San Jacinto River Authority
Dive Inspection of Lake Houston Pump Station
SCOPE OF WORK

General

Built in 1953, the Lake Houston Pump Station is the San Jacinto River Authority's (SJRA) means of supplying water to its Highlands Canal System from Lake Houston. The pump station is a concrete structure housing four pumps along with intake and discharge systems. SJRA has identified a need to perform an underwater dive inspection of the SJRA Lake Houston Pump Station with the intent of identifying and documenting the structural condition of the existing screen channels and the concrete walls they are connected to. The Work also includes the performance of an assessment and documentation of the current siltation levels within the intake structures and pump bays. Refer to Attachment A for record drawings of the pump station and the previously documented siltation profile.

Task 1 Screen Channel Assessment

1. Access
    a. The screen channels are located in the wet well level, a submerged level of the Lake Houston Pump Station accessible through the removal of the floor grating covering 4'x14' openings on the pump discharge floor level. The pump discharge floor level is accessed by ships ladder and a 42"x48" open access on the existing pump and motor level. The screen channels extend from the base to the top of the wall on either side of the four-(4) pump station bays for a total of eight-(8) screen channels. Each pump station bay is separate from the others in the area accessible from the pump discharge floor level, but are connected by the distribution box.
2. Components
    a. The screen channels are comprised of two-(2) L3"x3"x1/4" clip angles on either side of two-(2) L4"x3"x1/4" continuous angles. The clip angles are spaced at an unknown distance and connected to the concrete wall by ½" diameter bolts. Screens are guided into position by rollers travelling through the continuous channel created by the angles.
3. Assessment
    a. The screen channels are original to the structure and are of an unknown condition. Due to the difficulties faced by the division regarding insertion and removal of the screens, an assessment of the existing channels' structural condition along with an assessment of the adjacent concrete wall is needed in order to determine the appropriate method of resolving the issue. The assessment and Contractor's dive report will include, but not necessarily be limited to, the following:
        i. Photos and videos obtained as conditions allow.
        ii. Confirmation of the record drawings including the type, dimension, and location of the existing channel members.
        iii. Documentation of any identified damaged or missing sections of channel or anchor bolts.
        iv. Documentation of the apparent condition of the concrete walls adjacent to the channels.
        v. Measurement of the depth of silt at the bottom of the screen channel.

4. Coordination
    a. Contractor will assist SJRA in the removal and reinstallation of the screens utilizing an existing overhead crane. Refer to Attachment B for an image of the configuration previously used to remove the screens. Screens may or may not be currently positioned correctly within the screen channels and may require assistance from Contractor for their removal and inspection by SJRA.
    b. Upon signed appropriate waivers, Contractor will be allowed to utilize SJRA's overhead crane for accessing Contractor's equipment to the wet well level of the pump station.
    c. Contractor shall provide SJRA a project specific safety plan prior to performing the Work.
    d. Contractor shall attend a pre-dive conference with SJRA to discuss methods, safety, and requirements/expectations of the inspection.

Task 2 Intake Siltation Assessment

1. Access
    a. Four (4) intake structures extend into Lake Houston from the distribution box located in the wet well level of the pump station. Each intake structure opening has a maximum vertical dimension of 8'-0" at the center, a minimum vertical dimension of 5'-8 ½" at the sides, and a horizontal dimension of 7'-6". These dimensions are consistent through the structures' 106'-0" linear length. The ends (lake side) of the intake structures are closed off by steel pipe trash racks that are latched from the outside of the structure.
2. Assessment
    a. An underwater assessment of the silt profile for the four intake structures was performed in January 2017. The assessment for this project will include the creation of a silt profile for the existing conditions along the length of the intake structures and the area extending 20 feet beyond the end of the structures into Lake Houston along with a comparison of the existing silt profile to the profile created in January 2017.
    b. The contractor shall provide the following data within the dive report.
        i. Depth of siltation within the entire length of intake conduits recorded at a minimum of 5 feet, or upon noticeable change in depth. Collected data should be sufficient in order to develop a silt profile along the entire length of each individual intake conduit.
        ii. Depth of siltation within pump bays and distribution box.
        iii. Location, size, and type of any observable damage to the structural condition of the intake conduits.
        iv. Location and type of any observable larger debris within the intake conduits, distribution box, or pump bays.
        v. Depth of siltation within the designated radius extending beyond the end of the intake structures into Lake Houston recorded at a minimum of 5 feet, or upon noticeable change in depth. Collected data should be sufficient in order to develop a silt profile.

3. Coordination
    a. Upon signing appropriate waivers, Contractor will be allowed to utilize SJRA's overhead crane for accessing Contractor's equipment to the wet well level of the pump station.
    b. Contractor shall provide SJRA a project specific safety plan prior to performing the Work.
    c. Contractor shall attend a pre-dive conference with SJRA to discuss methods, procedures, safety, and requirements/expectations of the inspection.