TREE PRESERVATION ORDER	TPO 7 1967 (G85, G86)

TREE(S) - as referenced in the MWA Arboricultural Report	WORKS
T1 Cypress (Monterey)	Remove (fell) to near ground level and treat stump to inhibit regrowth.
T2 Cypress (Monterey)	Remove (fell) to near ground level and treat stump to inhibit regrowth.
T8 Lombardy Poplar	Remove (fell) to near ground level and treat stump to inhibit regrowth.

Reason: The above trees are considered to be responsible for root induced clay shrinkage subsidence damage to 36 Blossom Way, UB10 9LN.

Investigations in to the damage have been conducted and the following information/evidence obtained:

1. Engineering opinion is that damage is due to clay shrinkage subsidence. Details of the damage are included in the technical report submitted.
2. Foundations are bearing on to clay.
3. The clay subsoil has a high volume change potential (NHBC Guidelines) susceptible to undergoing volumetric change in relation to changes in soil moisture.
4. A comparison between moisture content and the plastic and liquid limits suggests moisture depletion in both TP/BH1 and TP/BH2 (January 2022).
5. Roots were observed to a depth of 1.5m bgl in TP/BH1 and 2.2m in TP/BH2 and recovered samples have been positively identified (using anatomical analysis) as Cupressaceae spp. in both TP/BH1 and TP/BH2 the origins of which will be T1 and T2 Monterey Cypress confirming the influence of these trees on the soils below the foundations. T8 Lombardy Poplar is within the normally accepted influencing distance of the building and area of damage. Roots of the tree are likely to be present below foundation level and influencing soil moisture and volumes.
6. Crack monitoring for the period 14/07/2021 to 16/08/2022 has recorded a pattern of crack movement indicative of the effects of the offending trees on soil moisture and volumes to the front right-hand side of the property. Crack closure can only be attributable to an uplift of the building due to an expanding clay soil from a desiccated (shrunken) state due to the soil drying effects of the subject trees.
7. The drains have been surveyed and though some defects were found these were repaired in June 2022.

8. No tree works have been carried out during the period of the claim or in the recent past in relation to the damage to the building.

9. No recent structural alterations or building works have been carried out.

10. A root barrier has been considered as an alternative to tree removal and may be viable however this requires further appraisal to evaluate the constraints of the site. The cost of a deep barrier is currently estimated to be £35k.

11. The evidence confirms that on the balance of probabilities the subject trees are a material cause of the subsidence damage.

12. Superstructure repairs and decorations are currently estimated to be £4k should the tree works be undertaken. Costs for underpinning in the event the tree works do not proceed are currently estimated to be £180k.

13. Replacement planting of standard size trees with agreement of Local Authority.

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).
  Crack 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 Technical Report provided.