Scope of Work for the Replacement of Multiple Boat Ramps at Kirwin National Wildlife Refuge

Project #: 6R-KS-461-100

Kirwin NWR

702 E Xavier Rd, Kirwin, KS 67644

Project Overview

The purpose of this project is to demolish and replace three (3) deteriorated concrete boat ramps at Kirwin National Wildlife Refuge. A high percentage of refuge visitation comes from the utilization of the boat ramps for authorized recreational activities, primarily hunting and fishing. The rehab of these boat ramps will improve public safety, enhance protection of refuge and visitor property, and reduce long-term maintenance costs. They will be designed to accommodate modern vehicles and trailers, support increased loads, and comply with current design standards for boat ramp construction. The ramps will be replaced with two (2) double-lane concrete boat ramps. Each lane will be separated with a concrete median with space for a steel boat dock (30 ft x 6 ft). Each ramp will be a continuous concrete slab including the lanes and the median. There are two (2) concrete boat docks (bulkheads), one at the North Shore (620 sq ft) that is part of the North Shore boat ramp structure, and one at the South Shore (870 sq ft), which need to be demolished as well. **The bulkhead at the North Shore should be treated as part of the North Shore Boat Ramp structure.**

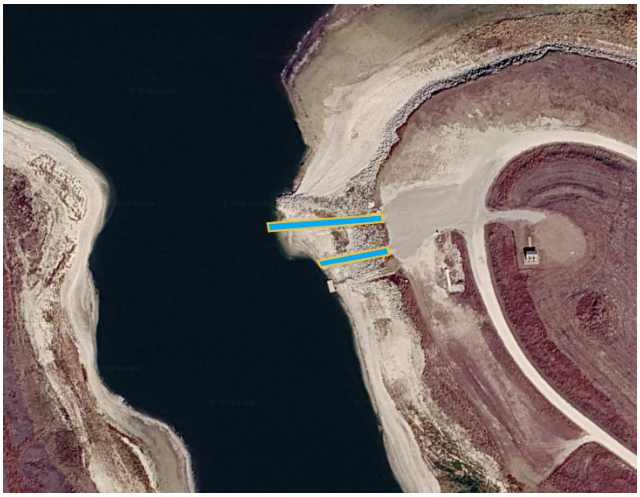

Figure 1. South Shore boat ramps (north and south lanes) aerial view.

Figure 2. Two-lane North Shore boat ramp aerial view with a roll-in aluminum boat dock.

Background

The two-lane North Shore boat ramp was also constructed in 1972 and is 102 feet by 10 feet (1,020 sq ft). The ramp is in poor working condition and no longer supports the demand for vehicle use due to the uneven and deteriorated concrete. The ramp is also too narrow and too short to accommodate the fluctuating reservoir water levels and vehicle size.

Figure 3. Two-lane boat ramp at the North Shore. Boulders are placed on each lane to keep visitors from driving on them.

Figure 4. Boat ramp lanes do not extend to reservoir when water elevation is low. Reservoir water elevation at the time this photo was taken was 1,716.23 ft.

The two lanes at the South Shore boat ramp were also constructed in 2001. As seen in Figure 5, the north lane at the South Shore boat ramp is approximately 260 feet by 15 feet (3,900 sq ft) and the south lane is approximately 140 feet by 14 feet (1,960 sq ft). Both lanes are in poor working condition and no longer support the demand for vehicle use due to the uneven, deteriorated concrete. The ramps are also too narrow and too short to accommodate the reservoir levels and

Figure 5. North lane of the South Shore boat ramp. Boulders are used to prevent vehicle use and to mark boat ramp closure.

Figure 6. Boat ramp subgrade is washed out due to fluctuating water levels, severe weather, and heavy erosion.

vehicle size.

Work to be Performed

The Contractor shall provide all labor, materials, equipment, and services required to demolish and replace the North Shore and South Shore concrete boat ramps and demolish a concrete boat dock (bulkhead) at each site.

This work includes, but is not limited to:

Preconstruction Site Assessment

- Prior to any fieldwork, the Contractor shall conduct a site walk-through with the station and the Contracting Officer's Representative to verify existing boat ramp dimensions and conditions, shoreline geometry, water levels, access routes, and staging areas.

