

Assessment of Wall Trees on Slope 11SW-A/R577 at Bonham Road

**Highways Department
HKSAR Government**

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The site

Photo T0-1. The old stone wall together with its stonewall trees are maintained by the Highways Department.

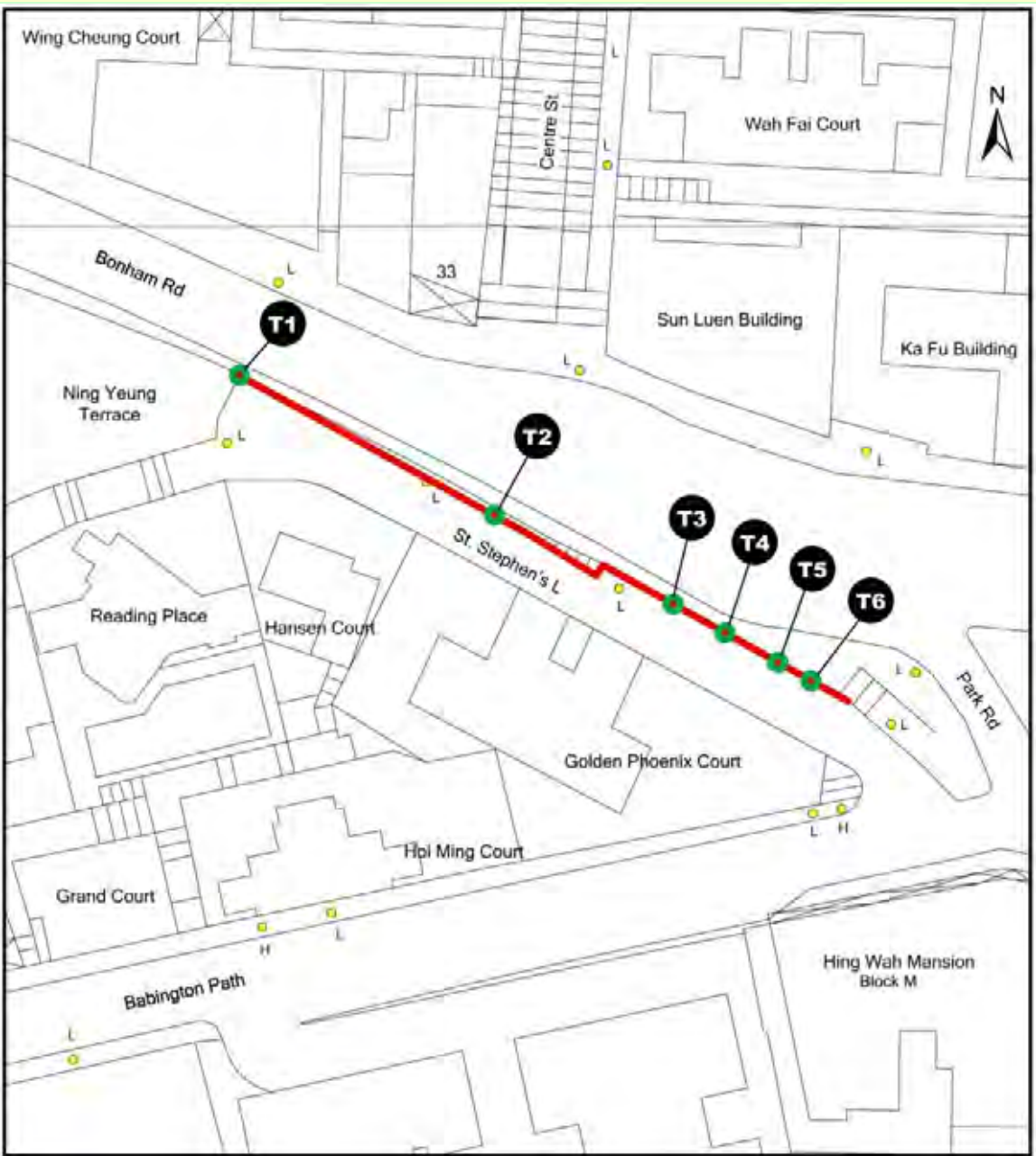


Photo T0-2. The old stone wall together with its stonewall trees are maintained by the Highways Department.



SLOPE REGISTRATION No:
斜坡登記號碼 11SW-A/R577

MAINTENANCE
DEPARTMENT
維修部門

HIGHWAYS DEPARTMENT
路政署
☎ : 2926 4111

Photo T0-3. The six stone wall trees viewed from the east side at Bonham Road.



Photo T0-4. The six stonewall trees viewed from the west side at Bonham Road.



Photo T0-5. The six stonewall trees viewed from the west side at St Stephen's Lane.



Photo T0-6. The six stonewall trees viewed from the east side at St Stephen's Lane.



Photo T0-7. The six trees (left to right T6 to T1) hanging on the stone wall at Bonham Road facing Centre Street (north at right).

East side

West side



Photo T0-8. The old masonry wall viewed from the east, being shorter at the east side and taller towards the west.



Photo T0-9. The stone wall viewed from the west, with irregularly shaped and sized and partly-weathered volcanic stones..



T1

Photo T1-1. The smallest of the six stonewall trees, it clings on the crest at the west end of the wall.



Photo T1-2. Viewed from the east at St Stephen's Lane, the compact and rounded crown keeps intact most of its branches.



Photo T1-3. The young tree with compact crown viewed from the west at St Stephen's Lane.



Photo T1-4. The wall section has regular squared-dressed granite blocks, contrasting with volcanic rubble boulders of the main wall.



Photo T1-5. The young Chinese Banyan with a small crown hangs well above the carriageway.



Photo T1-6. The small tree is overshadowed by its large neighbour T2 situated to its east (left).



Photo T1-7. All three limbs of the tree emerge at the same height of the trunk, resulting in crowded branching.



Photo T1-8. Renovation work at the adjacent building has used the tree to support its nylon net and sheet.



T2

Tree T2 Part A
Overall tree structure and condition

Photo T2-1. One of the largest stonewall trees that excel in trunk diameter, height, crown spread, tree form, health and vigour.



Photo T2-2. The dense and sprawling crown of the large stonewall tree that hangs above Bonham Road.



