SECTION 506-0001 – STRUCTURAL STEEL, CURVED BOX GIRDER

506-0001.01  DESCRIPTION. This work shall consist of furnishing and erecting structural steel curved box girders in accordance with the requirements of Section 506.

506-0001.02  MATERIALS. Materials shall meet the requirements of the following subsections:

Mortar, Type IV 707.01(e)

Powder Coating Systems 708.02

Structural Steel Coating Systems 708.03

Grease Rustproofing Compound 708.04

Structural Steel 714.02

High-Strength Low-Alloy Structural Steel 714.03

Carbon Steel Bolts, Nuts, and Washers 714.04

High-Strength Structural Bolts and Assemblies, 120 ksi 714.05

High-Strength Structural Bolts and Assemblies, 150 ksi 714.06

Anchor Bolts for Bearing Devices 714.08

Welded Stud Shear Connectors 714.10

Steel Tubing 714.11

Direct Tension Indicators 714.12

Tension Control Assemblies 714.13

Galvanizing 726.06

Metalizing 726.07

Unless otherwise specified in the Contract, all steel shall be high-strength low-alloy structural steel conforming to the requirements of *AASHTO M 270,* Grade 345W (Grade 50W).

All materials shall conform to the prescribed AASHTO or ASTM specifications and no substitutions will be allowed.

506-0001.03  GENERAL REQUIREMENTS. Work under this section shall be performed in accordance with the requirements of Subsection 506.03 through Subsection 506.22 and the Plans.

506-0001.04  METHOD OF MEASUREMENT. The quantity of Structural Steel, Curved Box Girder to be measured for payment will be the number of pounds used in the complete and accepted work. The weight of the material to be measured for payment under this item will be computed based on the approved fabrication drawings, as follows:

(a) Weight determined by the volume of material will be computed based on the densities specified in Table 506-0001.04A.

TABLE 506-0001.04A – MATERIAL DENSITIES

|  |  |
| --- | --- |
| Material | Density (lbs/ft3) |
| Aluminum, Alloy | 173 |
| Bronze, Cast | 536 |
| Copper, Alloy | 536 |
| Copper, Sheet | 558 |
| Iron, Cast | 445 |
| Iron, Wrought | 487 |
| Lead, Sheet | 707 |
| Steel – Rolled, Cast, Copper Bearing, Silicon, Nickel, or Stainless | 490 |

 For any material not listed in Table 506-0001.04A, the material will be paid for by actual weight as measured on a certified scale.

(b) The weight of rolled structural shapes will be computed based on their nominal weight per foot as shown on the Plans or, if not shown on the Plans, by the weights shown in the *AISC Steel Construction Manual*.

 The weight of rolled shapes will be based on the overall net length shown on the approved fabrication drawings, with no allowance for milling, finishing, or overrun, and with no deduction for cuts, clips, copes, or open holes.

(c) The weight of plates will be based on the net finished dimensions shown on the approved fabrication drawings, with no allowance for milling, finishing, tolerance, or overrun, and with no deductions for copes, clips, and open holes. The weights of beveled plates or curved surface plates will be based on the finished maximum thickness shown on the approved fabrication drawings.

For gusset plates, scupper components, slotted plates, and similar minor fixtures the net finished dimensions will be the minimum rectangular dimensions from which the parts are cut, except when it is practical to cut the parts in multiples from pieces of larger dimensions, in which case the weight will be based on the dimensions of the larger pieces, making necessary allowance for the material lost in cutting.

 The net finished dimensions of flange plates will be the nominal width and the finished length measured along the centerline of the flange without deduction for width transitions, bevels, or chamfers.

 The net finished dimensions of the webs of all girders and of the webs of rigid frame legs will be the actual area of the web as detailed on the approved fabrication drawings.

(d) All welding shall be considered as incidental work to the fabrication, and no measurement will be made for the weight of weld metal used.

(e) The weight of permanent shop and field bolts, nuts, direct tension indicators, and washers incorporated into the structure and temporary erection bolts, nuts, and washers shall be incidental to Structural Steel, Curved Box Girder and no measurement will be made for weight of the bolts, nuts, direct tension indicators, and washers.

506-0001.05  BASIS OF PAYMENT. The accepted quantity of Structural Steel, Curved Box Girder will be paid for at the Contract unit price per pound. Payment will be full compensation for furnishing, detailing, handling, transporting, and placing the materials specified, including nondestructive testing of welds; for preparing the surface of new steel to be painted, galvanized, metalized, or to remain unpainted; for necessary field cleaning; and for painting, metalizing, sealing, galvanizing, or grease coating of surfaces, unless otherwise paid for. Payment will also be full compensation for furnishing and implementing the erection plan, nondestructive testing, quality control activities, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

The Engineer may authorize partial payments in the following manner:

(a) The first payment of 15% of the estimated quantity may be paid when the fabrication drawings are approved for fabrication.

(b) The second payment of 60% of the estimated quantity may be paid when the steel has been entirely completed and accepted in accordance with the approved fabrication drawings, stored in a location and manner accepted by the Structural Steel Fabrication Engineer, and all applicable material certifications have been approved.

(c) The third payment of 15% of the estimated quantity may be paid when the steel has been erected, falsework removed, and painting of connections and touch-up completed where required.

(d) The final payment of 10% of the estimated quantity may be paid after completion and acceptance of all work under this section, including extended weights being received and checked.

Payment will be made under:

 Pay Item Pay Unit

506.5600001  Structural Steel, Curved Box Girder Pound