

Wimbledon Park Lake – Reservoir Safety Project

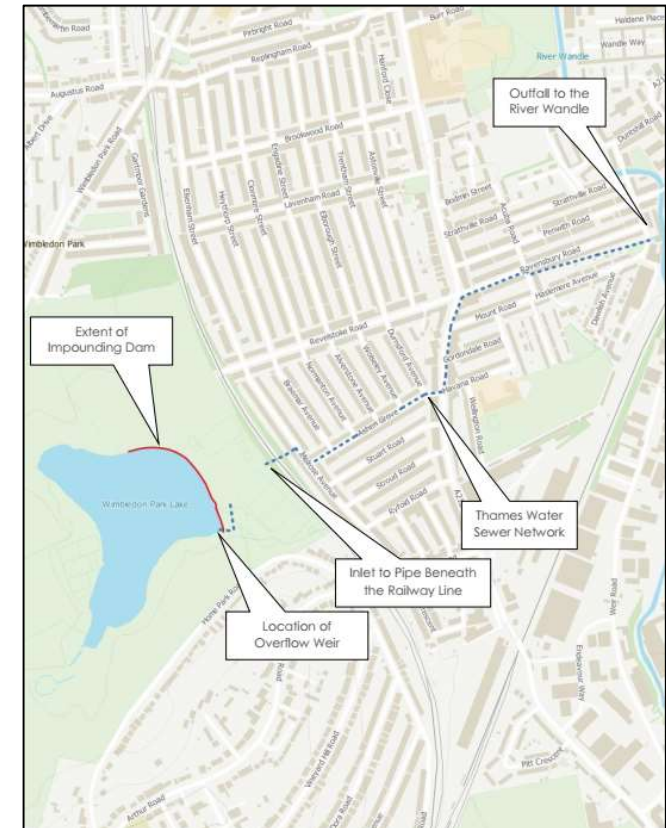
Overview Presentation to Ward Councillors, Colleagues and Community Partners



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Progress Since Last Meeting

- Completed the “upstream” hydraulic design and issued design report including;
 - Hydrological Assessment
 - Reservoir Routing Analysis
 - Spillway Rating Curves
 - Spillway Protection Design
 - Wave Overtopping Analysis
- Commence 3D visualisations and hard and soft landscaping drawings
- Obtained topo survey including tree co-ordinates for Ashen Grove Wood and overlaid onto design drawings
- Explored several additional options following consultation with our heritage, ecological, planning and architectural consultants along with feedback from the numerous stakeholders and community groups



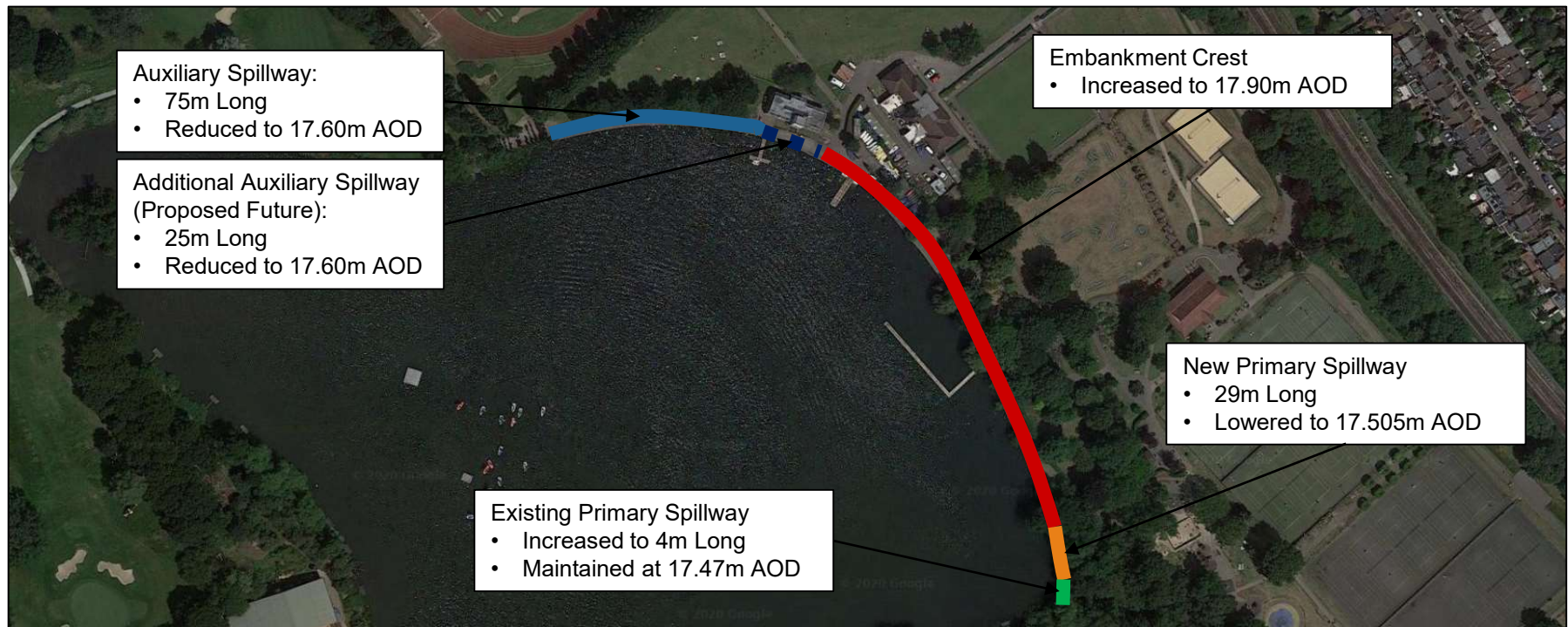
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Existing Arrangement – Inadequate to Carry Design Flows



