

Underwater Inspection Blackwater River Pump House & Pipeline



City of Norfolk
April 07, 2010





ROFTON
Diving Corporation

16 Harper Avenue • P.O. Box 7756 • Portsmouth, Virginia 23707 • 757-397-1131 (24 hours) • Fax 757-397-8693

April 07, 2010

Department of Utilities
City of Norfolk
PO Box 1080
Norfolk, VA 23501

Attention: Curt Hauger

Dear Sir,

On March 22 and 23, 2010; Crofton Diving Corporation conducted an underwater inspection of the Blackwater River Pump House and pipeline under the direction of Whitman, Requart & Associates. We are pleased to provide the following underwater inspection report.

In hopes that this information meets with your approval, we remain

Sincerely yours,

A handwritten signature in black ink that reads "JAY CROFTON". The signature is stylized, with the first letters of each name being larger and more prominent.

Juan S. (Jay) Crofton
Crofton Diving Corporation

Project Description

Crofton Diving Corporation was tasked to perform an underwater inspection of the 30" RCP Pipeline running across the Blackwater River and the 36" RCP bypass pipeline located at the Blackwater Pump Station. Divers were also directed to conduct a 'swim-by' inspection of the east bank from the north fence to the south fence.

Location Planning and Project Set-Up

The job was carried out at the Blackwater River Pump House located in Isle of Wight County, Virginia. Crew worked from the east bank utilizing a truck and trailer outfitted with High Pressure Surface Supplied dive equipment. Rick Goodwin with WR&A was present during both days of inspection.

Project Personnel

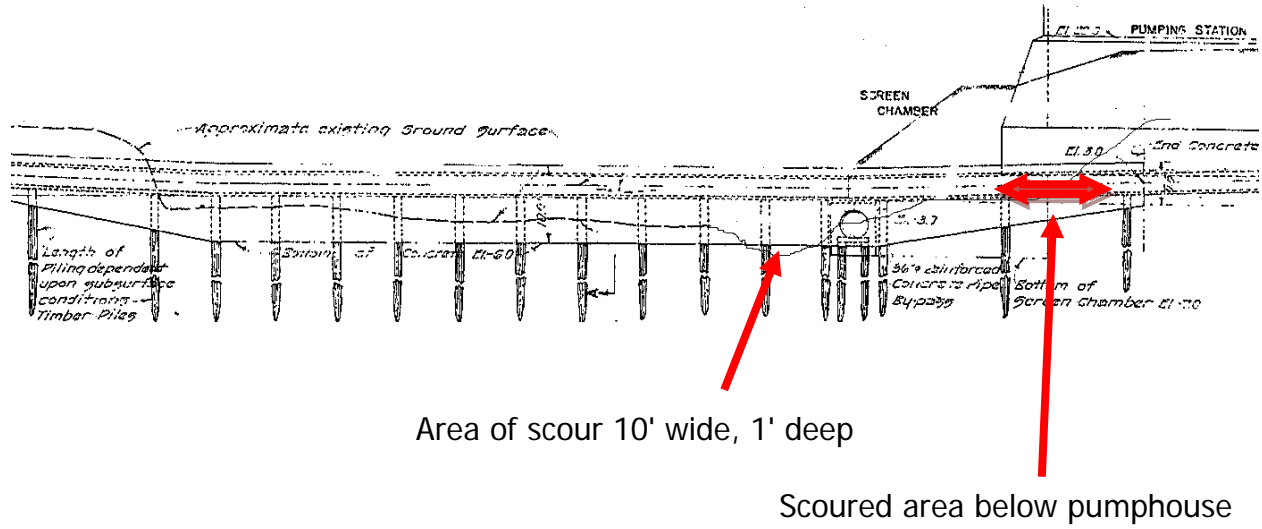
A 3-man dive team was assigned to the project including Superintendent Eric Mullen; with divers Brandon Cockrell and John Zimmerman.

Findings

- Diver found the 30" RCP pipeline to be in good condition with a large amount of debris located against the north or upstream side. Only one area of scouring was found and that was located toward the east side of the pipeline, running from 5 feet west of the 36" pipeline to 15 feet west of the pipeline. At the deepest part of the scoured area there was a one foot deep area that ran completely across the underside of the pipeline (north to south) tapering to zero on both sides. Due to the large amount of debris, diver was unable to determine if any of the wood support piles were exposed in this area. **Note:** From the corner of the 30" and 36" pipeline intersection out to the scoured area there were what seemed to be concrete bags pyramided against the pipeline, likely indicating a prior scour area that was repaired.
- No damage was found to the 36" RCP bypass pipeline. The southern end of the pipe was free of any debris, with a current of water running out of the pipe. There were no racks, bars, etc at the pipe opening and no indication that there ever was a barrier in this location.
- Upon entering the screen chamber, diver found the bottom to be covered with an average of four inches of silt, with no large debris.
- The opening to the 36" bypass pipeline was free of debris and as per the south end there was no barrier present.
- The diver inspected the pump house 24" intake pipes located in the suction well of the screen chamber. The intakes had no screens or baskets, and were approximately two feet above the floor. No debris was found in this area, and a minimal amount of silt was present.

- Diver inspected along the exterior of the screen chamber and pump house, looking for scouring and/or concrete damage. A 2 by 6 wall was found that ran completely around the screen chamber, standing approximately 2 feet from the north and south faces and 5 feet off the west face. Using a probe, the diver did not find any indications of scouring along the screen chamber between the wood bulkhead and the concrete structure. No damage was found to the chamber's concrete surface at the time of our investigation.
- A stainless steel trash rack was found on the west face in front of the screen openings. It was built utilizing 2" pipe with flatbar slats. It was bolted to the screen chamber face and appeared to be in good condition at the time of our survey.
- At the south end of the pump house along the west face, the diver discovered a large area of scour beneath the pumphouse itself. This area ran from the 2 by 6 bulkhead located 2 feet off the screen chamber to the southern most point of the pumphouse. It ran approximately ten feet under the pumphouse flooring with a maximum depth of five feet at the bulkhead and tapering to zero ten feet in. Diver was physically able to feel two of the exposed wood piles in this area and found them to be free of damage. Using a probe he was able to feel three additional exposed piling in this scoured area.
- A pipe was found at the northern most area of the east bank that extended out into the river from the bank, running down at a 45 degree angle.
- At the time of this inspection there was 21 feet of water at the river's channel and at the south end of the pile bulkhead located on the east bank.
- The river visibility was limited to 3" to 6" at the time of the inspection, therefore digital photographs were not taken.

Profile View of Pump House / Pipeline



Photographs



View of west face, south end above the scoured area.



Southern piling bulkhead on east side of river. Note loss of bank behind bulkhead.



Diver standing on 30" pipeline at the west bank of the river.