Photo T2-3. The large upright tree anchors at the crest of the west side of the old stone wall, hanging above the carriageway.



Photo T2-4. The crown extends southwards above St Stephen's Lane, supported by rather upright multiple trunks.



Photo T2-5. The tree viewed from the west side at St Stephen's Lane.



Photo T2-6. Broad east-west crown spread viewed from Centre Street; notable loss of low branches and foliage.



Photo T2-7. The stout multiple trunks support the large and wide crown.



Photo T2-8. The three stout trunks emerge near the tree base; trunk A bifurcates at a low level, and B and C higher up.

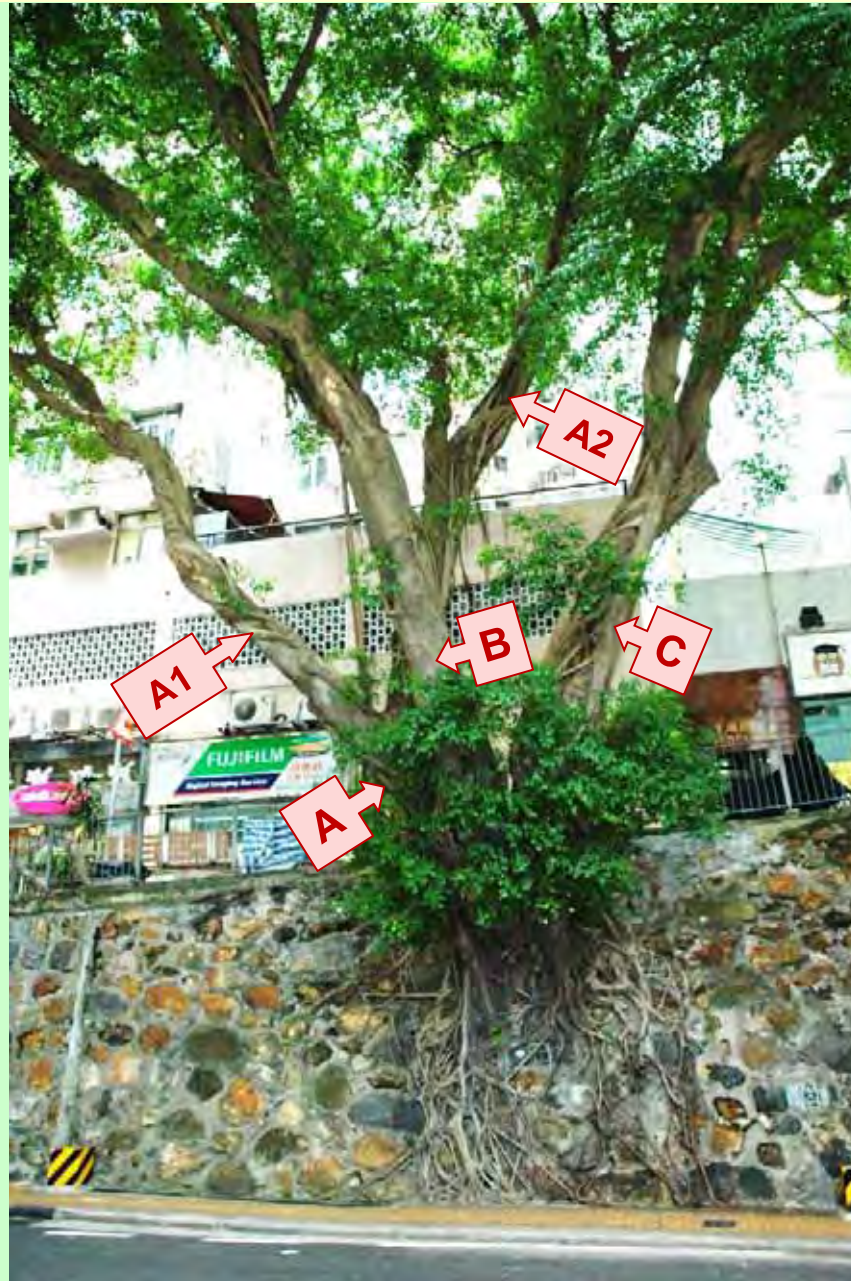


Photo T2-9. The three stout trunks viewed from the south (St Stephen's Lane).



Tree T2 Part B
Assessment of surface roots and interface
with the stone wall

Photo T2-10. Limited spread of surface roots on the stone wall face.



Photo T2-11. Restriction to root penetration at wall toe.



Photo T2-12. Relationship between tree and wall crest, viewed from the east.



Photo T2-13. Relationship between tree and wall crest, viewed from the west.



Photo T2-14. Relationship between tree and wall crest, viewed from the south. Rubbish accumulation.



Photo T2-15. East side of surface root spread indicating slightly bulging surface of masonry blocks and cement sealing of joints.



Photo T2-16. East side of the surface root spread near trunk base indicating displacement and omission of masonry blocks.



Photo T2-17. West side of the surface root spread indicating extensive buttering of joints by cement.



Photo T2-18. West side of the surface root spread near the trunk base indicating slightly protruding masonry blocks.



Photo T2-19. West of the surface roots showing uneven surface and new cement pointing of the rubble wall.



Tree T2 Part C

Assessment of tree crown

Photo T2-20. The broad and well-balanced east-west spread of the tree crown. Note excessive loss of lower branches.



Photo T2-21. Dense branching habit and foliage in the tree's sprawling crown.



Photo T2-22. The east side of the crown with dense and healthy branches and foliage.



Photo T2-23. The central part of the dense crown with high foliage density and high leaf area index.



Photo T2-24. The west side of the crown with equally dense and healthy branches and foliage.



Photo T2-25. Most of the crown edges have healthy and densely-packed leaves.

