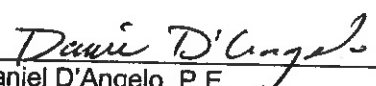


To: SUPERSEDED BY EB 10-021 EFFECTIVE 1/6/11		New York State Department of Transportation ENGINEERING INSTRUCTION	EI 06-030
Title: Cable Guide Railing Standard Specifications			
Distribution: ☒ Manufacturers (18) ☐ Surveyors (33) ☒ Local Govt. (31) ☒ Consultants (34) ☒ Agencies (32) ☒ Contractors (39)		Approved:  Daniel D'Angelo, P.E. Deputy Chief Engineer, Design 10/12/06 Date	

ADMINISTRATIVE INFORMATION:

- This Engineering Instruction (EI) is effective beginning with projects submitted for the letting of May 3, 2007.
- This EI supersedes EI 04-029, "Specification Revision: Section 606-2.06 Concrete for End Assembly Anchors and Post Embedment" and EI 98-010, Guide Rail Transitions and Cable Guide Rail.
- These revisions will be incorporated into a future update of the Standard Specifications.
- This EI complements information issued with EB 06-043 which issues changes to Standard Sheets M606-1R1 and M606-2R1.

PURPOSE: This EI transmits revisions to the standard specifications and standard items for cable guide railing.

TECHNICAL INFORMATION:

- The current detail for an embedded anchor post stub has been replaced with an anchor post stub welded to an anchor plate. The anchor plate is then secured to the concrete anchor with embedded or grouted anchor rods. In addition, to minimize bending at the anchor post stub, the section of the stub connecting the slip impact base and the anchor plate has been increased from S75x8 to S75x11. The upper post section remains the same (S75x8) but the length has changed to maintain the overall post height.
- When resetting older guide rail the designer shall use the new anchor items provided in this EI.
- Special Specifications, 606.020163-Anchor Units for Cable Guide Railing, Emergency Standby Contract Work and 606.59xx63-Resetting Anchor Units for Cable Guide Railing, Standby Contract Work will be revised to reflect the changes issued with this EI.
- Other minor changes included in this EI are:
 - Adding material requirements for reflectors, cable hook bolts, and cable-end assemblies previously located on the Standard Sheets.
 - Replacing three existing pay items with new pay items.
 - Including cable guide railing into the materials section of §710-25 GUIDE RAIL AND MEDIAN BARRIER SYSTEMS (RUSTIC).
- It is anticipated that there will be some initial cost increases due to additional fabrication costs. However, this change should result in significantly lower maintenance costs.

EI 06-030 Page 2 of 2

IMPLEMENTATION:

Main Office Design Quality Assurance Bureau will insert the Standard Specification shelf note into contract documents beginning with projects submitted for the letting of 05/3/07.

The following contract pay items are disapproved:

- 606.02 – Anchor Units for Cable Guide Railing
- 606.0250 – Anchor Units for Cable Guide Railing (Rustic Posts)
- 606.59 – Resetting Anchor Units for Cable Guide Railing

The following standard specification contract pay items are approved:

- 606.0202 – Anchor Units for Cable Guide Railing
- 606.0251 – Anchor Units for Cable Guide Railing (Rustic Posts)
- 606.5901 – Resetting Anchor Units for Cable Guide Railing

TRANSMITTED MATERIALS: This EI transmits a shelf note for Section 606 – Guide Railing.

BACKGROUND: Previously, anchor post stubs on cable guide rail systems were embedded in the concrete anchor blocks. In many instances, a vehicle impact anywhere along the cable system resulted in bending or cracking of the stub below the slip impact plate. This made repair of the anchor post difficult or impossible. The changes in this EI and EB 06-043 modify the fabrication and installation to facilitate repairs by strengthening the stub and making replacement of the base assembly easy.

CONTACT: For additional information contact Pratip Lahiri at plahiri@dot.state.ny.us or Bob Lohse at rlohse@dot.state.ny.us of the Design Quality Assurance Bureau at (518) 457-3528.

Make the following changes to the Standard Specifications of January 2, 2002.

Page 6-23, delete "606-2.06 Concrete for End Assembly Anchors and Post Embedments" in its entirety and as amended by E.I. 04-029 and **replace** with the following:

"606-2.06 Concrete for End Assembly Anchorage Units

Cast-in-place concrete shall meet the requirements of Class A Concrete in Section 501 Portland Cement Concrete-General. The Contractor may submit, for approval by the Director of the Materials Bureau, a mix at least equivalent to the specified Class A Concrete, with a minimum cement content of 340 kg/m³.

Precast concrete anchorage units, when selected as an alternate to cast-in-place units by the Contractor, shall meet the requirements of Section 704-03 Precast Concrete-General."

Page 6-25, line 6, add ", concrete anchors" after the word "structures".

Page 6-25, line 6, change "on the plans" to "in the Contract Documents".

Page 6-26, line 25, add "and anchor post" after the word "angles".

