Beechdown Arboriculture Limited
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Arboricultural Report

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2 Emsworth Road, Havant, Hampshire

Prepared by

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March 2011

Beechdown ref: B/0003/11
2 Emsworth Road – tree impact assessment – march 2011

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1.0 INTRODUCTION

1.1 Beechdown Arboriculture Ltd has received instruction from Mrs. Barbara Hutchinson to undertake an inspection of a lime tree (T1) at 2 Emsworth Road, Havant, Hampshire.

1.2 The purpose of the instruction was to undertake a detailed inspection of the tree and comment on:

- The tree's condition.
- The current effect of the tree's growth on the adjacent listed flint wall.
- The effect that reinstatement of the wall may have on the tree.
- The tree's growth potential and future effect on the reinstated wall.

2.0 DOCUMENTS PROVIDED

2.1 Correspondence from Havant Borough Council to:

- *Cranes Chartered Surveyors, dated 20.08.2010 - ref: 59352.*
- Mrs B Hutchinson, dated 21.01.2011 – ref: BC/BD/00015//CMP
- Mrs B Hutchinson, dated 02.03.2011 – ref: TPO/11/85/1995

2.2 Correspondence from Mrs B. Hutchinson to:

- Mrs R. McMurray of Havant Borough Council, dated 16.01.2011

3.0 SURVEY FORMAT

3.1 The tree was inspected from the ground only, no climbing or specialised decay detection was undertaken. The tree's basic parameters were measured to include species, height, stem diameter at breast height (DBH), crown spread, age class and estimated age

3.2 A visual inspection of the tree was undertaken to assess the crown for any weak structures, deadwood, cavities, poor branch unions or other defects that might affect its stability and safety. The base of the tree was also visually inspected, together with tapping and probing to search for signs of decay, bark death and root lifting.

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3.3 Photographs were taken to [illegible] points within the report.

4.0 RISK ASSESSMENT

4.1 Although the potential risk to someone passing beneath a tree when the tree, or part of it, fails is relatively remote the risk is present. This increases significantly in areas of regular or consistent use, such as gardens, footpaths and roads. Where static structures exist the risks become constant and assessment is made as to whether total or partial failure of a tree could lead to damage of such structures.

4.2 Within the scope of any tree survey it is a fact that not all crown or stem failure can be covered, particularly in relation to extreme weather conditions when even healthy trees can suffer structural failure or wind-throw. There is also the potential for mature trees to occasionally shed large branches for no discernible reason, even on calm days. Although a relatively rare occurrence this should be acknowledged as a risk that cannot be entirely mitigated.

5.0 SITE DESCRIPTION

5.1 2 Emsworth Road is a large, detached period property set in approximately 0.15 hectares.

5.2 Mature trees line the northern boundary with Emsworth Road.

5.3 The western boundary of the property adjoins Lymbourn Road, a residential cul-de-sac to the south of Emsworth Road.

5.4 T1 is in the south-west corner of the grounds in close proximity to the partially collapsed boundary flint wall next to Lymbourn Road.

6.0 TREE DESCRIPTION

6.1

Tree No.	1
Species	Common lime *(Tilia x europaea)*
Height	19m
DBH	83cm
Crown spread	N – 6m
	S – 3m
	E – 6m

