24 August 2020

Lambeth Parks' responses to questions from the Friends of Ruskin Park about the main pond

1. As the unusual lowering of pond water levels in summer was reported by FoRP and members of the public in 2018 and in 2019, why haven't a thorough investigation or tests been undertaken?

Various emails and communications were sent to and shared with Lambeth Parks from the end of 2018 through 2019 as to the unusually low levels in the pond, and whether this was due to human factors or natural causes. Although some were responded to, and various proposals as to the cause of the problem and possible solutions were included, a more complete and cohesive response and action plan wasn't often provided, and not all enquiries were replied to in time.

Lambeth Parks can only apologise that a more consistent and response was not provided, and more detailed tests were not undertaken. However, we have learnt from this and are ensuring this is now addressed through a thorough site investigation and action plan, keeping the Friends involved.

We'll have a robust system to pick up, log and respond to any enquiries that members of the public have about Ruskin, including the state of the pond.

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The Friends of Ruskin Park, whilst not responsible for the park, will work with us to help find solutions for the pond, by providing advice and support from the community where appropriate, and within their own capacity. They are a valued partner group.

2. Is there a problem with water outflow as well as inflow?

The main pond in Ruskin Park is over 120 years old and records as to how it was constructed and originally fed with water are limited. It was probably constructed on a base of clay, and could have been clay lined when first laid out as an ornamental pond (shown on old maps as the 'Fish Pond') with the banks built up with old bricks, brick rubble and infill from nearby demolished buildings. It appears the pond also has a very basic 'outflow' or 'sluice, located at the extreme northern edge, to allow excess water to spill out into a local sewer.

Clay-lined ponds are vulnerable to the effects of subsidence and ground movement, made worse by both age and deterioration of the materials they were built with. If part of the base or any of the banks has cracked or shifted, then water could escape – if the crack or weakness is small and hidden

by silt and vegetation this can happen gradually without anybody noticing. If this process has affected the outflow sluice, causing it to drop or distort, this could be allowing water to escape more rapidly than originally designed to do so.

3. What water has been feeding the pond – natural sources e.g. spring water, or piped supply from Thames Water?

The simple answer is that we don't fully understand what kind of water was feeding the pond, but it's probably a combination of sources. Ruskin Park is one of the sources of the 'Earl's Sluice', a minor river, originally on the surface, which headed northwards to join the River Peck that ended up in the River Thames near Surrey Quays. It is now part of one of London's 'hidden rivers', and for most of its length is part of London's combined sewer and outfall system managed by Thames Water.

The Earl's Sluice seemed to have started as a mixture of springs fed by water collected and stored in layers of gravels and sands found over Herne Hill and Camberwell, as well as waters that run over the surface following rainfall, or from soils saturated with groundwater. Any springs found in and around Ruskin Park would have been dependent on those layers of gravels and sands being kept filled up by natural rainfall or surface waters. There are no 'artesian' springs (springs kept constantly running by deep layers of water under pressure) in the local area, and what we have in Lambeth are very deep indeed and don't reach the surface anywhere near the park.

It is uncertain if the pond was created on an old spring, possibly one of those feeding the Earl's Sluice, or whether it was constructed in a natural 'bowl' of land to collect surface water running down the slope along gulleys or dips in the land, or a combination of both. Historical maps don't appear to show any natural springs either underneath the site of the pond, or its immediate south where the old bowling green is. It is possible that an ornamental pond might have been built up on top of a spring, and may have had various field drains (buried pipes or slits cut into the ground) around it to collect soil or surface waters and keep it topped up. We really don't know what its original builders had in mind.

There is a mains water inlet point beside the pond, found in a small inspection chamber, but this hasn't been used for some time. At one time many ornamental ponds in parks were filled and kept topped up using mains water, often if other natural sources had already dried up, but current practice has been to avoid this wherever possible due to its harmful environmental effects and the cost

4. Why has inflow water stopped?

Groundwater levels across many areas of London have dropped significantly during recent years, certainly over the last decade, due to reduced levels of constant annual rainfall, especially during winter and spring. This could mean any historic springs within or on the edges of the park, originally topped up by rain and surface water and feeding the old pond, have gradually closed down, and cannot provide it with enough water. Springs close to the surface are extremely vulnerable to this phenomenon.

Ruskin Park is at the northern edge of a high ridge running southwards from Camberwell to Sydenham and Crystal Palace. This means that if rainfall hasn't been sufficient over time then the water table in any gravel or sand layers along this ridge won't be able to reach their normal height, or at least the height they may have had in Victorian times when we know rainfall levels were

greater. There also wasn't as much building on open ground in Victorian times, which will have gradually reduced the amounts of rainfall percolating into the soils and recharging groundwater levels in any buried sands/gravels and so supplying any springs.

Another small 'spring' or other source of water has appeared further downhill and northwards in the park, beside the Wildlife Garden and tennis courts, which is now feeding the new ponds in the Wildlife Garden. If this isn't due to a new leaking mains water pipe, it could be this has 'tapped off' some groundwater that would normally have found its way into the main pond from further uphill. This can occur naturally with spring lines, especially if they find and exploit weaknesses in the ground due to some form of disruption or shift in the ground, e.g. subsidence or cracking as clay soils dry out, which then allows groundwater a new way out and onto the surface.