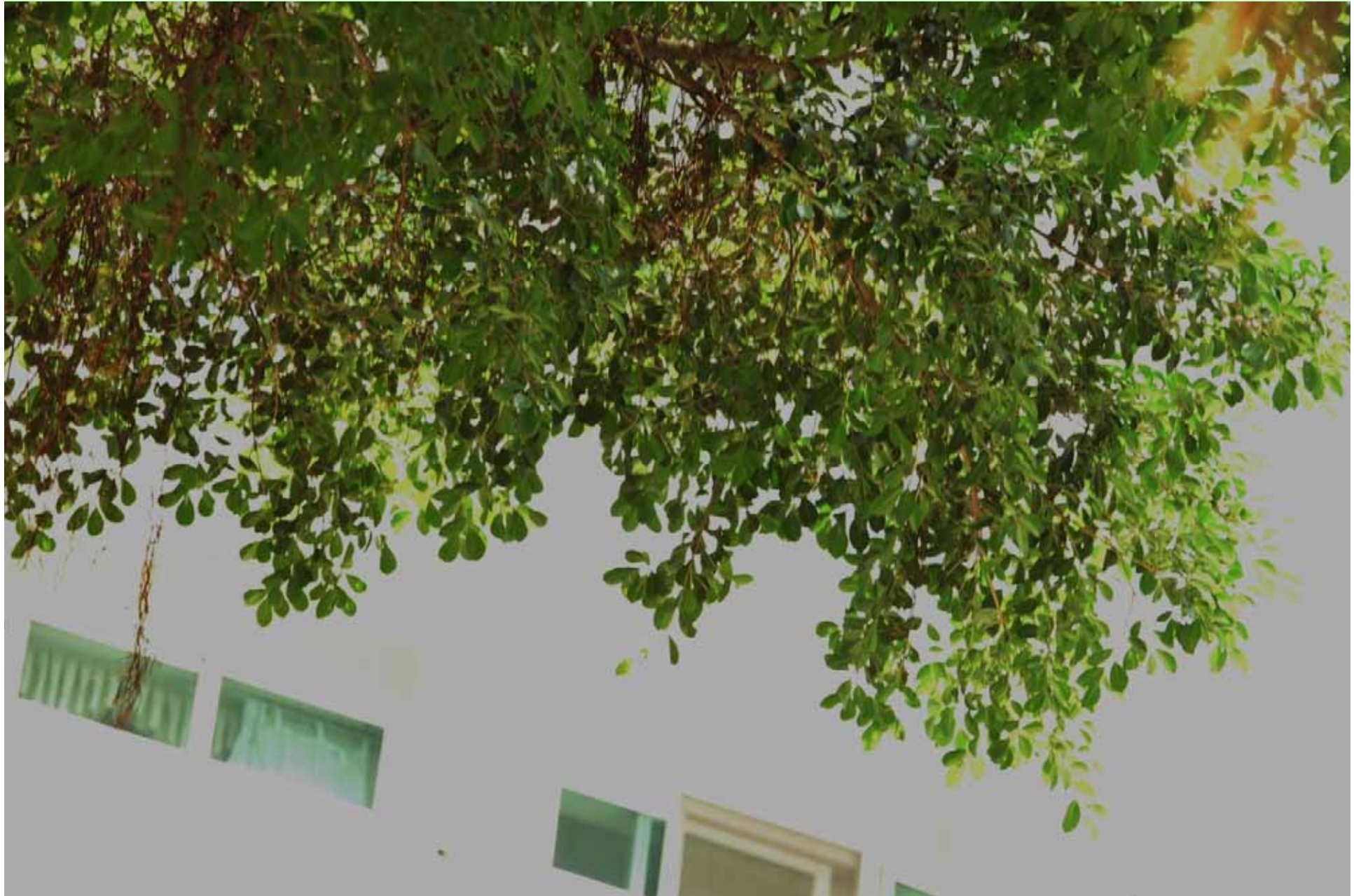


Photo T2-26. A small cluster of twigs of trunk A pointing south (St Stephen's Lane) have developed dieback symptoms.



Photo T2-27. The west part of the crown extends northwards across Bonham Road to approach the opposite old building.



Photo T2-28. The east part of the crown also extends northwards across Bonham Road to approach the opposite building.



Photo T2-29. Close proximity of the east part of the crown to the building on the opposite side of Bonham Road.



Tree T2 Part D
Assessment of trunks and branches

Photo T2-30. Stems A1 and C have replacement limbs of expanded epicormic branches. Tipped limb at stem B (circle).



Photo T2-31. Stem A1 has a large wound with decay and bulgewood formation. Arrows indicate drilling positions.



Photo T2-32. South side of stem A1 has an old branch breakage wound with advanced decay and possible termite attack.



Photo T2-33. Tipped branch of stem A1 with a cluster of sprouts near the wound.



Photo T2-34. Stem A1 branch with a somewhat crooked section.



Photo T2-35. Thick epicormic branch of stem A1 curving upwards from old branch tipping wound. Rubbish hanging on branches.



Photo T2-36. Stem A2 with truncated branch wound invaded by wood-decay fungi.



Photo T2-37. Stem B with tipped and decayed branch and multiple epicormic sprouts at and near wound.



Photo T2-38. Stem B with fractured-decayed branch end supporting expanded epicormic branch. Three parallel branches.



Photo T2-39. Stem B with crowded (circle) and parallel (arrows) branches.



Photo T2-40. Stem B branch with curved section (circle) and kinked branch (arrow).



Photo T2-41. Stem B with tipped branch and an epicormic branch attached to the parent with an elbow joint.



Photo T2-42. Stem B branch with decay, cavity and bulgewood supporting a curved branch end.



Photo T2-43. Stem B with crowded sprouts at branch end and decayed branchlets.



Photo T2-44. Stem A has a tipped medium-sized branch leaving a wound with no sprout development.

