Welcome to Pump House Park
A Self-Guided Tour to Richmond’s Most Historic Park

TOUR THE TRAILS AND HISTORIC SITES of Pump House Park, the site of 1883 Byrd Park Pump House, one of Richmond’s most magnificent public buildings; Three-Mile Locks, two stone locks for canal boats begun in 1838; the Lower Arch, grand entrance to the first operating canal system in the United States and visited by George Washington on April 12, 1791.

BEFORE YOU BEGIN:
• There is no river access from Pump House Park.
• Stay off the tracks. State law allows CSX to arrest and fine you if you are seen on the tracks or ballast. And trains cannot possibly stop in time to save you.
• Watch your step and watch your children. This is an historic park with high stone walls and steep slopes.

1 Across from the park entrance, note the trail sloping up the hill toward the Carillon. The trail is on a black cast iron pipe which used to carry drinking water from the Pump House up to the reservoir on an earth mound near the tennis courts in Byrd Park.

2 See the kiosk, a volunteer project, for more about canals in America and for the latest park announcements.

3 The stone building like a church is the Byrd Park Pump House, completed in 1882 in the Victorian Gothic style. Canal water entered through the round pipe and was pumped up the reservoir by nine force pumps in the basement. The pumps were operated by water power, the water entering through the three square openings, turning wheels, and exiting 20 feet below into the lower canal. Later on, purified drinking water from the
“Of all the locks from Lynchburg down, the Three-Mile Locks pleased me most. It is a pretty place, as every one will own on seeing it. It is so clean and green, and white and thriftylooking. To me it was simply beautiful. I wanted to live there; I ought to have lived there. I was built for a lockkeeper… What more could the soul ask?”

Dr. George W. Bagby
“Canal Reminiscences” 1879

Water Filtration Plant replaced the canal water, to the great benefit of the city’s health.

The upper part of the building with cast iron arches, temporarily boarded up, was an openair pavilion for the use of the public in the park. Many people can remember going to dances there into the early 1920’s.

To the right of the main building is the 1905 addition, carefully matching the 1883 style. Note the base for the smokestack, now gone, for a coalfired boiler. The addition had two electric generators, one powered by steam and one by a water turbine.

It is normally closed, but is open for special occasions and for volunteers.

4 Cross the arch bridge over the Pump House Canal, which was blasted out of granite cliffs to carry water to power the pumps. The Pump House Canal Trail runs to the right along the top of a high, steep embankment.

5 Descend the embankment to Lock 1, the first lock west of Richmond. Locks 1 and 2 were also known as Three-Mile Locks, being three miles from the Great Basin downtown (where the Omni Hotel is now). These cut-stone locks were built for man-powered bateaux in the 1820’s and rebuilt for large mule and horsedrawn canal boats in 1838-1840’s. To get a feeling for the length of a 90 foot canal boat, walk (with care) along the entire wall.

Canal locks are elegant machines, invented by the Chinese 2000 years ago with gates perfected by Leonardo DaVinci. They are stairsteps in the canal. This one lifted or lowered boats ten feet; there were over a hundred on the 197 miles of the James River & Kanawha Canal.

Note the foot-deep niches at each end. Two pairs of heavy wooden gates swung open out of the way into these niches. In each niche is a curved stone called a “hollow quoin” where the gate posts were set. An iron strap around each post was bolted into the grooves carved in the stonework.

6 Cross over the lock on a foot bridge, another volunteer project, and turn left. You are now standing on the canal towpath, where mules and horses walked, towing the boats. On the top of the lock wall to the left of the bridge are tow grooves called “rope burns” worn over the years by 100 foot long gritty tow ropes as the mules pulled boats into the lock.

At the end of the path, the towpath crossed an earlier canal on a foot

How Canal Locks Work

A canal lock connects two bodies of water at different elevations by creating a water elevator of sorts. The water inside the lock can be raised and lowered independently, allowing ships to make the transition between elevations without the danger of traveling up or down rapids.
bridge (now gone) on the way to Richmond. The railway crossed on a trestle—note the pilings in the canal. Here’s a good view of the Pump House. In 1924 the Pump House was replaced by the gray stucco building beside it which housed two large hydroelectric turbines. The low white building further on once housed the Worthington Steam Pump purchased off the floor of the 1907 Jamestown Exposition, to pump water when the canal was frozen or during a drought.

7 Look for the brass plaque on a concrete tower dated 1909. This is a standpipe to relieve pressure in the large drinking water pipe from Richmond’s Water Treatment Plant to the Pump House. When the pressure in the pipe is too great water spurts out the top!

The standpipe is sitting in the James River Canal, the original canal of George Washington’s time. Towards the river are remnants of the old towpath, or probably its descendant. Imagine batteau men on the towpath, towing their boats to downtown Richmond. It was easier than poling.

8 Go back past Lock 1 and follow the towpath. Notice how black it is. When the Richmond & Alleghany Railroad (now CSX) replaced the canal in 1880, the rails were laid on this towpath – it was raised and leveled and is still full of black soot and clinkers. In 1903 the railroad was shifted to its present location toward the river, leaving this area free to become a park.

9 Note the pile of curved concrete slabs down the hill. In the park are several such piles. Remnants of the original water pipe from the Water Filtration Plant. The first contractor did a poor job—when water was let in, the pipe blew up several times!

10 On the right is Lock 2, built on bedrock. Both Locks 1 and 2 raised boats ten feet each on the way west, and lowered them on the way back. The flat concrete is a spillway built by 1883 for the Pump House Canal, to release excess water. See if you can find the “Lockhouse” inscription in the concrete. All of the stone walls higher than the spillway were built of stones removed from the lock wall by 1883—boats weren’t using the canal.