Mobilization and Site Access

- The Contractor shall speak with the station to establish designated staging and equipment laydown areas in approved locations to minimize disturbance to refuge land.
- The Contractor shall install construction signage and barriers to restrict public access to active work zones.

Water Control and Isolation

Given that some of the construction work will occur at the water interface, the Contractor shall implement one of the following methods:

- Perform work during low water levels, **OR**
- Install temporary coffer dams, sheet piling, or other approved barriers to isolate the work area

Water discharge from any water control method must be controlled to prevent erosion and sedimentation while complying with the Clean Water Act.

Soil Erosion and Sediment Control

- All soil erosion and sediment control practices shall be installed in accordance with the requirements of federal, state, and local regulations, and shall be installed in the correct sequence and maintained until proper stabilization is well established.
- The Contractor shall install a perimeter turbidity curtain in the reservoir to prevent silt and pollutants from dispersing. The curtain shall be installed before work begins in the water.
    - Anchor the curtain so that it stays in place.
    - Barriers shall be inspected daily.
    - Repair or replace barrier when damaged.
- The Contractor shall construct an area to collect the washout water from concrete trucks used on this project.
    - Sediment shall be removed from the washout collection when it has reached ½ depth of the barrier height.
    - Barriers shall be inspected daily.
    - Repair or replace barrier when damaged.

Environmental Protection Measures and Safety

To protect the habitat of Kirwin NWR:

- No uncured concrete or runoff from uncured concrete should be allowed to enter the water.
- Cast-in-place concrete for ramp construction should be limited to portions of the ramp located two or more feet above the water surface elevation.
- Use clean riprap to armor-cut or fill slopes below normal high-water elevation.
- Place riprap along both sides and at the toe of ramp to prevent current, waves, and prop wash from eroding or undermining the structure.
- Limit vegetation clearing to the minimum area necessary.
- Immediately contain and report any spills or contamination.
- Prohibit fueling or maintenance of equipment within 100 ft of the water body unless secondary containment is provided.
- Ensure compliance with federal, state, and local environmental regulations, including permitting as applicable.

Demolition and Site/Subgrade Preparation

- Sawcut concrete slabs at one-fourth to one-third of the slab's thickness to create clean edges.
- Remove existing concrete slabs, reinforcement, and embedded materials.
    - Total sq ft of concrete that needs to be removed is approximately 7,981sq ft for the existing boat ramps.
- Properly dispose of demolition debris in compliance with federal, state, and local regulations. Concrete from demolished boat ramps will be used by the station as riprap and **does not** need to be hauled off-site. Holding area will be specified by station.
- Excavate unsuitable base materials as required.
- Prevent debris from entering the water using containment methods such as mats or barriers.

After demolition the Contractor shall:

- Proof-roll and evaluate subgrade for stability and load bearing capacity.
- Grade and prepare subgrade to ensure proper slope of 12-20% (preferred 14%) and drainage.
- Remove and replace unsuitable or soft soils with engineered fill.
- Compact subgrade to a minimum of 95% of maximum dry density (ASTM D 1557 – Modified Proctor).
- Subgrade must be inspected and approved before concrete placement.

Aggregate Base Installation

- Place a six-inch crushed aggregate base layer.
- Compact base to a minimum of 95% of maximum dry density (ASTM D 1557 – Modified Proctor).
- Grade base to match the required ramp slope as shown in the drawings. The slope w

Excavation and Grading

- Excavate to required lines and grades for new ramp construction.
- Ensure proper tie-in with existing parking areas and shoreline elevations.
- Maintain positive drainage away from the boat ramps.