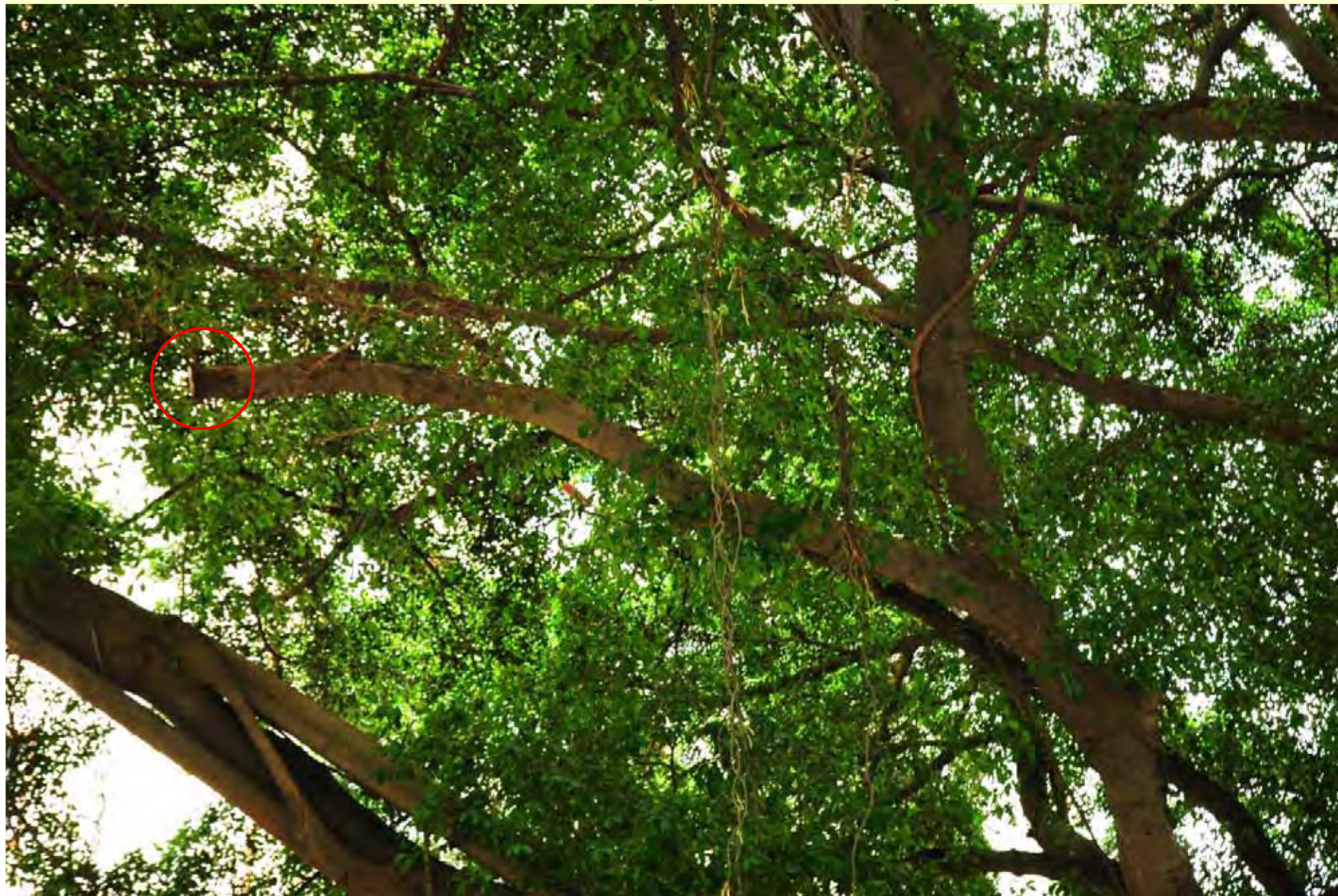


Photo T2-45. Branches above Bonham Road near buildings have been tipped with sprout clusters emerging from the wounds.



Photo T2-46. South part of the crown extending towards buildings at St Stephen's Lane.



Photo T2-47. Branches above St Stephen's Lane near buildings have been tipped with sprouts emerging from the wounds.



Photo T2-48. Stem A2 point south indicating truncated branch (circle) with thickened epicormic branches (arrow).



Photo T2-49. Tipped branch above St Stephen's Lane with multiple and crowded epicormic branches from the wound.



Photo T2-50. South part of the crown extending above the building podium at St Stephen's Lane.



Photo T2-51. Stem B with a large truncated limb developing decay at the wound.



Photo T2-52. Base of the truncated limb of stem B has a decayed and depressed wound with bulgewood and a wasp nest.



Photo T2-53. Stem B has a seam with bulge wood indicating internal decay. Arrow denotes drilling position.



Photo T2-54. Stems B with limb-loss wound, decay and sprouts.



Photo T2-55. Decayed wound with incomplete callus formation on a wavy branch of stem B. Arrow denotes drilling position.



Photo T2-56. Stem A1 with decayed stub, bulgewood and wasp nest. Arrow denotes drilling position.



Point 6

Photo T2-57. South side of stem A1 with decayed and depressed wounds and wasp nests. Arrows denote drilling positions.

