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9th October, 2018

Dear Sirs

Re: 2018/3816/L Boncara, 35 Templewood Avenue, London NW3 7UY

I act as a Consulting Conservation Structural Engineer within our engineering practice. I have 40 years of experience almost exclusively in the conservation field. In 1983 I was awarded a DIC from Imperial College and an MSc (University of London) in Concrete Structures. In 1993 I was awarded the IStruct E prize for a paper on "Rehabilitation of Concrete Masonry Buildings" and have been project director in our practice on many award winning conservation projects including in 2007 when our project "City Hall Dublin" won the RIAI silver medal for conservation, (an award only given out once every 3 years). In 2015 I was project director on the redevelopment of 10 Trinity Square, a grade II* project on which two of my team presented a paper to I Struct E that was awarded the Sir Arnold Waters medal. Indeed 10 Trinity Square was one of the earliest reinforced concrete frame buildings in the uk.

I have reviewed the assessment of the swimming pool at 35 Templewood Avenue at all stages as the project went through our office and my overwhelming conclusion is that the concrete to the pool tank cannot be considered to be fit for purpose. The key indicator in making this conclusion is the sporadic and universal nature of the leaks despite numerous repair attempts. We are in possession of the reinforcement drawings that were prepared at a time when the importance of adequate concrete cover to reinforcement was not well enough understood. This is particularly the case with swimming pools and I have been involved with 3 pools dating from this era with similar issues and sadly the prognosis in each of those cases was the same. Chlorine used in the water treatment process causes inevitable Chlorine contact with the concrete and chlorides are released which increase the risk of steel (fixings and reinforcement) corrosion. Similarly, hydrochloric acid which was used to balance ph. The issue can be further exacerbated by the often times absence of proper batching for the materials used to make the concrete at the time of construction.

The issue, based on the history of repairs and leaks, is the appropriateness or indeed effectiveness of a secondary tanking and waterproofing option. The problem is essentially that the concrete tank, that is at best suspect, is the primary structural element – ie it is the foundations and the enclosure, it is required to provide structural resistance to hydrostatic pressures from ground water and indeed containment of the pool water itself. Access to the underside of the pool base is not feasible, access to the outside of the pool walls is difficult and to waterproof the inside all the internal finishes would need to be removed. The potential for deterioration of concrete around service penetrations and the presence or otherwise of appropriate puddle flange type details is an additional serious question mark.

Managing Director *Vincent Barrett*, BSc (Eng), Dip Struct Eng, MSc, DIC, CEng, MStructE, MIEI, FConsEI. **Directors** *Ciarán Kennedy*, BSc(Hons) StructEng, Dip Struct Eng, CEng, MStructE, MIEI, FConsEI. *Brian Mahony*, BE, Dip Comp Eng, CEng, MStructE, MIEI, FConsEI. **Associate Director** *Owen Carroll*, BE, MSc, DIC, CEng, MIEI, MStructE. *Shane Linehan*, BE, CEng, MIEI, MStructE.

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Chloride attack on rebar in concrete is somewhat different to normal rebar corrosion which reveals itself via expansion of the rebar causing spalling and visible surface defects. The chloride attack turns the rebar black and effectively eats it away without such expansion. The issue is essentially almost hidden until it reveals itself through leaks and if efforts continue to manage the leaks by say pumping from sumps that collect the leaks (as occurred for years here) then the damage is progressive. All this presents a deterrent against reuse as even with the most comprehensive repair schedule the basic structural framework is potentially not fit for purpose into the future.

From a conservation standpoint, removal and re erection doesn't essentially look like minimum intervention, but if the general fabric can be painstakingly disassembled and reconstructed with carefully controlled quality measures on site then the bulk of the fabric can be protected for future generations and damage caused to the building surround by these persistent leaks will be arrested and in effect represent an appropriate conservation measure in itself.

Given the above, we would submit that we have taken the appropriate approach and that the proposals put before the council be considered in this context.

Regards,

A handwritten signature in black ink, appearing to read 'Vincent Barrett', written in a cursive style.

Vincent Barrett
BSc, MSc, DipStructEng, DIC, MIEI, MStructE, FConsEI, CEng.