**Reviewers: Modify sections 1.0 & 3.1 as needed and eliminate sections that do not apply like 3.2. Renumber sections accordingly.**

**General guidance:**

* **Use section 3.5 System G Overcoat when overcoating bridge with System G in this contract or when there is no plan to repaint bridge.**
* **Use section 3.5 System G Recoat when recoating bridge with System G in this contract.**
* **Use section 3.5 Gray Epoxy-Mastic Primer when painting will be done in a separate contract.**

 STRENGTHENING EXISTING BEAMS 11/13/24

**1.0 Description.** This work shall consist of strengthening existing beams as shown on the plans after the deck has been removed.

**2.0 Materials.** No shop drawings will be required.

**3.0 Construction Requirements.** Structural steel construction shall be in accordance with Sec 712. Prior to installation of the new structural steel, the existing steel shall be carefully inspected for irregularities. Any irregularities shall be brought to the attention of the engineer.

**3.1 Traffic.** Traffic shall be shifted away from the beam being welded. A reduced speed limit as shown in the traffic control plans shall be applied during the welding process to reduce impact vibrations.

**3.2 Supporting and Raising Existing Beams.** When the plans indicate supporting and raising the existing beams, the following shall be required:

(a) The safe load per beam indicated on the plans for the temporary supports does not include a factor of safety. The contractor shall provide an adequate factor of safety when selecting the temporary support members.

(b) Temporary timber supports shall be placed at each jacking point as shown on the plans. All beams within a span shall be jacked and supported simultaneously to prevent damage to the slab. The beams shall be raised prior to completing the welding with the flange plates in place. All welding shall be completed prior to removing the temporary supports.

**3.3 Contact Surfaces.** The surfaces of the existing flanges that will come into contact with the new steel plates shall be cleaned to an SSPC-SP2 degree of cleanliness. The surfaces of new steel shall be cleaned to an SSPC-SP6 degree of cleanliness. The existing and new plate contact surfaces shall be coated with one coat of gray epoxy-mastic primer (non-aluminum) in accordance with Sec 1081.

**3.4 Welding Requirements.** The areas to be welded shall be cleaned to an SSPC-SP11 degree of cleanliness. All welding shall be performed by a certified welder in accordance with Sec 712. All welding shall be in accordance with Sec 712. E7018 welding electrode or self- shielded welding process from the MoDOT approved electrode list shall be used.

**3.5 System G Overcoat (Gray).** The new installed steel, any surrounding touch up areas and any existing paint damaged by the repair work shall be cleaned and coated with one coat of gray epoxy-mastic primer (non-aluminum) in accordance with Sec 1081. The new steel shall be overcoated with System G in accordance with Sec 1081.

**3.5 System G Recoat (Gray).** The new installed steel, any surrounding touch up areas and any existing paint damaged by the repair work shall be cleaned and coated with one coat of gray epoxy-mastic primer (non-aluminum) in accordance with Sec 1081. The new steel shall be recoated with System G in accordance with Sec 1081 when recoating the existing structural steel as noted on the plans.

**3.5 Gray Epoxy-Mastic Primer.** Any surrounding touch up areas and any existing paint damaged by the repair work shall be cleaned and coated with one coat of gray epoxy-mastic primer (non-aluminum) in accordance with Sec 1081.

**4.0 Method of Measurement.** No measurement will be made.

**5.0 Basis of Payment.** Payment for the above described work, including all material, equipment, labor and any other incidental work needed to complete this item, will be considered completely covered by the contract lump sum price for Strengthening Existing Beams.