Page 6-38, line 25, change "606.02" to "606.0201"

Page 6-38, line 26, change "606.0250" to "606.0251"

Page 7-109, line 37, add ", Anchor Post Base," after the word "plates"

Page 7-112, line 37, add ", Anchor Post Base" after the word "Angle"

Page 7-112, delete lines 41, 42, 43, and 44 in their entirety and **insert** the following:

"Cable End Assemblies. Designs for a steel turnbuckle cable-end assembly or spring cable-end assembly not shown on the standard sheet or detailed in the plans shall be submitted for approval. Compensating devices must have a spring rate of 80 +/- 8 N/mm and a total available "throw" of 150 mm minimum.

Hook Bolts. Hook bolts shall develop an ultimate pull open strength of from 2.0 kN to 4.5 kN applied in a direction normal to the longitudinal axis of the post."

Page 7-113, line 6, add ", and Anchor Post Base" after the word "angles"

Page 7-117, Under §710-25, delete the subsection **MATERIAL REQUIREMENTS** entirely and replace with the following:

"MATERIAL REQUIREMENTS. Except as modified herein, all requirements of §710-20-Corrugated Beam Guide Railing and Mall Barrier, §710-21 - Box Beam Guide Railing and Median Barrier, including Drop Weight Tear Testing, and §710-22 Cable Guide Railing shall apply.

A. Box Beam Rail. The base metal for the structural shape, plate, and bar components of box beam guide rail and median barrier shall meet the requirements of ASTM A242M or A588M, and shall not be galvanized. The fabrication of structural tube shall comply with ASTM A500, Grade B. The mechanical properties of the finished tube shall conform to the requirements of ASTM A500, Grade B except that the minimum elongation in 50.8 mm shall be 21 percent. Splice plates shall be fabricated of ASTM A36M steel ready for assembly before galvanizing and galvanized in accordance with §719-01, Type 1 (ASTM A123).

B. Corrugated Beam Rail. The base metal for the corrugated beam rail shall meet the requirements of ASTM A606, Type 4, and shall not be galvanized.

C. Cable Guide Railing. The upper Anchor Post, including the attached upper slip impact base, shall not be galvanized.

D. Welds. All welds shall develop the strength of, and exhibit the same corrosion resistance characteristics as, the base metal used for the structural shape, plate and bar components.

E. Soil Plates. Soil plates of high strength, low alloy steel guide rail system shall be made of either; ASTM A36M, ASTM A242M, ASTM A588M, or ASTM A606 Type 4 and shall be galvanized or epoxy coated in accordance with the applicable requirements in this specification.

F. Miscellaneous Hardware. The base metal of all accessory hardware of high strength, low alloy steel guide rail system including blockouts, backup plates, rail connecting angles, bolts, nuts and washers shall be fabricated from steel having corrosion resistance of approximately 4 times carbon structural steel without copper. Hardware to be excepted from this requirement is listed below and shall be supplied in conformance to the requirements as detailed on the standard sheets, and galvanized in accordance with §719-01, Type 1 (ASTM A123).

- All bolts less than 13 mm diameter and their associated washers and nuts.
- 44 mm x 44 mm square washers; 76 mm x 44 mm washers.
- 20 mm diameter anchor rods, nuts and washers associated with concrete anchors.
- Other miscellaneous nuts, bolts, washers, and connectors not exposed to view.

High strength bolts, nuts, and washers specified on the standard sheets as ASTM A325 shall conform to ASTM A325M, Type 3. Commercially available anti-seizing compound shall be applied to the threads of corrosion resistant bolts used in rail splices.

G. Epoxy Coating Material

1. The epoxy coating materials shall be powdered polyamide epoxy resin suitable for fusion bonding. The finish shall not be glossy. A dull or matted finish shall be supplied.

2. The color of the epoxy coating shall be a reasonable visual match to the brown color of Federal Color Standard 595 - plate numbers 10075, 10079, and 10091. Fifteen (15) days prior to commencement of coating operations, three (3) 100 mm x 150 mm coated metal plates shall be submitted to the Director, Materials Bureau for determination as to acceptability of the color match.

The epoxy coating shall not fade, change color or chalk appreciably when subjected to a 30 hour exposure (20 minute cycle) in the high intensity ultra violet weatherometer model DMC-RHC. Each cycle (continuously repeating) starts with 17 minutes of light followed by 3 minutes of light and waterspray.

3. Upon approval of the product and the color match, the epoxy coating will be placed on a Department Approved List of Materials.

H. Posts. Posts shall conform to any of the following requirements:

1. ASTM A36M steel with a fusion bonded polyamide epoxy coating throughout meeting the epoxy requirements of this specification.

2. ASTM A588M steel with the embedded portion of the post galvanized in accordance with §719-01, Type 1 (ASTM A123). The posts shall be prepared in accordance with standard galvanizing industry practice. The lower 0.8 m of light poles and the lower 1 m of heavy posts shall be galvanized.

3. ASTM A588M steel with the embedded portion of the post having a fusion bonded polyamide epoxy coating meeting the epoxy requirements of this specification. The lower 1 m of the posts, regardless of rail type, shall be epoxy coated."