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Initial Outline Design – Overview



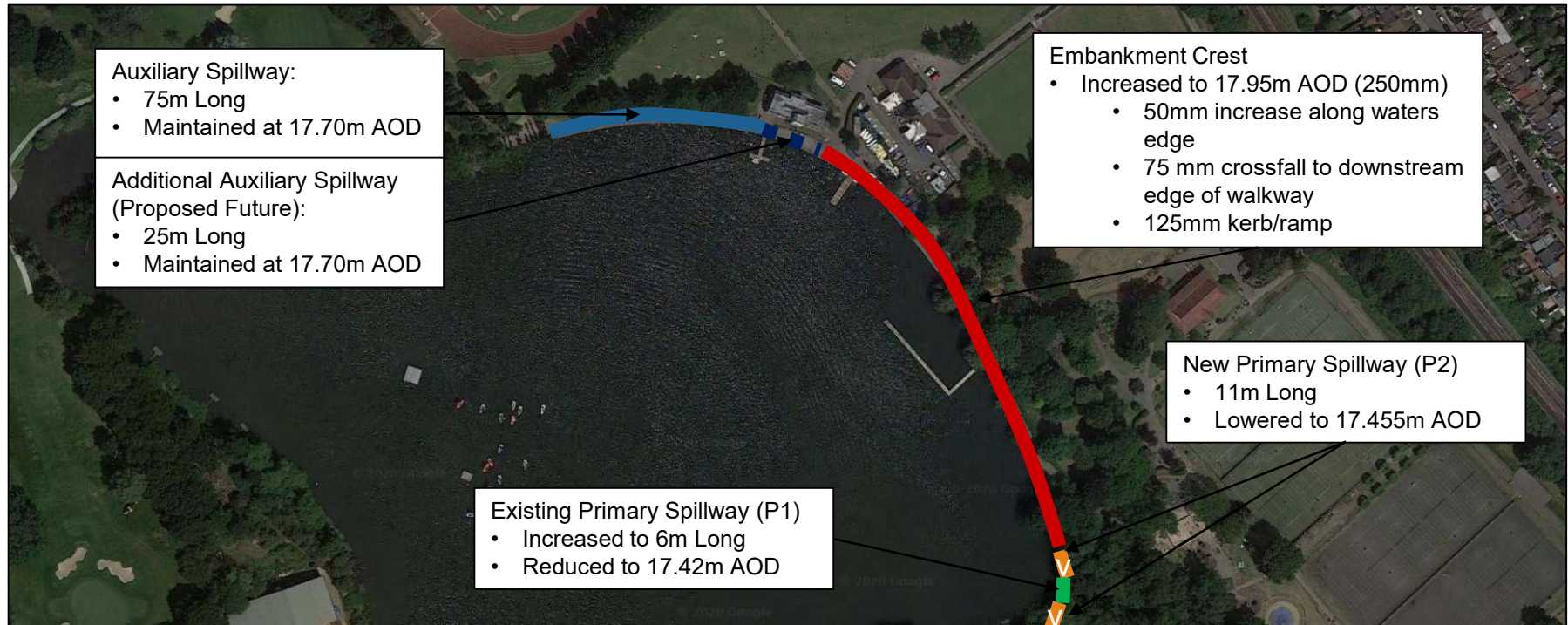
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Optioneering Considerations

- Firstly the framework through which the spillway arrangement could be adjusted had to be set:
 1. Water Level
 - Carried out an analysis on reduction of water level to balance the benefit of increased freeboard and greater storage capacity against negative impact to recreational use of lake, water quality and cost of de-silting
 2. Embankment Height
 - Examined the benefit of increased attenuation/freeboard versus visual impact across the park, access/egress along waterside walkway and Brown's original landscape
- By increasing the freeboard by 100mm the primary spillway can be reduced from 29m down to 15m in length
- To minimise overall impact it is felt this is best achieved by reducing the water level by 50mm and increasing the embankment level along the waters edge by 50mm.
- This has the added benefit of allowing the auxiliary spillway to be maintained at it's existing level and not worsening the impact of waves in that area
- Secondly a number of spillway arrangements were examined using this framework with the goal to minimise the heritage landscape, ecological, arboricultural and overall environmental impacts
- Finally the method of achieving the increased embankment height was explored. Analyse the aesthetics, heritage, safety and access impacts of both a low level lakeside wall against re-profiling of the levels along the waterside walkway