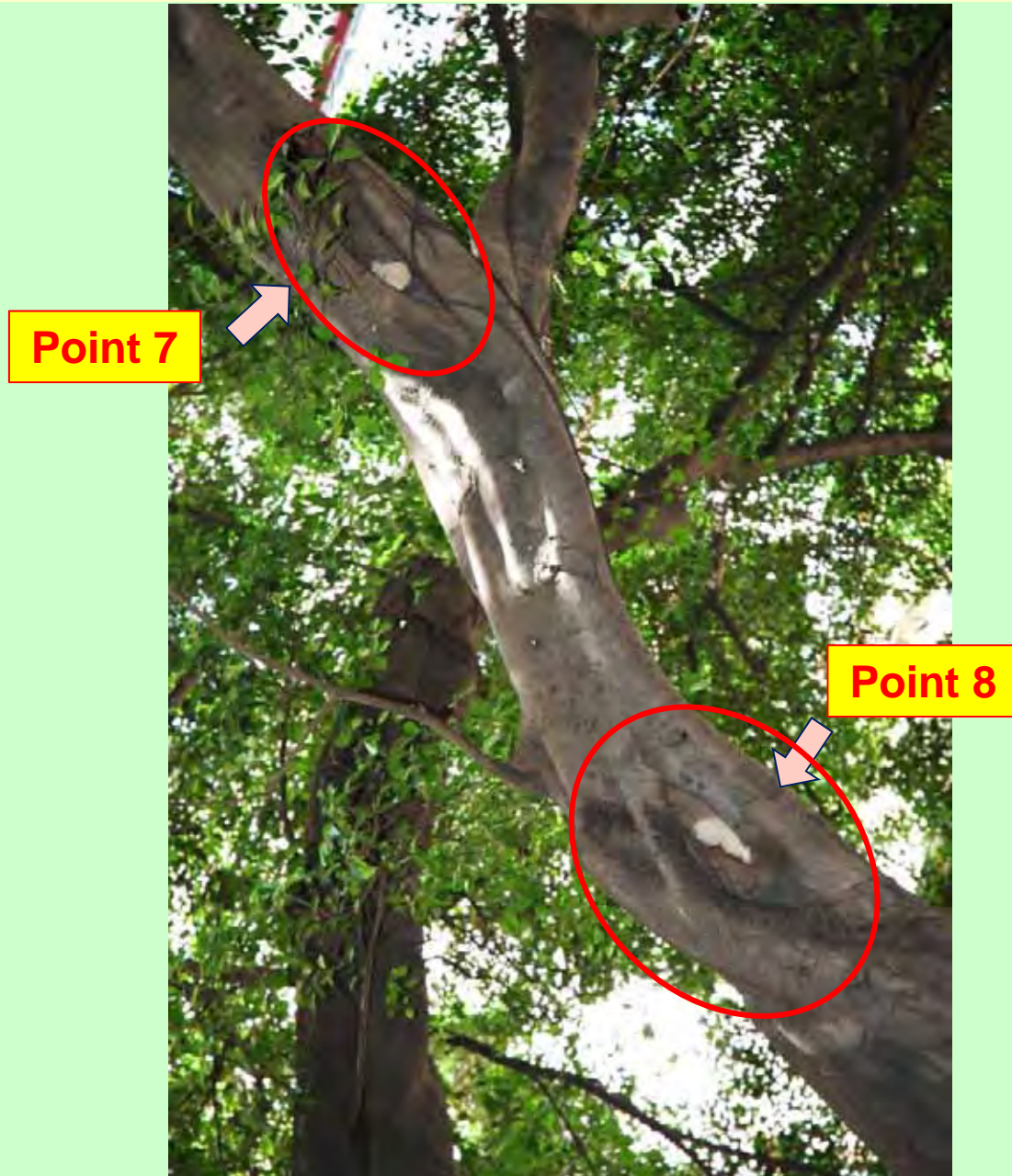


Photo T2-58. Decayed large wound at stem C left by truncation of a thick limb.



Photo T2-59. Stem C with decayed wound in a recessed niche.



Photo T2-60. Plastic rubbish trapped by wood growth in Stem C.



Photo T2-61. Stem C with cracks, seam, bulgewood, decayed wound, and decayed crotch. Arrows denote drilling positions.

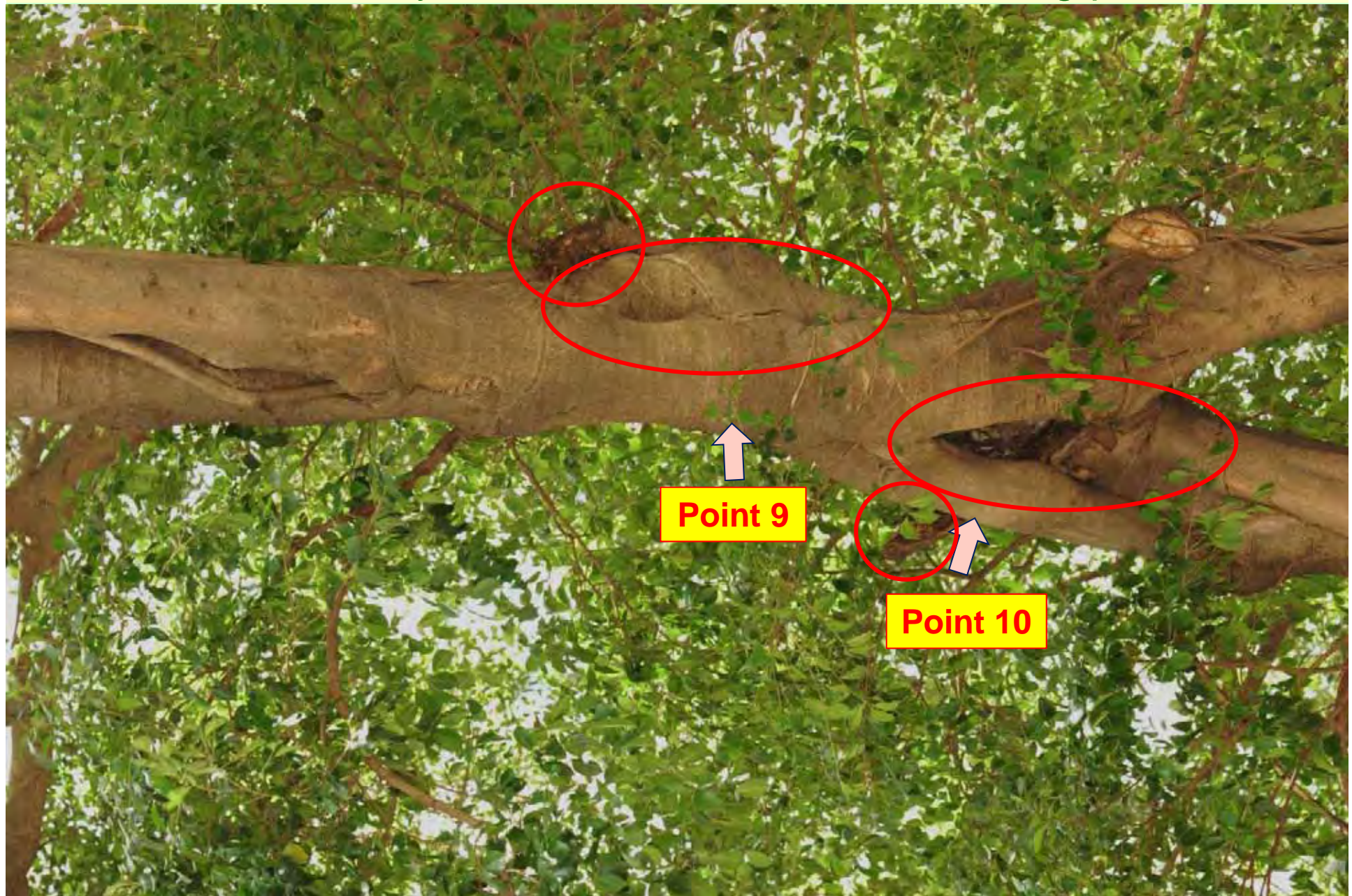


Photo T2-62. Bulgewood in Stem C branch indicating possible internal decay.