Ramp Design and Construction

- Contractor shall construct two new reinforced concrete boat ramps designed to:
    - Meet current design standards for recreational boat ramps.
        - Ramps should support at least AASHTO HS-20 live loads.
    - Accommodate the weight and size of modern vehicles and boat trailers.
    - Ensure safe, even transitions between ramp sections and adjacent shoreline.
- The North Shore boat ramp will consist of a **36 feet wide x 130 feet** long concrete slab. The two lanes are to be 15 feet wide each, with the median being 6 feet wide. The ramp shall have a thickness of 8 inches to accommodate for heavy use.
- The South Shore boat ramp will consist of a **36 feet wide x 260 feet long** concrete slab. The two lanes are to be 15 feet wide each, with the median being 6 feet wide. The ramp shall have a thickness of 8 inches to accommodate for heavy use.
- **Anchor lines** shall be installed along both the width and length of each ramp. Along the width, anchors shall be located approximately 3 feet from each edge, with approximately 6-foot spacing across the slab (approximately 3 feet, 9 feet, 15 feet, 21 feet, 27 feet, and 33 feet from the slab edge). Along the length, the first anchor row shall be located 5 feet from the top of the ramp, with subsequent rows spaced at 10-foot intervals, and the final anchor row located 5 feet from the toe of the ramp.
- A vertical curve must be installed at the top of the ramp to provide a smooth transition between the maneuver area grade and the ramp slope. Slope should be 4-12%.
- The ramp above water level should be pour-in-place. The ramp below water level should be precast and pushed.
    - Concrete shall be 4,000 psi minimum compressive strength and be reinforced with #4 epoxy coated rebar 12 inches each way.
- 20-year historical low-water elevation: 1702.03 ft (Streambed = 1662.3 ft).
- 20-year historical high-water elevation: 1729.31 ft (not including flood levels).
- All concrete boat ramps shall be finished with a non-skid V-groove finish (1" deep). The grooves shall be formed in the ramp surface, angled 30 degrees from the perpendicular axis of the ramp.
- Additional information located in drawings.

Dredging

- Contractor shall remove accumulated sediments from in-water portions of the boat ramps and adjacent maneuvering areas if required.
- Dredged materials shall be:
    - Transported to approved upland disposal sites, OR
    - Reused onsite if suitable and approved
- Implement erosion and turbidity control measures during dredging operations.

- Comply with Clean Water Act requirements and all federal and state environmental regulations.
- Additional information located in specifications.

Environmental and Safety Compliance

- Implement Best Management Practices (BMPs) to protect water quality and surrounding wildlife habitat during construction.
- Ensure compliance with federal, state, and local environmental regulations, including permitting as applicable.
- Follow all OSHA standards to maintain a safe construction site.
- No uncured concrete or runoff from uncured concrete should be allowed to enter the water.
- Cast-in-place concrete for ramp construction should be limited to portions of the ramp located two or more feet above the water surface elevation.
- Use clean riprap to armor-cut or fill slopes below normal high-water elevation.
- Place riprap along both sides and at the toe of ramp to prevent current, waves, and prop wash from eroding or undermining the structure.
- Limit vegetation clearing to the minimum area necessary.
- Immediately contain and report any spills or contamination.
- Prohibit fueling or maintenance of equipment within 100 feet of the water body unless secondary containment is provided.

Site Cleanup

- Removal of all debris and construction materials from the work area.
- Proper disposal of all waste and debris in accordance with local regulations.
- Restoration of work area to its original condition.
- Any areas disturbed during construction that are outside of the ramp footprint shall be regraded to original contours and stabilized with native vegetation or riprap if necessary.

Timeline

- Completion of project within 60 days of the notice to proceed.

Inspection and Acceptance

- The Government reserves the right to inspect any and all phases of the work performed under this contract and will conduct a final inspection prior to acceptance of the work. The Contractor shall notify the Technical Coordinator, Station Manager, Contract Officer Representative, and Contract Officer at least five business days prior to scheduling the final inspection. Provide all operations, maintenance manuals, and training in routine maintenance to assure expected boat ramp life.

Availability

- Normal duty hours are Monday through Friday 8:00 a.m. – 4:00 p.m. The Contractor shall provide emergency contact information.

- Non-duty hours include weeknights, weekends, and Government holidays (New Year's Day, Martin Luther King Jr. Day, President's Day, Memorial Day, Juneteenth, Fourth of July, Labor Day, Columbus Day, Veteran's Day, Thanksgiving, and Christmas).
- Emergency/Miscellaneous functions may be required to be scheduled during non-duty hours due to the nature of the work or specific scheduling requirements. Emergency work is required when immediate action is necessary to correct or prevent loss or damage of Government property, or to eliminate hazards to the public, personnel, or equipment.
- Water, sewer, and electricity can be used by Contractor. Ensure that no damage is done to the systems.

Quality Control (QC)

- Quality Control will be maintained in accordance with industry standards and made available to the agency upon request. Installation must comply with manufacturers specifications and applicable codes including OSHA, ASME, and NFPA.

Quality Assurance (QA)

- Labor warranty for all products and equipment shall be at least one year unless an extended warranty is purchased by the Government.