11 Across the towpath from Lock 2 is the Lower Arch, the only structure remaining of the James River Canal, the first operating canal system in the United States, opened in 1789. There were two canals in the system. This was the Lower Canal, three miles long, to downtown Richmond. The Upper Canal (now gone) was a short one a mile upriver at Westham. Each had a grand entrance arch with a wooden gate which could be closed to guard the canals from floods.

When George Washington toured the canal in 1791 the crew (all dressed up for the occasion in “red coats”) poled the bateau west through this arch and up the river into the Upper Canal. Try to envision the scene then, without the railway embankment blocking the view; the arch was open to the river. Grant’s Dam (now almost gone) backed up the river at the canal entrance. Rafters call the remains of the dam “Choo-Choo Rapids.”

The stone pier beside the arch came later, in 1838-early 40’s, when the entrance to the canal was widened to let in more water to power Richmond’s flour mills and industries. This area (indeed the entire park) deserves more research, exploration, and archaeological study.
The Pump House

Completed in 1883, the Byrd Park Pump House is one of Richmond’s most magnificent public buildings. It had two purposes; downstairs were the pumps, pumping drinking water up to the reservoir in Byrd Park. Upstairs was the Pavilion, open to the air, for the use of park visitors.

The building is now part of the James River Park System and is being renovated by volunteers with the hope it can be open for special occasions. Tours are offered occasionally; check www.friendsofpumphouse.org for more information.

BEGIN AT THE WEST ENTRANCE

This end of the building was added in 1905, faithfully matching the stonework of the main building. Inside, all of the machinery is gone, sold to the Japanese just before World War II. Our understanding of the machinery, which operated until 1924, is based on a few rare photographs and archives, and on ongoing archaeological work.

1 The Boiler Room once had a tall smokestack, now reduced to a pile of bricks. Coal for the firebox was brought in picturesque iron wheelbarrows to the coal pile.

2 Steam generated by the boiler was piped to the Hydroelectric Room. This held a steam-powered turbine which generated electricity, and also a hydroelectric turbine powered by water from the canal. On the right are two large openings. Water from the Pump House Canal rushed through the first opening (the penstock), spun the turbine, and flowed away through the second opening. The electricity was sent up the hill to pump water from the reservoir into a water tower, and, incidentally, lit light bulbs in the building.

3 The Pump Room. Now we enter the original building completed in 1882 and put into operation on May 4, 1883. Its cavernous room was once filled with three huge water wheels (later turbines) each with three pumps. Water came in through the three large openings (penstocks) in the north wall, spun the turbines, and flowed out through tunnels under the stone walkway. Each turbine cranked three pumps, which were mounted on what look now like toilet seats. The pumps forced drinking water into the pipe with three openings, up on a ledge—the same pipe which can be seen running up the hill to the reservoir. No electricity was used to run these pumps, only water power.

The “mystery machine” in the northwest corner is a rising stem valve which controlled water flow from the canal to the pumps, and dates back to 1883 when Richmond’s drinking water came straight from the ca-
Richmonders put alum in their water to help take the “minerals” out. When the Water Treatment Plant was built in 1909, a pipe brought filtered water to the river.

The spiral staircase (closed) at the east end went up to a catwalk where we think the top joints of the pumps were greased and serviced.

Walk up the west end stairs past the balcony, here visitors could look down on the pumps.

At the top is the famous Pump House Pavilion, its arches open to the air. The building’s architect, Colonel Cutshaw, designed it this way. But when rain came in, the workmen below complained that water dripped on the machines, so by 1899 windows were built in the arches.

The pavilion was open to the public, as a park building. On summer weekends into the 1920’s it was used for organized dances with a band, and there are still a few people left who remember going there when they were young. On the end walls were plaques, now gone.

At each end of the pavilion were powder rooms; gentlemen on the west, ladies on the east. The east room was last used as an office and store room for maps.

In 1924 The Pump House was replaced by the white concrete building to the east. Its two hydroelectric turbines, now abandoned but intact, generated electricity to do the pumping. Pumps in buildings to the east of the Pump House still pump water to the reservoir, but they all run on city power.

After its abandonment in 1924 the Pump House went downhill. A tornado damaged the roof and leaking water and vandals did the rest. Now thanks to volunteers the Byrd Park Pump House is coming back to life.

Learn what volunteers are doing to restore this magnificent building and join in. Contact Friends of the James River Park at friends@jamesriverpark.org or visit Friends of Pumphouse at friendsofpumphouse.org.

A Guide to Richmond’s Canal

The James and Kanawha Canal was 197 miles long, part of a great canal and turnpike system from Richmond to the Ohio River and the American frontier. Now only nine miles, called Richmond’s Canal, this portion of the canal still contains water. The canal is fed by Bosher’s Dam, which is accessible only from the river except on fish ladder tours. No private boats are allowed in the canal and there is no public trail along it except in Pump House Park, Maymont Park, North Bank Park and along the Canal Walk Downtown. An original canal boat and exhibits are in the Hydro Plant at 12th St., and Reynolds Metals’ locks with interpretive signs are at 12th & Byrd. At 14th Street the New Canal has been rewatered and developed to revitalize downtown Richmond. Don’t miss the narrated boat tours and watch for more as the canal develops.

Great Ship Lock Park, Dock Street, is the eastern terminus of the canal. And fleeting glimpses of the canal can be seen from the Willey, Huguenot, Powhite, and Boulevard Bridges. Other vantage points are: Hollywood Cemetery, Oregon Hill and the Virginia War Memorial. A trail runs along the canal in Maymont Park, and there is a “batteau bench” and a lock exhibit in its Nature Center.