



**COMMONWEALTH of VIRGINIA**  
**Lake Barcroft Watershed Improvement District**

**Operations Director's Report**  
**(Nov. 2011 – Jan. 2012)**

**Engineering/Projects**

**Concrete Restoration for the Dam *(update)***

- Proposals were received on October 6<sup>th</sup>, 2011.
  - They were evaluated by the engineering team at WR&A and the LBWID.
  - Upon evaluating the proposals it became apparent that the required coffer dam for replacing the fixed elevation spillway replacement was not in the best interest of the LBWID, the dam, and the contractor. Therefore LBWID has worked with WR&A to develop an alternative plan for replacing the fixed elevation spillway that will not require a cofferdam. WR&A is currently preparing the detailed design drawings for the alternative plan. As soon as the design drawings are completed LBWID will submit them to the Virginia Division of Dam Safety for approval, currently we are aiming for late March.
    - By eliminating the need for a coffer dam the eventual cost for the replacing fixed elevation spillway should be greatly reduced.
  - In the meantime it has been decided to move forward with awarding a contract for the two remaining phases of the project, the resurfacing of the downstream side of the eastern and western abutments.
- LBWID has awarded a contract to Contracting Specialist Inc. (CSI) for the resurfacing of the downstream side of the eastern and western abutments at a cost of \$624,940.19.
  - Once the design of the alternative plan for replacing the fixed elevation spillway is approved by the Virginia Division of Dam Safety CSI will have the opportunity to negotiate a fair and reasonable price for that phase. Should the negotiation fail, this phase may be bid openly as a stand-alone project.
- LBWID is anticipating that CSI will start construction on the awarded phases of the project in early march of this year, this may change a little depending on weather..
- Prior to March LBWID will negotiate a "Construction Services Contract" with WR&A for their assistance with overseeing and inspected the work that CSI will be doing.

## **New Hydraulic Pumps for the Dam (update)**

- During the last week of November, 2011 Advanced Fluid Systems Inc. installed two new hydraulic pumps that power the massive hydraulic cylinders that move the bascule gate.
  - The new hydraulic pumps are performing flawlessly and should not have to be refurbished or replaced for at least 10 years.
  - The previous pumps were over 30 years old and had been refurbished at least twice.
    - They were no longer being manufactured and parts were becoming very difficult to find.
- The cost of the project was \$17,000.

## **New Hydraulic System manifold for the Dam (new)**

- In an effort to continue modernizing the dam's hydraulic control system, LBWID has awarded a contract to Advanced Fluid Systems for replacing the dam's hydraulic system control panel with a modern hydraulic system control manifold.
  - Many of the components of the existing hydraulic control panel are outdated and are no longer being manufactured, they can only be refurbished.
  - The new hydraulic control system manifold will require much less space in the dam house, will be much easier to service, and will greatly reduce the amount of hydraulic pipes and hoses that are currently needed. In addition, the individual components that make up the control system manifold are less expensive than refurbishing the existing components of the control panel, which in return will afford LBWID the opportunity keep spare parts in inventory.
- The cost of this project is \$17,500.00
- The new hydraulic control system manifold will be installed in late March or early April of this year.

## **Computer and Network Infrastructure upgrades for office/ dam (update)**

- LBWID has awarded a project to Applied Controls Engineering (ACE) to perform some upgrades to the computer and network infrastructure for the office and dam. The upgrades include the following items:
  - Upgrading the internet router to one that has more robust internet security capabilities.
  - Move the LBWID website from an in-house server to an outsourced website hosting service.
  - Upgrade the dam's webcam configuration so that residents will not have to use passwords to gain access to the webcam.
  - Upgrade the desktop computer that is in the office that serves as a back up Human Machine Interface (HMI) to the dam's pro-logic control system.
  - Upgrade the custom software program that allows LBWID staff to access dam's historical data and generate performance reports.

