median barrier is to be installed inside the clear zone of highways with design speeds greater than 50 km/h or 70 km/h in urban settings. This includes the Typical Terminal Section shown on Standard Sheet M606-7. If termination inside the clear zone at an unprotected location cannot be avoided on roads with higher design speeds, consider transitioning from the Weak-Post, Barrier to another system having an approved end terminal. Box Beam Median Barrier and HPBO Corrugated Beam Median Barrier are two such systems. Standard Sheet M606-16 details the transition between the subject median barrier and Box Beam Median Barrier. Standard Sheet M606-18 (now a draft to be separately cleared) depicts the transition between the Weak-Post, Median Barrier and HPBO Corrugated Beam Median Barrier. In addition to the lengths associated with the transitions, allow at least 7.5-15 m HPBO Corrugated Beam Median Barrier or Box Beam Median Barrier before affixing the approved end terminals.

● **Actions.**

Design Guidance. Designs submitted for the January 15, 2004 and later lettings should reflect the above interim guidance.

Construction Guidance. Contracts having replacements of the Weak-Post, Median Barrier system let prior to January 15, 2004 need to be reviewed in consultation with Regional Design Groups to determine if field changes are advisable. In making these determinations, staff should be mindful that the redirection capabilities and decelerations during impact are expected to be better with the Corrugated Beam Median Barrier (Weak-Post) system than HPBO Corrugated Beam Median Barrier and about the same as with the Box Beam Median Barrier.

● **Cost Impact.** The Weak-Post, Median Barrier is a less expensive system to construct than HPBO Corrugated Beam Median Barrier or Box Beam Median Barrier. Maintenance costs of the subject system would be greater than maintenance costs for HPBO Corrugated Beam Median Barrier and about the same as Box Beam Median Barrier or less.

● **Changes.** In some instances it will now be possible to use Weak-Post, Corrugated Beam Median Barrier that in the past would not have been permitted.

BACKGROUND: Federal rules, published July 16, 1993, required that by approximately 1998 guide rail and other design features installed on the NHS be only of a type that were able to pass NCHRP 350 crash testing with the 2000 kg test vehicle (pickup truck). Weak-Post, Corrugated Beam type guide rail has passed this testing, but at only 70 km/h. Therefore, both it and the Weak-Post, Corrugated Beam Median Barrier were prohibited from installations at speeds any higher than that. This was originally communicated in EI 97-014, which was replaced and superseded by Revision 40 of the HDM, which was issued under EB 02-019.

The Department felt that Corrugated Beam Median Barrier would fare better in crash testing than the Weak-Post, Corrugated Beam type guide rail. Therefore, a test was arranged through the FHWA using pooled funds. The test demonstrated that Corrugated Beam Median Barrier could contain and redirect a 2000 kg test vehicle at Test Level-3 conditions, and therefore is acceptable for use on all highways.

REFERENCES: EI 97-014, Weak Post Corrugated Guide Rail and Median Barrier.
Highway Design Manual, §10.2.4.4

CONTACT: Marc Connolly, mconnolly@dot.state.ny.us, Design Quality Assurance Bureau, (518) 485-5457.