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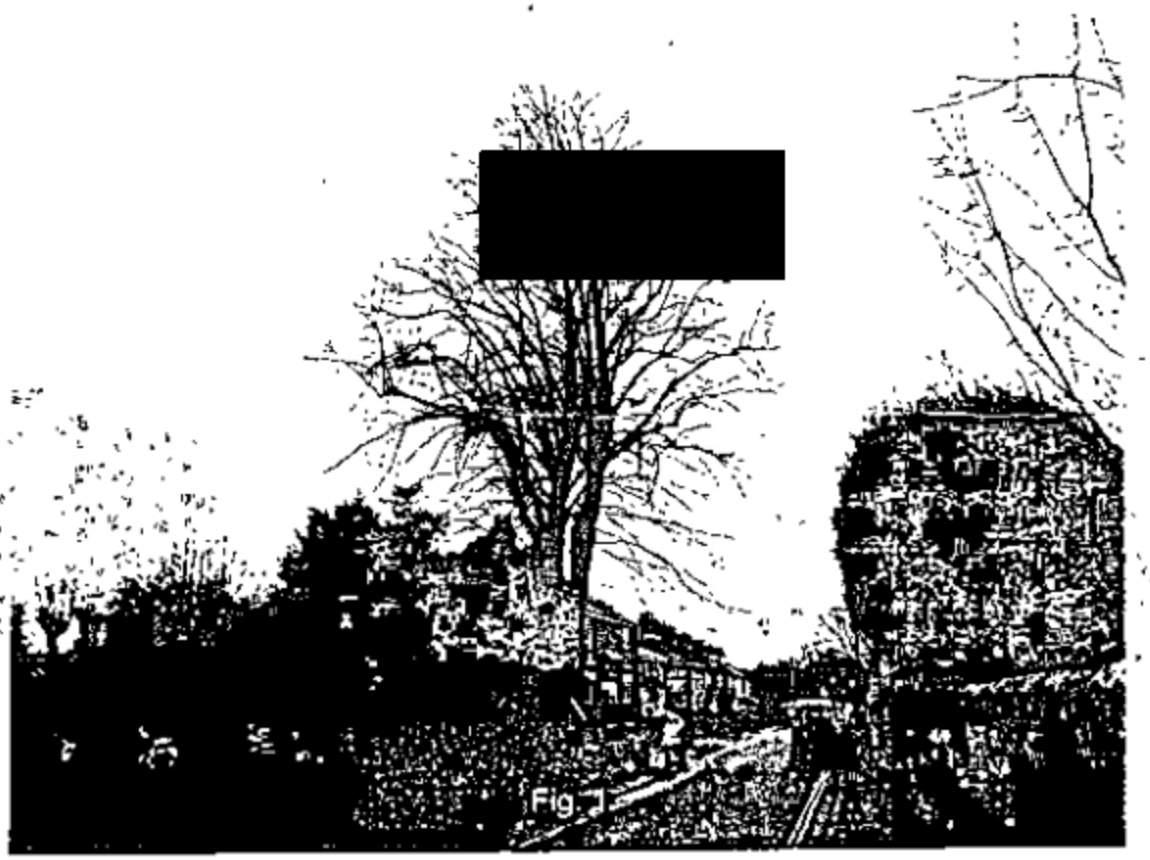
W – 6m
Age class Mature
Estimated age 84 years. See appended age assessment sheet.

6.2 A mature tree dividing into two stems at 4m **(Fig. 1)** and subsequently pollarded at approximately 8m. The crown becomes multi-stemmed at the pollard points with the branches ascending sharply then arching to form a full and balanced crown

6.3 The lateral growth is marginally less developed to the south.



7.0 TREE CONDITION

7.1 The tree showed signs of good vitality with annual shoot extension growth between 20cm-60cm.

7.2 There was typical minor deadwood throughout the crown and a small number of larger pieces up to 12cm diameter.

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7.3 Prolific shoot growth from dormant buds, typical of common limes, was in evidence at the base of the tree and throughout the lower [redacted]

7.4 Close examination of the lower stem and buttresses indicated no apparent sign of dead or lifting bark, wounds or decay. There were no obvious fungal fruiting bodies evident.

7.5 Detailed inspection of the buttresses to the south-east was precluded by the presence of dense shoot growth.

8.0 TREE IN RELATION TO BOUNDARY WALL

8.1 The boundary wall, running parallel with Tymbourn Road, was constructed of two leaves of flint facing with a rubble core (ref. Havant Borough Council correspondence 59352) with a brick coping

8.2 The wall was fully collapsed from the southern end to approximately 3m from the tree at which point the inner flint facing partially remained and gradually stepped up to a point where it joined the intact wall **(Fig. 2)**.