Photo T2-63. Decay of stub at stem C branch may extend into the parent branch.



Photo T2-64. Tipped branch of stem C with longitudinal spread of decay from the wound and dead sprouts.



Photo T2-65. Stem C branch with crack at the crotch.



T3

Tree T3 Part A
Overall tree structure and condition

Photo T3-1. The tree in relation to its neighbours to the left, namely T4, T5 and T6.



Photo T3-2. Tree scaffold and crown viewed from the north at Bonham Road.



Photo T3-3. Tree scaffold and crown viewed from the west at St Stephen's Lane.

T2's crown



T4

T3

Photo T3-4. Tree scaffold and crown viewed from the south at St Stephen's Lane.



Photo T3-5. Three trunks of the tree, with stem C truncated (oval) and connected to stem B via a cluster of lignified aerial roots.



Photo T3-6. Three trunks of the tree viewed from the south at St Stephen's Lane.



Tree T3 Part B
Assessment of surface roots and interface
with the stone wall

Photo T3-7. Limited spread of surface roots, cement filling of wall joints, and restriction to root penetration at wall toe.



Photo T3-8. Relationship between tree and wall crest, viewed from the east.



Photo T3-9. Relationship between tree and wall crest, viewed from the west.



Photo T3-10. Relationship between tree and wall crest, viewed from the south. Shifted masonry block.



Tree T3 Part C

Assessment of tree crown

Photo T3-11. Dense and healthy foliage at the centre of the crown.



Photo T3-12. Dense and healthy foliage at the edge of the crown.



Tree T3 Part D
Assessment of trunks and branches

Photo T3-13. Truncated stem A that crosses with neighbour tree T4.



Photo T3-14. Close-up view of the decayed tip of truncated stem
A.

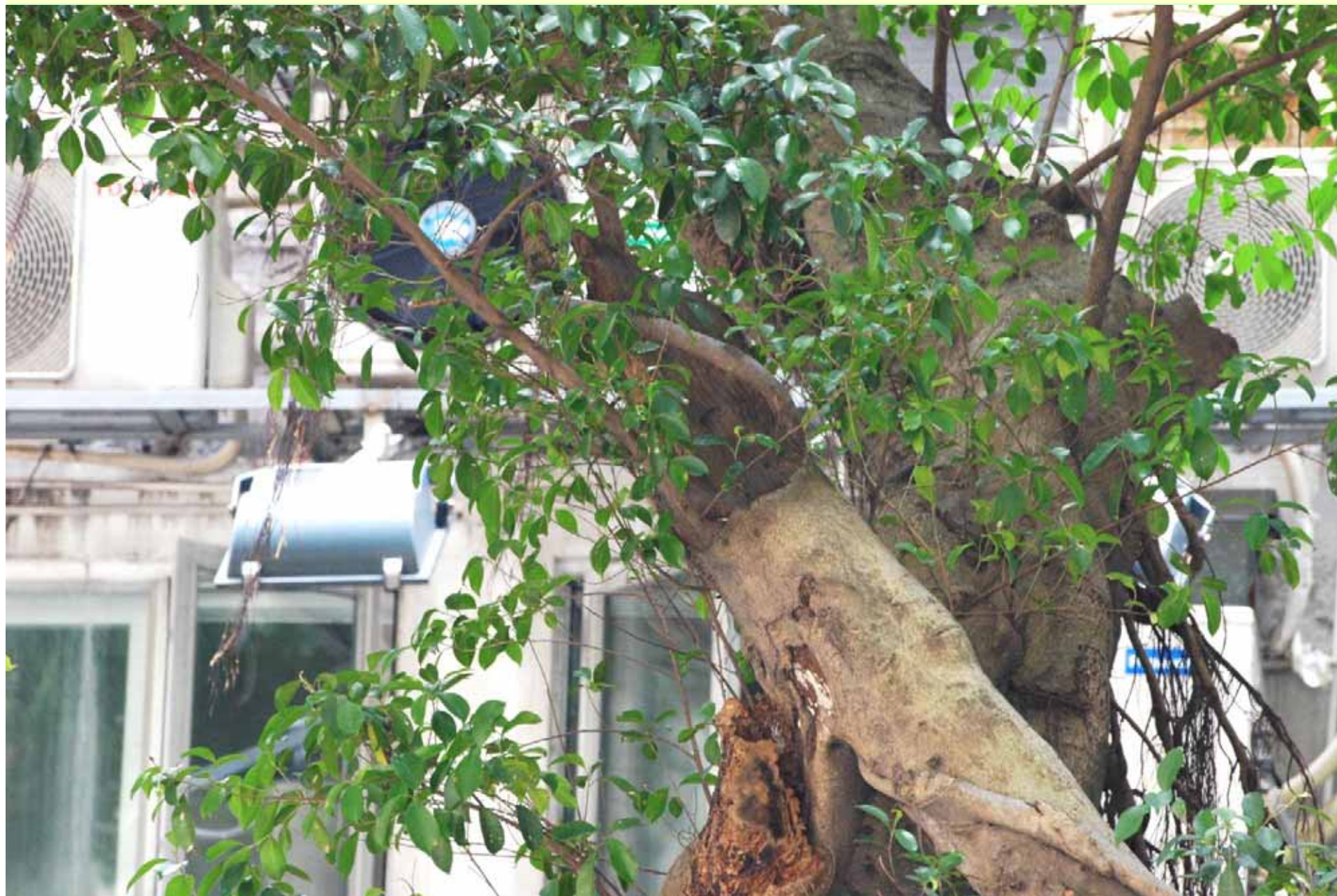


Photo T3-15. Wounds left by limb removal from stem B have developed decay and cavity.



Photo T3-16. Low, upward-curving and truncated (circle) limb of stem B supports two long ascending epicormic branches (arrows).



Photo T3-17. Long epicormic branch emerges with an elbow joint from a branch-cut wound.



Photo T3-18. A top branch of stem B was tipped and has developed a series of long replacement epicormic branches.



