
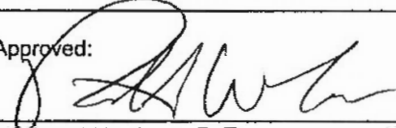


SUPERSEDED BY EB 26-015 EFFECTIVE 12/31/26		New York State Department of Transportation ENGINEERING INSTRUCTION	EI 13-005
Title: PIER PROTECTION – DESIGN GUIDANCE			
Target Audience: <input checked="" type="checkbox"/> Manufacturers (18) <input type="checkbox"/> Local Govt. (31) <input checked="" type="checkbox"/> Agencies (32) <input type="checkbox"/> Surveyors (33) <input checked="" type="checkbox"/> Consultants (34) <input checked="" type="checkbox"/> Contractors (39) <input type="checkbox"/> _____ ()	Approved:  Richard W. Lee, P.E. Acting Deputy Chief Engineer (Design)	5/16/13 Date	

ADMINISTRATIVE INFORMATION:

- This Engineering Instruction (EI) is effective beginning with projects submitted for the letting of January 9, 2014.
- This EI does not supersede any other issuance.
- The revisions issued with this EI will be incorporated into the next update of the Highway Design Manual, Chapter 10 – *Roadside Design, Guide Rail, and Appurtenances*.

PURPOSE: The purpose of this EI is to announce changes in the manner in which new pier protection barrier should be designed.

TECHNICAL INFORMATION:

- This EI is being issued in conjunction with EB 13-015 *Pier Protection - Standard Sheets*.
- Designers should no longer use the 32” tall Jersey barrier Pier Protection details that were shown on Standard Sheets 606-16 or M606-25. These sheets have been rescinded under EB 13-015. Resetting of existing 32” tall Jersey barrier pier protection should be discontinued.
- Roadways under existing bridges that require new or replacement longitudinal railing or barriers in order to protect existing piers shall incorporate 42” tall single-slope concrete barriers (Standard Sheets 606-14) with the appropriate transitions to other barrier systems as currently detailed on the Highway Standard Sheets. For bridges with new or replaced piers adjacent to the under roadway, the design of the pier/pier protection must meet the requirements of Section 3.6.5.1 – Protection of Structures in the current NYSDOT LRFD Bridge Design Specifications.
- Single-slope pier protection shall be provided where piers are accessible to errant vehicles and within 30 feet of the traveled way. Placement, or resetting, of guide rail as pier protection within 30 feet of pier columns should be discontinued until further notice. Pier protection is not required for piers more than 30 feet from the traveled way.
- Where no other upstream barriers are present, the single-slope barrier shall be preceded by a transition to box beam or HPBO which should be extended upstream to a suitable leading end termination.
- The full-height single-slope barriers should extend upstream from the start of the shielded pier by a minimum of 20 feet. Additionally, for point of need, the full-height barrier shall extend far enough upstream to cover a departure angle of 10 degrees on freeways and 15 degrees on other highways. On highways where a pier may be approached from the opposite direction, that approach shall also be protected in this manner, provided the pier is within 30 feet of the edge of traveled way for the opposite direction traffic. On trailing ends with one-way traffic, the concrete barrier may end even with the downstream end of the pier.

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- Where the width of single-slope concrete barriers can not be accommodated, half-section barrier (Standard Sheet 606-13) may be used, provided continuity connections and appropriate back-up and transition details are included.
- The placement of box beam mounted to the front face of the pier protection concrete barrier is no longer needed with this new method, but may be included at the designer's discretion.
- No pay item will be provided for Pier Protection. Items 606.9401 Pier Protection (One Way) and 606.9402 Pier Protection (Two Way) are hereby disapproved. Payment should be made under the appropriate single slope barrier item, transition items, and related barrier items.
- Cost increases are expected as a result of this change. There should not be a large cost differential between the installation of Jersey barrier with box beam and the installation of single slope concrete barrier. However, where steel barrier pier shielding is replaced by concrete, costs for the shielding/protection will roughly triple.

IMPLEMENTATION:

- Two standard items (both in Metric and US Customary) are disapproved:
 - 606.9401 Pier Protection (One Way)
 - 606.9402 Pier Protection (Two Way)
- Two special specification items are disapproved:
 - 606.88__03 Resetting Pier Protection
 - 606.88000003 Resetting Pier Protection
- No new specifications are being issued.

TRANSMITTED MATERIALS:

This EI transmits standard specification revision *Deletion of Pier Protection Standard Items*. Both Metric and U.S. Customary revisions are attached.

BACKGROUND: For the last quarter of a century, the Department has been using a Jersey barrier with a box beam mounted on the upper face as its standard pier protection detail. In the last decade, in recognition of the lesser ability of the 32" tall Jersey barriers to keep tall vehicles upright, the Department has moved, largely by consensus, to the use of 42" tall barriers, predominantly the single-slope barrier, as the typical concrete barrier. Because a clearly defined set of Pier Protection details existed on the Standard Sheets, the 32" Jersey barrier continued to be used for pier protection. This EI is being issued to prevent any further installation of the 32" barrier.

CONTACT: Direct questions regarding this issuance to Terry Hale of the Design Quality Assurance Bureau at (518) 485-7009 or via e-mail at Terry.Hale@dot.ny.gov.

DELETION OF PIER PROTECTION STANDARD ITEMS

Make the following changes to the Standard Specifications dated May 1, 2008:

- Page 503, **DELETE** the last line, reading "Pier Protection" under 606-1 **DESCRIPTION**.
- Page 505, **DELETE** section 606-2.12 **Pier Protection**, and **REPLACE** with 606-2.12 (Vacant).
- Page 515, **DELETE** section 606-3.18 **Pier Protection** and **REPLACE** with 606-3.18 (Vacant).
- Page 516, **DELETE** section 606-4.15 **Pier Protection** and **REPLACE** with 606-4.15 (Vacant).
- Page 519, **DELETE** section 606-5.09 **Pier Protection** and **REPLACE** with 606-5.09 (Vacant).
- Page 523, **DELETE** items 606.9401 Pier Protection (One Way) and 606.9402 Pier Protection (Two Way).

DELETION OF PIER PROTECTION STANDARD ITEMS

Make the following changes to the Standard Specifications dated May 4, 2006:

Page 498, **DELETE** the last line, reading "Pier Protection" under 606-1 **DESCRIPTION**.

Page 501, **DELETE** section 606-2.12 **Pier Protection**, and **REPLACE** with 606-2.12 (Vacant).

Page 510, **DELETE** section 606-3.18 **Pier Protection** and **REPLACE** with 606-3.18 (Vacant).

Page 512, **DELETE** section 606-4.15 **Pier Protection** and **REPLACE** with 606-4.15 (Vacant).

Page 514, **DELETE** section 606-5.09 **Pier Protection** and **REPLACE** with 606-5.09 (Vacant).

Page 520, **DELETE** items 606.9401 Pier Protection (One Way) and 606.9402 Pier Protection (Two Way).