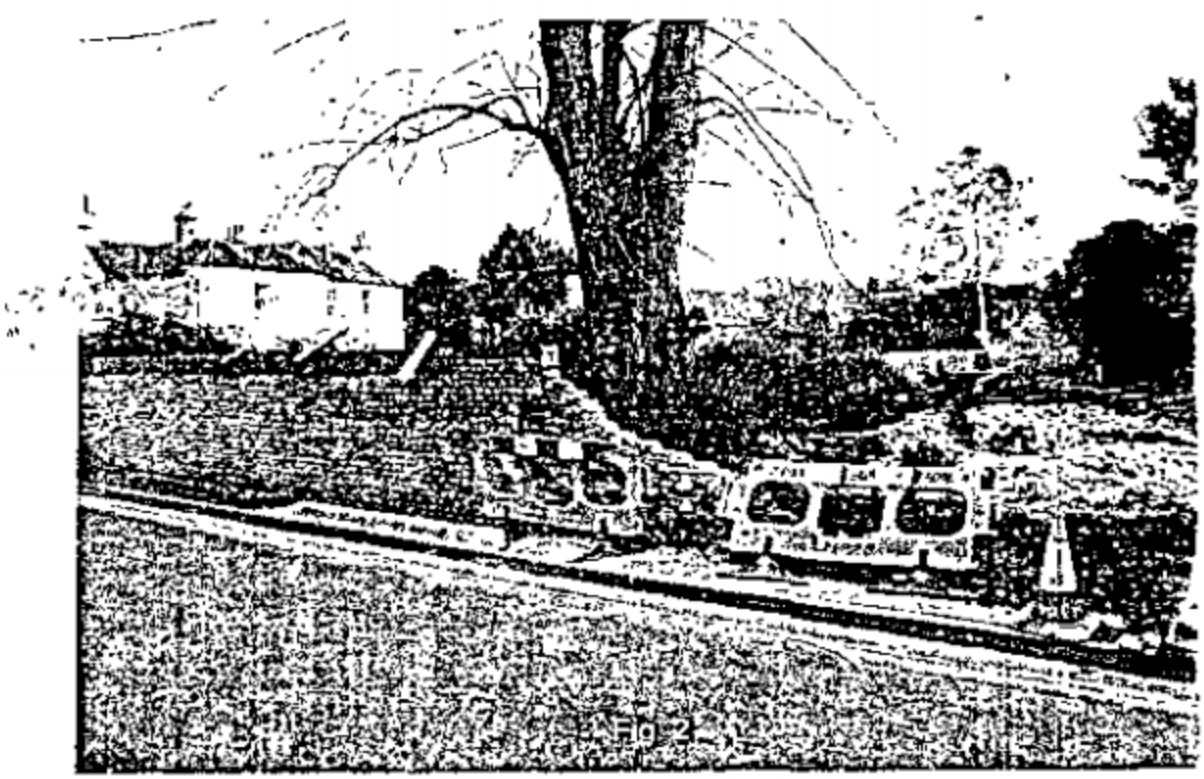

Fig. 2

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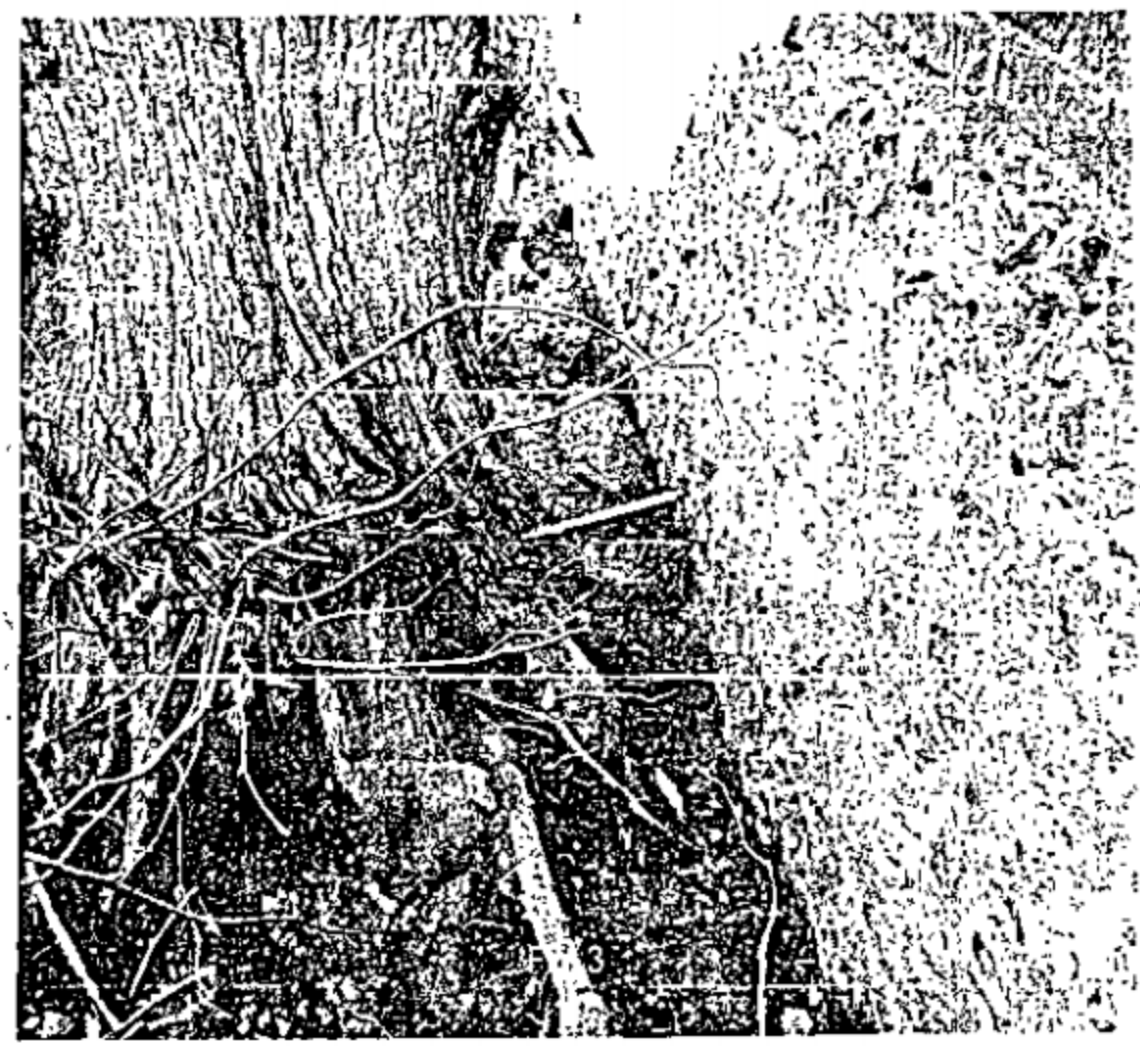
8.3 Distance between tree and wall from:

- Main stem above buttress flare - 50cm
- Buttress root at ground level - 30cm **(Fig. 3)**
- Buttress root 30cm below ground level - 20cm



8.4 There were no major roots visible at any point in or along the line of the collapsed wall but some minor roots were present **(Fig. 4).**

8.5 There was no significant cracking or lifting of the pavement, kerbstones, or road surface.

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Fig 4

9.0 CONCLUSION

9.1 Tree condition.

9.1.1 The tree is in apparent good health, has vigorous extension growth, no evidence of crown dieback and with predominantly only minor deadwood within the crown. It is a prominent tree and an important feature of the landscape.

9.2 Current effect of tree growth on wall.

9.2.1 It is unlikely that its growth to date has had a detrimental effect on the flint wall or contributed significantly to its collapse.

9.2.2 The tree post dates the wall and its roots are likely to have developed more extensively within the free draining and aerated soil of the garden than beneath the wall and the impervious road surface.

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9.2.3 As can be seen from **Fig. 3** there appears to be no obvious cracking or movement of the inner face of the flint wall at the closest point to the tree. Images from Google Earth taken in April 2007 show a section of wall missing at the southern end and some cracking in the adjacent brick coping but no apparent damage in the vicinity of the tree.

9.2.4 The majority of a tree's root system is located in the upper 600mm of the soil. To fully determine the extent of the root spread and the effect they have had on the wall, the remainder of the collapsed section of wall will need to be carefully dismantled and the soil hand excavated to a depth sufficient to expose any major roots.