Photo T3-19. Decayed wounds at the stubs of truncated branches at stem B.



Photo T3-20. Truncated stem C with advanced decay at the large wound.



T4

Tree T4 Part A
Overall tree structure and condition

Photo T4-1. The tree in relation to its neighbours T5 and T6 (left), and T3 (right).



Photo T4-2. The twin-stem tree viewed from Bonham Road.



T4

Photo T4-3. The crown has partly interlocked with its neighbour trees T5 and T3.



Photo T4-4. The twin-stem tree viewed from St Stephen's Lane.



Photo T4-5. The curved stem A is propped by a cluster of lignified aerial roots. The curved stem B crosses with stem A of T3.



Tree T4 Part B
Assessment of surface roots and interface
with the stone wall

Photo T4-6. Liberal spread of surface roots on east side, and truncation on the west.



Photo T4-7. The drainage channel at the wall toe restricts root penetration into the soil below the pavement.



Photo T4-8. Partial detachment of tree based from wall crest viewed from the west.



Photo T4-9. Partial detachment of tree based from wall crest viewed from the east.



Photo T4-10. Partial detachment of tree based from wall crest, close-up view from the west.



Photo T4-11. Partial detachment of tree based from wall crest, close-up view from the east.



Photo T4-12. Partial detachment of tree based from wall crest, close-up view from the south.



Photo T4-13. East side of surface root mass with obsolete angled iron installation.



Photo T4-14. West side of surface root mass with dense and grafted roots.



Tree T4 Part C

Assessment of tree crown

Photo T4-15. Truncated tip (circle) of Stem A with large replacement epicormic branch (arrow).



Tree T4 Part D
Assessment of trunks and branches

Photo T4-16. Tipped branch of Stem A with replacement epicormic branch with elbow joint.



Photo T4-17. Hanging plastic rubbish trapped in the crown.



Photo T4-18. Basal curvature of stem A branch and decayed wound at crotch. Arrow indicates microdrilling position.

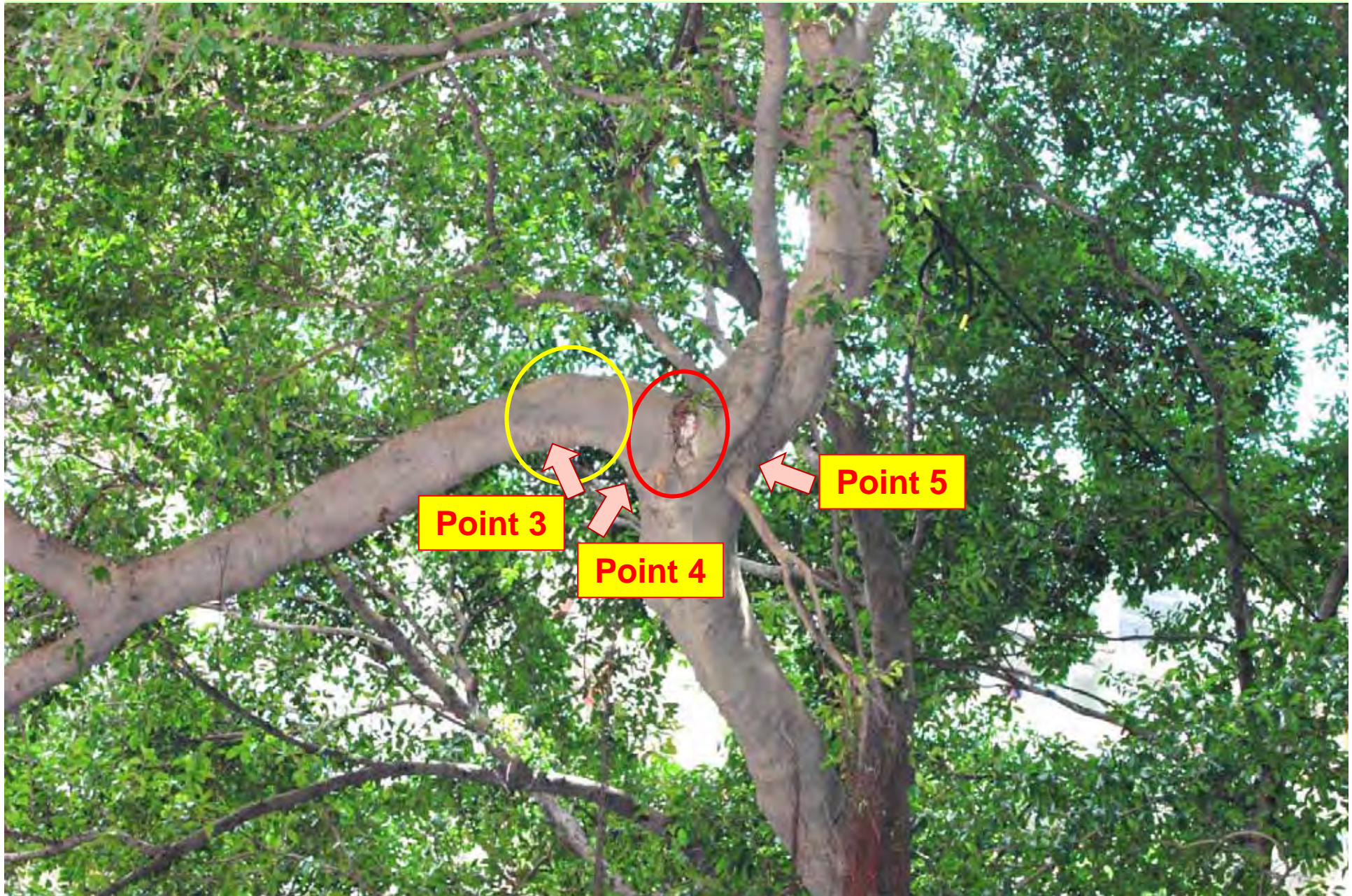


Photo T4-19. Truncated branch of stem A with decayed wound and two epicormic branches (arrows) with elbow joint (circle).



Photo T4-20. Stem A branch with fractured wound and nearby decayed stub.



Photo T4-21. Stem A branch-removal wound with decay.



Photo T4-22. Stem A branch-removal wound with decay.



