

# BOGUE BROOK RESERVOIR DAM REHABILITATION

## SECTION 05500 CONTRACTOR DESIGNED STEEL CATWALK, PLATFORM AND RAILING

### PART 1 - GENERAL

#### 1.01 SCOPE

- A. The work to be done under this Section consists of furnishing all labor, materials, apparatus and equipment necessary and required to furnish and install a contractor designed steel pedestrian catwalk with handrails which spans the width of the existing spillway, a steel gate operator platform, and steel pipe railing as shown on the Drawings.
- B. All metal surfaces of catwalk, platform, and railing shall be hot dip galvanized.
- C. Installation of new catwalk, platform and railing includes provision of all miscellaneous galvanized steel hardware for attaching components of the approved system as well as securely attaching/anchoring the assembled catwalk, platform and railing systems to the existing dam.
- D. The catwalk shall span the spillway without intermediate support that could impede spillway flow. Within the limits of the spillway, catwalk components may not extend below the dam crest elevation 207 feet.
- E. The Contractor's submitted and accepted systems shall match the general appearance and style of the footbridge, platform and railings shown on the Contract Drawings.

#### 1.02 QUALITY ASSURANCE

- A. Except as noted, work shall conform to the latest editions and revisions of the following codes and standards:
  - 1. American Society for Testing and Materials: specifications and standards herein referred to.
  - 2. American Welding Society: specifications and standards herein referred to
  - 3. American Institute of Steel Construction: specifications and standards herein referred to.

#### 1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. The following items of related work are specified and included under other Sections of the Specifications:
  - 1. Cast-in-Place Concrete – see Section 03300

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### 1.04 SUBMITTALS

- A. Prior to the start of work, the Contractor shall submit to the Owner and the Engineering Consultant for review and acceptance:
  - 1. Complete Shop Drawings (including calculation package) indicating the size and thickness of materials, methods of assembly and anchorages for the catwalk, platform, and handrails.
  - 2. Shop Drawings and calculation package shall indicate that designs are in conformance with all applicable OSHA standards, meets pedestrian loading requirements as per the applicable building code(s).
  - 3. Submittal package shall be stamped by a professional engineer licensed in the State of Connecticut.

### 1.05 FIELD MEASUREMENTS

- A. Contractor shall verify all dimensions to insure proper fitting of all items.

### 1.06 GUARANTEE

- A. The Contractor shall obtain in the Owner's name the standard written manufacturer's guarantee of all materials furnished under this Section where such guarantees are offered in the manufacturer's published product data. All of these guarantees shall be in addition to, and not in lieu of, other liabilities which the Contractor may have by law or other provisions of the Contract Documents.

## **PART 2 - PRODUCTS**

### 2.01 MATERIALS

- A. Steel
- B. Structural steel shapes, plates, washers and miscellaneous steel shall conform to the requirements of ASTM A36.
- C. Threaded bolts, washers, nuts and lag bolts shall conform to ASTM A-307, latest edition and be galvanized. They shall be designed to develop the required joint strength.
- D. All metal shall be hot-dip galvanized. Hot-dip galvanize fabricated items in accordance with ASTM A123 and hardware items in accordance with ASTM A153, as appropriate.

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Galvanized surfaces that are abraded or damaged at any time after the application of the zinc coating may be rejected by the Engineer Consultant, if in his opinion; it will affect the quality of the finished work. The surfaces shall be repaired by thoroughly wire brushing the damaged areas and removing all loose and cracked coating after which the cleaned areas shall be painted with two coats of high zinc dust content paint, conforming to the requirements of Federal Specification MIL-P-21035.

### **PART 3 - EXECUTION**

#### **3.01 CATWALK AND HANDRAILS**

- A. Catwalk shall have a clear width of forty-eight inches (48"). Two (2) handrails, one on each side, shall be constructed along the full length of the catwalk. Height of handrails shall measure 42 inches from the floor of the catwalk walking surface, or as required by OSHA regulation.

#### **3.02 OPERATOR PLATFORM**

- A. Platform width shall have a clear width of four feet (4') and a length of ten feet (10'). The platform shall have a steel grate floor and be cantilevered from back of dam.