9.3 Reinstatement of the wall

9.3.1 See appended method statement for tree protection measures during the reinstatement of the wall should it be decided to retain the tree.

9.4 Future effect of tree growth on the reconstructed wall.

9.4.1 The common lime can attain large dimensions, regularly reaching 40m and with stem diameters in excess of 200cm.

9.4.2 At the current rate of annual incremental growth the main stem will be in full contact with the wall in between 30-40 years, however forces exerted by the expansion of the stem and roots at and below the basal flare will lead to structural damage far sooner.

10.0 RECOMMENDATIONS

10.1 Option 1

10.1.1 Remove major deadwood and crown lift to provide adequate height clearance over the pavement and Lymbourn Road.

10.1.2 Reinstate the wall.

10.1.3 Plant a replacement common or small leafed lime (*Tilia cordata*) close to the existing tree but in a location where it can reach

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maturity without affecting the structure of the wall or requiring regular pruning.

10.1.4 Dismantle and fell T1 when the replacement tree has established but before damage occurs to the reinstated wall, between 10 to 15 years.

10.2 Option 2

10.2.1 Dismantle, fell and grind out roots prior to reinstating wall

10.2.2 Plant a replacement common or small leafed lime (*Tilia cordata*) in a location where it can reach maturity without affecting the structure of the wall or requiring regular pruning.

11.0 REFERENCES

11.1 Principles of tree hazard assessment and management – D. Lonsdale

11.2 Trees of Britain and Northern Europe – Alan Mitchell

11.3 Forestry Commission Technical Paper 7 – Champion Trees in the British Isles

11.4 BS 5837: 2005 – Trees in relation to construction – Recommendations

12.0 Details

12.1 Date of inspection - 10.03.2011

12.2 Present at inspection - Jonathan Rodwell

12.3 Weather conditions - Overcast

12.4 Date of report - 19.03.2011

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Appendix 1 – Assessment sheet

Tree age estimation from stem diameter measurement

Tree name: Common lime		*Scientific name:*	*Tilia x europaea*
Location: 2 Emsworth Road, Havant, Hampshire			
Stem girth/cm: 260cm	*Stem diameter/cm:* 83cm	*Stem radius(r)/cm:* 41.5cm	Total basal area (BA)/cm: 5410.603 (πxr3.14159)
Core category (Table 1a): Average site/garden			
Core age/years: 70 years		*Core ring width/mm:* 5mm	

Core basal area (Table 2).	3848
Area (CAI) of outer core ring (Table 2):	109.2
BA excluding the core (Total BA minus core BA)/cm:	1562.603
Age of outer section of the stem/years.	14
Add core age/years:	70
Add years of decline/years:	0
Total of last 3 entries (= estimated age of tree/years.	84
Planting year (date measured minus estimated age:	1927

Date measured: 10.03.2011

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Appendix 2 – Protection measures safeguarding the tree during and after the reinstatement of the wall

1.0 Root Protection Area (RPA)

1.1 In considering the practicability of retaining trees within development sites, deliberation has to be given to the undisturbed areas of rooting that will be retained. Based on the tree's age, stem diameter and condition, assessment can be made of the required undisturbed rooting area necessary to retain the tree safely for its *expected lifespan*

1.2 The RPA has been calculated using the information gathered from the tree inspection and Table 2 (calculating the root protection area) of BS 5837:2005. This indicates the RPA in m^2 and the minimum required all round radial distances for root plate protection.

1.3 The RPA for the common lime at 2 Emsworth Road is 311.7 m^2 giving all round radial protection of 10m.

1.4 The reinstatement of part of the wall will take place within the RPA so to avoid damage to the tree the following procedures should be adhered to.

2.0 Protection of tree during construction

2.1 Typically, to ensure that the Root Protection Areas are not disturbed during construction, suitable protective fencing fully enclosing the RPA would be erected prior to any site works commencing, however because the construction takes place within the RPA the protective fencing has to allow for a practical working area.