- The cost of the total upgrades will be \$14,000 and they are expected to be completed during December of 2011 and January of 2012.
- **Due to delays during the holiday season this project is now expected to be completed in February of this year.**

## Operations

### **Fall In-House Dredging Season (*update*)**

- LBWID completed the fall dredging season on Nov. 10 (Holmes Run side of the lake).
  - The majority of the sediment removed was from the upstream side of Swift Island.
    - As a result of the Tropical Storm Lee a massive sand/gravel bar formed immediately upstream of Swift Island (in Sept. 2011)
      - Approximately 800 cubic yards of sand, gravel and large rock was deposited there.
      - Prior to the storm the area was 4 feet deep, after the storm the areas was as shallow as 1 foot deep.
      - LBWID restored that area to an average depth of 4 feet.
  - LBWID also dredged the canals on both the north and south side of Swift Island.
- Altogether approximately 1,350 cubic yards of sediment was dredged during the fall dredging season.
- In March of this year LBWID will start the spring dredge season on Tripps Run side of the lake.
  - The impacts from Tropical Storm Lee on the Tripps Run side of the lake are mostly limited to the area around Roth Island.

### **New clam shell bucket for unloading the dredging hopper barges (*new*)**

- LBWID has ordered a new heavy duty clam shell bucket for unloading dredge spoils from the hopper barges when they come to shore.
  - Both sides of the existing clam shell bucket have become un-aligned due to unloading large irregular shaped debris when cleaning the lake after large storm events.
  - If both sides of the bucket do not close tightly against each other the watery dredge spoils leak out and makes it more difficult to unload the barges when dredging.
  - The new clamshell bucket will only be used for unloading dredge spoils and the old clam shell buck will be used for unloading lake debris.
    - It will only take about 15 minutes to unhook one clam shell bucket from the off-loading excavator and to hook up the other one.
- The cost of the new clam shell bucket is \$17,800.00 and will be delivered in early March.

## **Spare 60hp out board motor for LBWID push boat *(new)***

- LBWID has purchased a spare 60hp outboard motor for the LBWID push boat the moves the hopper barges around the lake when dredging and or hauling lake debris.
  - The push boat is a vital piece of equipment for the dredging program and the debris removal program, if the motor was to break down it could bring them to a stop for up to a week or more. Having a spare motor will only require stopping work for about 2 hours to switch out the broken down motor for the spare motor.
  - During the cleanup effort following Tropical Storm Lee the existing motor started to have problems. We were very fortunate the staff could keep it running long enough to get the lake clean before taking the motor into the repair shop.
- The cost of the spare motor was \$4,900.00
  - Mercury Marine offers government agencies a very good discount, retail price for the motor is \$7,100.00

## **Emergency Action Plan (EAP) Orientation/Review Seminar *(update)***

- On November 18<sup>th</sup> LBWID met with Emergency Management Coordinators for Fairfax County and the City of Alexandria for the annual review of the Lake Barcroft Dam Emergency Action Plan (EAP).
  - The purpose of this meeting is to make sure that all of the information in the EAP is up to date and to make sure that everyone is familiar with their agencies responsibilities as stated within the EAP.
  - It also provides the opportunity to discuss any events that may have occurred in the past year that would have required the activation of the EAP to determine if any of the fundamentals of the plan needs to be changed.
    - The large flow of water during Tropical Storm Lee in Sept. 2011 required a Stage 1 activation of the EAP, the bascule gate opened more than 30%.
- All in all the review meeting went well and all parties were pleased how the plan worked during Tropical Storm Lee.
  - For the most part the only changes to the plan revolved around contact information and a few minor changes to some of the wording within the plan to make it clearer.
  - A revised EAP (Issue Date: January 2012) has been published and distributed to all required parties.

## **Preparations for 2012 spring /summer season *(new)***

- LBWID staff has been working hard during this winter season to prepare for the 2012 spring and summer season.
  - Tools and equipment are being serviced and or repaired.
  - Supplies are being inventoried /ordered.
  - LBWID compound is being cleaned and organized
  - Preparing for the dam's concrete restoration project.
  - Evaluation of previous year's performance.
  - Projects are being planned and budgeted for.
  - Continued employee training on various aspects of LBWID.

## **2012 LBWID Annual Dinner Meeting *(new)***

- The next LBWID public meeting will be the 2012 LBWID Annual Dinner Meeting.
  - Once the date (normally late April), time, and location for this meeting have been determined the information will be posted on Lakelink, in the Lake Barcroft Newsletter, and on the LBWID's and LBA's websites.

Respectfully,

Davis Grant

LBWID Operations Director