SECTION 1020—TOOTH EXPANSION DAM WITH DRAIN TROUGH

1020.1 DESCRIPTION—This work is construction of a tooth expansion dam with fabric reinforced drain troughs for bridge joints.

1020.2 MATERIAL—

(a) Fabricated Structural Steel. Section 1105.02(a)2, shop painted as specified in Section 1060.

(b) High Strength Bolts. Section 1105.02(d)

(c) Stainless Steel Bolts and Studs. ASTM F 593. Certify as specified in Section 106.03(b)3.

(d) Stainless Steel Washers and Lock-Nuts. ASTM F 594. Certify as specified in Section 106.03(b)3.

(e) Galvanizing. Section 1105.02(s)

(f) Polyester or Nylon Fabric. Certify as specified in Section 106.03(b)3. Conform to the following requirements:

• Number of plies	2
• Minimum fabric mass (weight), kg/m^2 (oz./sq. yd.)	0.25 (7.5)
• Minimum tensile strength N/mm (lb./in.), ASTM D 378	74 (425)

(g) Rubberized Trough Material. Certify as specified in Section 106.03(b)3. Furnish Butadiene Acrylonitrile Elastomer conforming to the following requirements:

• Hardness shore 'A', ASTM D 2240, minimum – maximum	60-70 durometer
• Minimum tensile strength, MPa (psi), ASTM D 412	9.7 (1400)
• Minimum elongation at break, %, ASTM D 412	300
• Oven aging, 70 hours at 100 °C (212F), ASTM D 573	
Maximum elongation loss, %	-25
Maximum tensile strength loss, %	-35
Maximum hardness points change	+10
• Brittleness to heat aging, ASTM D 2137	-18 °C (0F)
• Tear resistance, N/mm (lb./in.), Die C, ASTM D 624	21 (120)

- Resistance to ozone aging, ASTM D 1149 (Method B, bent loop) — No cracks, 70 hours @ 40°C (104F) and 50 ppm ozone,
- Oil swell, ASTM D 471, 70 hours @ 100 °C (212F) using IRM 903 oil, mass change % maximum — 45

(h) Fabric Composite Properties. Preformed fabric material consisting of the multi-ply polyester or nylon fabric and rubberized trough material, vulcanized to form a laminate, with the following properties:

- Minimum thickness, mm (in.) — 3 (1/8)
- Minimum composite tensile strength of the fabric reinforced bridge trough, N/mm (lb./in.), ASTM D 378 — 140 (800)
- Maximum elongation @ ultimate tensile strength, % ASTM D 412 — 30
- Maximum resistance to water absorption, (less than 10% mass (weight) gain for 7 days of water immersion @ 70 °C (150F), ASTM D 471 – Procedure for Change in Mass with Liquid on One Surface Only — 10

1020.3 CONSTRUCTION—Construct as shown on the Standard Drawings and as follows:

Prepare shop drawings as specified in Section 105.02(d). Obtain acceptance of the shop drawings before beginning fabrication.

Use a prequalified fabrication shop as specified in Section 1105.01(a).

Weld as specified in Section 1105.03(m).

Fabricate and erect the expansion dam according to the shop drawings and as appropriate for the bridge deck grade and crown. Preset the dam opening before shipment and assemble with temporary shipping angles.

Install the dam as indicated. After erection, remove the temporary shipping angles and grind plates smooth.

Place concrete under the expansion dams, vibrate until the concrete is forced through air holes, and strike off excess concrete. After the concrete has cured, clean air holes and fill with an approved sealer.

Do not splice the drain trough, unless indicated. If splices are indicated, use splices vulcanized by the manufacturer. Do not use longitudinal splices.

Before trough installation, apply the intermediate and finish coats of paint to all areas that will be inaccessible after the trough is installed.

Install the trough with stainless steel fasteners.

1020.4 MEASUREMENT AND PAYMENT—Kilogram (Pound)