2.2 The protective fencing should consist of a vertical and horizontal scaffold framework, well braced to resist impacts, with vertical scaffold poles at a maximum interval of 3m. Onto this, weld mesh panels should be securely fixed with wire or scaffold clamps. Weld mesh panels on rubber or concrete feet are not resistant to impact and should not be used (Fig.2). It should extend from the middle of the stem for 3.5m parallel to the wall north and south and then a

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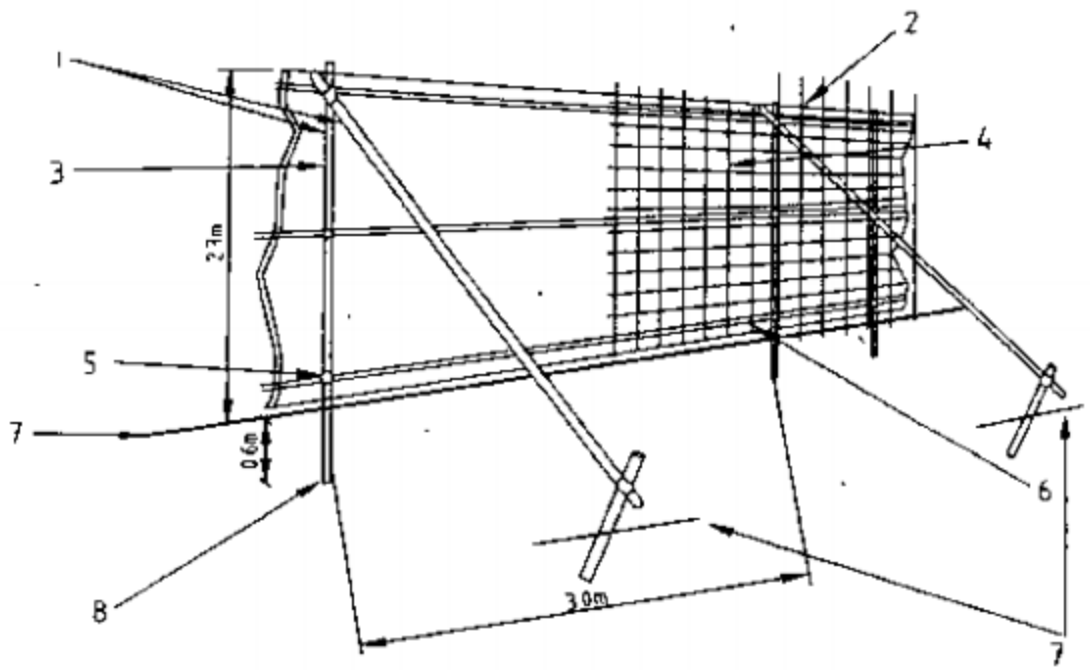
further 3.5m to the east before being enclosed from north to south on the eastern edge of the RPA.



1 Standard scaffold poles
2 Uprights to be driven into the ground
3 Panels secured to uprights with wire ties and, where necessary, standard scaffold clamps
4 Weldmesh wired to the uprights and horizontals
5 Standard clamps
6 Wire twisted and secured on inside face of fencing to avoid easy dismantling
7 Ground level
8 Approx 0.6m driven into the ground

Figure 2. – Protective fencing for RPA

2.3 No vehicle access or material storage to occur within the fenced off Root Protection Area.

2.4 Additional precautions outside fenced areas should include the storage of cement, fuel or other potentially harmful chemicals no closer than 10m from the stem of the free and no material storage within 5m of the stem of the tree. Concrete mixing should not be carried out within 10m of the tree stem.

2.5 Excavation for the wall foundations should be carried out carefully by hand with all roots 25mm diameter or more retained. Exposed roots should be covered by clean, dry hessian sacking to prevent drying and protected from extreme temperature changes. Roots smaller than 25mm diameter may be pruned with appropriate hand tools such as secateurs or pruning saws.

2.6 If roots greater than 50mm diameter are found provision should be made for future diameter growth by surrounding the root with uncompacted sharp sand, void-formers or other flexible fill materials and by laying an adequately reinforced lintel or raft over the surface.

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