#### **3.03 RAILING**

- A. Railing shall be forty-two (42") high with three rails and posts spaced no more than 8 feet (8') on center, or as required by OSHA regulations. The railing shall extend from the right side of the gravity (concrete) section to the left side of the new gate operator platform. The railing shall provide continuous protection along downstream side of dam, catwalk, and gate operator platform, and along the sides of the gate operator platform. The railing shall be affixed to the downstream side of the horizontal dam crest and to the new catwalk and to the new gate operator platform.

#### **3.04 WORKMANSHIP**

- A. Proper care shall be exercised in handling all work to prevent damage to the finished surfaces. The contractor shall provide all connections, lag bolts, screws, and other articles necessary for complete erection. All work shall be erected to accurate grades and alignment, and shall be carefully supported anchored to the existing concrete dam to prevent movement during use. All work shall be in accordance in every respect with the Drawings, approved Contractor submittal and applicable specifications upon completion.
- B. The design, workmanship, and erection of the steel catwalk, platform and railing structural steel work shall conform to the applicable requirements of the current American Institute of Steel Construction guidelines.

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- C. Gauges of materials shall be United States Standard Gauge, unless otherwise indicated. Materials such as miscellaneous bolts and anchors, supports, braces, and connections necessary for completion of the work shall be provided. Anchors shall conform to the accepted practices of the trade and as approved. Miscellaneous iron and steel work shall be well-formed to shape and size, with sharp lines and angles. Shearing and punching shall produce clean true lines and surfaces. Permanent connections shall be welded or riveted. Exposed surfaces shall have a smooth finish and sharp, well-defined lines and arises. Work shall be evenly sprung to curves. Joints shall be milled to a close fit. The necessary rebates, lugs, and brackets shall be provided so that the work can be assembled in a neat and substantial manner. Holes for bolts and screws shall be drilled or punched; torch-burned holes will not be allowed. Fastenings shall be concealed where practicable. Thickness of metal and details of assembly and supports shall give ample strength and stiffness. Joints exposed to weather shall be formed to exclude water. Welding shall be continuous along the entire area of contact, except where tack welding is permitted. Tack welding will not be permitted on exposed surfaces.
- D. Welding shall conform to the requirements of the American Welding Society D2.0 or D1.1, as approved. Welding shall be done in a manner that will prevent permanent buckling, and all welds exposed in the finished work shall be ground smooth.
- E. All steel items embedded or attached to concrete shall be 304 stainless steel.
- F. Shop drawings, along with catalog cuts, templates, and erection and installation details, as appropriate for all miscellaneous wood and metal items, shall be submitted for approval. Submittals shall be complete in detail; shall indicate thickness, type, grade, class of metal or alloy, stresses, factors of safety, and dimensions; and shall show construction details, reinforcement, anchorage, coatings, protection against electrolysis and installation with relation to existing dam conditions.

### 3.05 EXPANSION AND TOGGLE BOLTS

- A. Expansion and toggle bolts shall be furnished and installed as indicated and as required. Use approved types, use sizes indicated or suitable for work to be anchored; use where built-in bolts are not practicable; and use galvanized or stainless steel units where indicated.

### 3.06 HOT-DIP GALVANIZING REPAIR

- A. Repair all breaks caused on hot-dip galvanized surfaces by cuts, welds, hole drilling, abrasion and other damage.

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- B. On all repairs, apply two coats of zinc-rich compound totaling a dry film thickness of 3 mils, using manufacturer's recoat directions and as approved by the Engineering Consultant.
- C. On all welds, remove weld flux, weld spatter, and weld slag by power wire brushing, or equivalent, and apply two coats of zinc-rich compound to attain same dry film thickness. Coatings should extend at least 3 inches beyond either side of the burned-off galvanized area to assure continuity of galvanic protection.

### **PART 4 - MEASUREMENT AND PAYMENT**

#### 4.01 MEASUREMENT FOR PAYMENT

- A. No measurement shall be made of this item. The bid item under this section is a lump sum quantity.

#### 4.02 PAYMENT

- A. Payment for furnishing all labor, materials, apparatus and equipment necessary and required to furnish and install a steel catwalk which spans the width of the existing spillway, a steel operator platform, and steel pipe railing in accordance with these specifications shall be at the applicable lump sum price stated on the Form for Bid.

<u>Item No.</u>	<u>Payment Item</u>	<u>Unit</u>
05500.01	Catwalk	Lump Sum
05500.02	Gate Operator Platform	Lump Sum
05500.03	Railing	Lump Sum

**\*\*\* END OF SECTION \*\*\***

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