The original Earl's Sluice river seems to have had many sources over time (although detailed records are sketchy) as spring lines constantly moved, opened or closed as the ground dried up or subsided. The recent extreme drying out and 'cracking' of the heavy clay soils underlying Ruskin Park may have given any groundwater a new way to reach the surface.

We have also noticed that ribbons of water which used to trickle into the pond over the path on its southern edge, from places like the old bowling green and further uphill, especially during the spring and winter, are no longer present. This suggests that soils and clays under the park are no longer as saturated with water as they once were, which is another indicator that the natural water supply across the ground and into to the pond has changed.

We have steadily undertaken a number or repairs in the park to fix leaking mains water pipes, of which there were quite a number, to save money as well as to prevent damage to property and remove foul smells or health hazards. It is possible that in doing this an unknown supply of groundwater to the pond was interrupted, and if any old springs or natural groundwater sources have reduced over time, this might have been one of the causes of a lowered inflow.

5. UKPN's contractors worked very close to the pond inflow in 2018. Is that associated with the cause?

UKPN laid new high voltage (132,000 Volt) power cables through the park in 2018-19, following roughly the line, and depth, of an original set of cables that were coming to the end of their expected lifespan. A section of this cable route followed the route of the old cabling to the south of the main pond, skirting it around 1.5 to metres around the pond edges. The completion of these works coincided with the lowering of the water levels in the pond,

We have met on site with UKPN's lead project manager, and explained fully the current problems as well as public concerns along with theories as to why the water levels have decreased, including believing this was due to their cable operations. UKPN provided a detailed account of what works they undertook, including the way they excavated and removed old cabling, relaid new cables and infilled their trenches, and what sort of materials they used throughout the route of their works.

Based on technical drawings, excavation logs and site inspections, no unusual or unexpected sources of water, whether natural or artificial (e.g. mains water pipes or taps), were encountered, including around the pond. UKPN and their contractors operated a Risk Assessment and Management Scheme (RAMS) which obliged them to report and respond quickly and appropriately to any factors – physical, environmental or ecological, which could have not only affected the safe installation and operation of their cables, but also any site they run through. This included finding any water sources,

as these can prove extremely destructive to their cables (affecting power levels and cables shorting out), and which might need addressing or protecting.

UKPN have a policy of treating any sources of water as 'live' and leave them in place undisturbed, unless it is essential they agree with the landowner (in this case the council) to reroute, stop or replace them. There is no evidence any water sources were found as the old cables were removed or new ones laid, or any existing pipes disrupted or modified. UKPN's records and response processes to inform the council and work out actions to protect existing water supplies (including mains water) were not triggered.

We know the RAMS and response system worked well, as UKPN's contractors notified the council and had to temporarily halt excavation works in Ruskin Park in early 2018 due to finding a colony of newts in a cavity close to a trench beside the Bandstand.

6. What is the effect on the wildlife, particularly the waterfowl?

The wildlife in the main pond at Ruskin Park, including waterfowl and invertebrates like dragonflies, are particularly resilient species that quickly relocate to another suitable habitat, and should quickly return to it once it has been restored. Coots, moorhens and ducks are making good use of the wildlife ponds in the Wildlife Area, and other species like frogs and toads had already hatched and moved off onto dry land long before the water level problems were noted.

7. What is the resolution action plan now?

We believe the main cause of the pond drying out are not due to any historical cabling works, but is due to a number of environmental and age-related factors. So we need to either secure a more reliable supply of water to it and/or address any features which allow water to be lost from it.

We are meeting this week with experienced pond and lake restoration engineers to find out why the pond is drying out, but also if a 'quick fix' can be secured and as soon as possible, as well as a more permanent solution to ensure enough water is retained. This might involve dealing with defective pond banks or outfall, as well as finding and recovering any sources of groundwater that could keep it filled. If this requires a new groundwater pump to take water from beneath the park (if available) or tapping into sources near to the pond, these are some of the options we will consider, as well as what the cost will be to finance and then maintain them.

These longer-term measures may not happen overnight, but rest assured that all realistic and cost-effective solutions will be considered and shared with our stakeholders.

8. Is it possible to fill the pond as a quick fix if a permanent solution is longer term?

We are also looking at reinstating a reliable source of mains (tap) water which can be used to feed the pond, to keep it 'topped up' and maintain base levels until wetter weather returns in the autumn and winter to refill it.

The mains water supply system is old and hasn't been used for some time. It will need 'chasing out' and any blockages or defects dealt with, and we have already commissioned trusted contractors to work out the quickest solution possible. Hopefully, this is likely to take some weeks, possibly months.

However, we accept that is only a short-term solution because using mains water has a cost to the council, which means having to divert limited funds away from maintenance of the rest of Ruskin Park. Also mains water is bad for ponds. In London it is full of chlorine and nutrients like nitrates; under warm sunny conditions these nutrients can trigger what is known as an 'algal bloom' in the pond water, which is both unsightly and unhealthy, and sometimes these blooms can be toxic for both wildlife and humans.

Although the idea of trucking in water to top up the pond sounds like a simple solution, if the problem is that it has a leak and is losing water rather than not getting enough in, then that doesn't really solve anything. It's a nice gesture but not really sustainable compared to having a mains supply that is more controllable and less costly to manage.

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