

**TREE PRESERVATION ORDER: (TPO 294 1981 T10 Oak)**

**TREE WORK(S) - as referenced in the MWA Arboricultural Report:**

T2 Oak - Reduce height to approx. 16.0m and crown spread to approx. 12.0m leaving a balanced crown. Re-prune thereafter on a triennial cycle to maintain at reduced dimensions.

**REASONS FOR WORKS:** The above tree is considered to be responsible for root induced clay shrinkage subsidence damage to 17-20 Meadway Gardens, HA4 7QP.

**Technical and Site Investigation Evidence**

Engineering opinion is that clay shrinkage subsidence is a cause of damage. Details of the damage are included in the engineering technical report(s) submitted. Investigations into the cause of damage have confirmed the following information/evidence:

**Soils**

- Foundations are bearing on to a cohesive clay.
- The clay subsoil has a high volume change potential (NHBC Guidelines) susceptible to undergoing volumetric change in relation to changes in soil moisture.
- A comparison between moisture content and the plastic and liquid limits indicates moisture depletion/desiccation at the time of sampling at depths beyond normal ambient soil drying processes, such as evaporation, which is indicative of the soil drying effects of vegetation.

**Roots**

- Roots were observed below foundation depth in TP/BH1 and recovered samples have been positively identified (using anatomical analysis) as Quercus spp., the most likely origin of which will be T1 Oak as the closest related tree to the TP/BH1 location, however the much larger but more distant T2 Oak is also within influencing distance of the building and may also be a source of the retrieved samples. An application for the reduction of T2 has therefore been submitted.
- The observed moisture depletion / observed desiccation is coincident with recorded root activity at depths beyond ambient soil drying effects and consistent with the soil drying effects of the implicated tree.

**Monitoring**

- Level monitoring for the period 28.02.25 to 20.01.26 has recorded a pattern of seasonal movement indicative of the soil drying effects of vegetation below foundation level. The uplift phase of the building can only be attributable to an expanding clay soil from a desiccated (shrunken) state related to soil water extraction by vegetation. Crack monitoring has also recorded a pattern of crack width variation consistent with the seasonal influence of vegetation.

## **Drains**

- The drains have been surveyed and though signs of defects were found, these are not considered to be the cause of the current damage. Drains can be discounted as a causal factor given the recorded moisture depletion / desiccation and by reference to the level monitoring data.

## **Mitigation History**

- T1, T3, TG1 & TG2 of MWA Arb Report were removed 20.02.26
- No recent structural alterations or building works have been carried out. The property has not been underpinned.

## **Mitigation Options Considered**

### **Root Barrier**

- A root barrier has not been considered as only crown reduction pruning is being considered at present.

### **Underpinning**

- Superstructure repairs and decorations are currently estimated to be £25k should the tree works be undertaken. Costs for underpinning in the event the tree works do not proceed are currently estimated to be £95k.

## SUBSIDENCE CHECK LIST

- A description of the property, including a description of the damage and the crack pattern, the date that the damage first occurred/was noted, details of any previous underpinning or building work, the geological strata for the site identified from the geological map.  
**Technical Report and Site Investigation Report provided.**
- Details of vegetation in the vicinity and its management since discovery of the damage. Include a plan showing the vegetation and affected building.  
**MWA Arboricultural Report provided.**
- Measurement of the extent and distribution of vertical movement using level monitoring. Where level monitoring is not possible, state why and provide crack monitoring data. Data provided must be sufficient to show a pattern of movement consistent with the presence of the implicated tree(s).  
**Level Monitoring provided.**
- A profile of a trial/bore hole dug to identify foundation type and depth and soil characteristics.  
**Site Investigation Report provided.**
- The sub-soil characteristics including soil type (particularly that on which the foundations rest), liquid limit, plastic limit and plasticity index.  
**Site Investigation Report provided.**
- The location and identification of roots found. Where identification is inconclusive, DNA testing should be carried out.  
**Site Investigation Report provided.**
- Proposals and estimated costs of options to repair the damage.  
**Addendum Tech Report provided.**