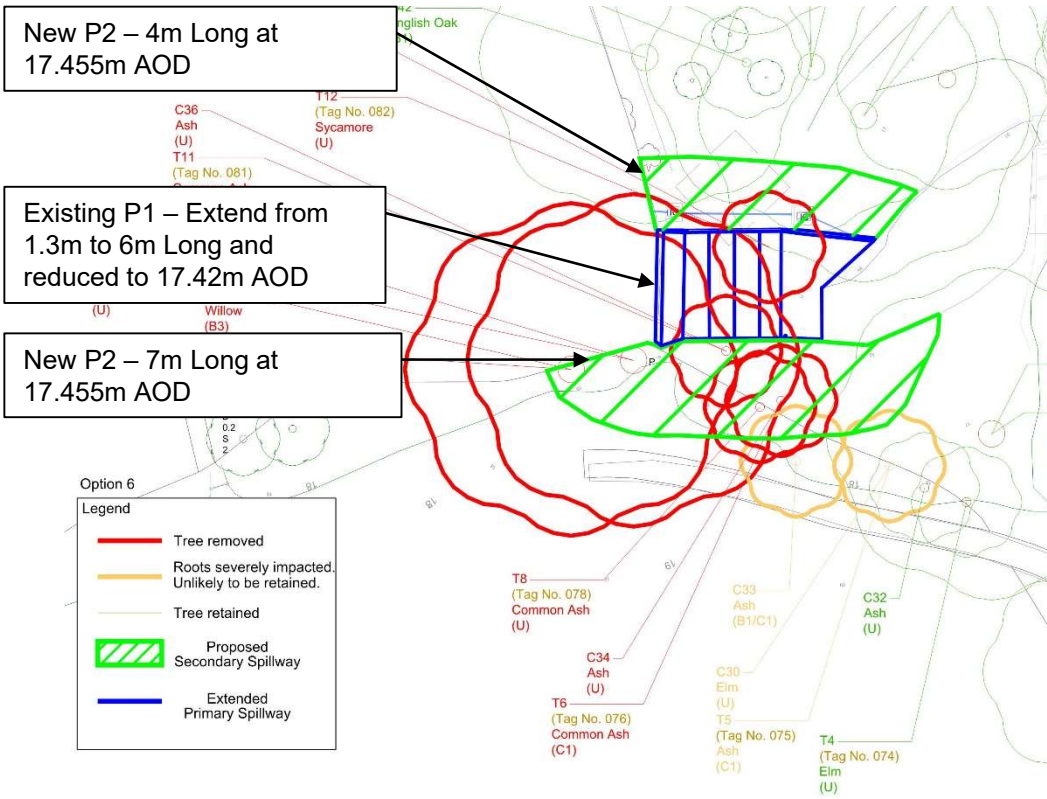
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Refined Design – Overview



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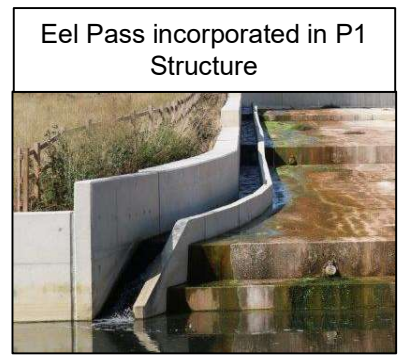
Refined Design – Primary Spillway



New P2 – 4m Long at 17.455m AOD

Existing P1 – Extend from 1.3m to 6m Long and reduced to 17.42m AOD

New P2 – 7m Long at 17.455m AOD



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Next Steps

- Engineering Design
 - Amend “upstream” hydraulic design to reflect refined design
 - Revise design drawings to reflect refined design
 - Undertake downstream hydraulic design
- Carry out downstream flood modelling and flood risk assessment (ensuring risk of flooding elsewhere is not increased)
- Revise heritage appraisal by independent historic landscapes consultant
- Undertake ecological and arboricultural surveys and appraisal for proposed option
- Prepare hard and soft landscaping plans and details
- Produce 3D pictorial visualisations of key areas
- Pre-app statutory consultation with Historic England, Garden Trust, London Garden Trust, Georgian Group and EA



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Reservoirs Act 1975

- ‘Large Raised Reservoir’ within the meaning of the Act
- Owners carry criminal liability with respect to safety
- A Statutory Inspection (like an MOT) identifies recommendations in the interests of safety which must be carried out
- Major issues for any embankment is the ability to pass floods safely past the dam
- ‘Protect Persons and Property Downstream’
- Pass the design flood – without the dam failing
- Design is a balance of conflicting demands – raise the ceiling/lower the floor
- Appropriate engineering - a design which is sympathetic to the setting
- ‘Soft’ and ‘hard’ engineering

The design developed by Ward and Burke will allow me to ‘sign off’ the recommendations for Merton which seek to make the dam as safe as possible.

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Questions?