Photo T4-23. Stem A branch-removal wound with decay.



Photo T4-24. Stem A branch stub with advanced decay.



Photo T4-25. Meandering shape of the lower section of Stem A.



Photo T4-26. Stem B curving backwards towards St Stephen's Lane.



Photo T4-27. Stub of stem B with advanced decay, near stem A of T3.



Photo T4-28. Branch stub of stem B with decay.



Photo T4-29. Existing Cobra cable bracing using Stem B to hold Stems A.



Tree T4 Part E
Proposal for tree support systems

Photo T4-30. Method A: Proposed cable bracing system anchored on the structural columns or beams of a nearby building at St Stephen's Lane.

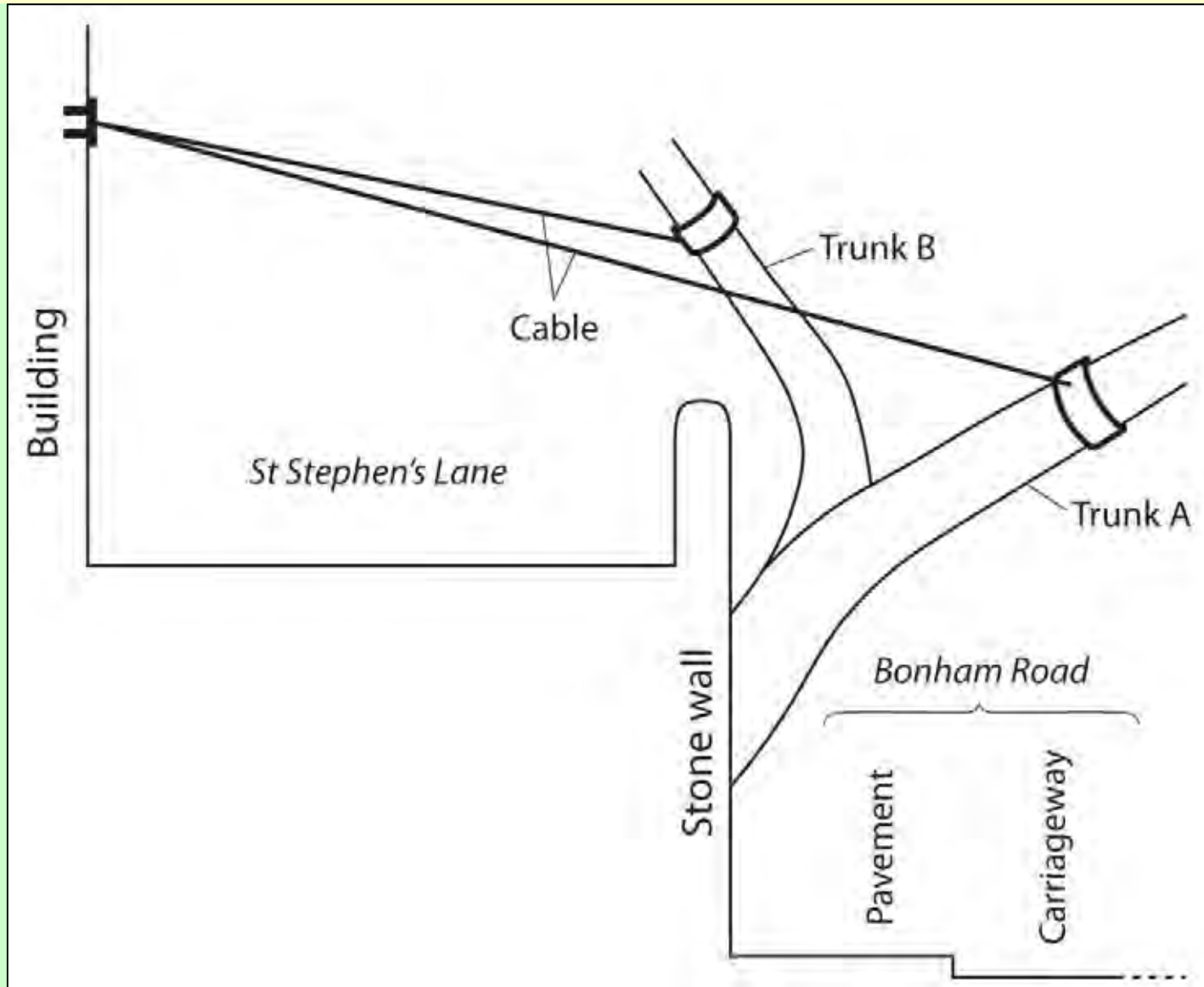
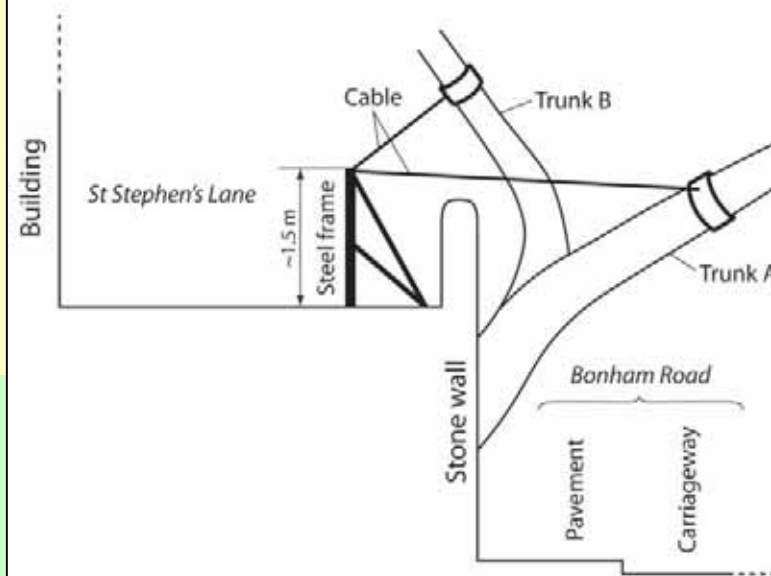


Photo T4-31. Method B:
Proposed cable bracing system
with the help of a steel frame to
be anchored on the northern
edge of St Stephen's lane.

(a) General design



(b) Steel frame



(c) Cable bracing

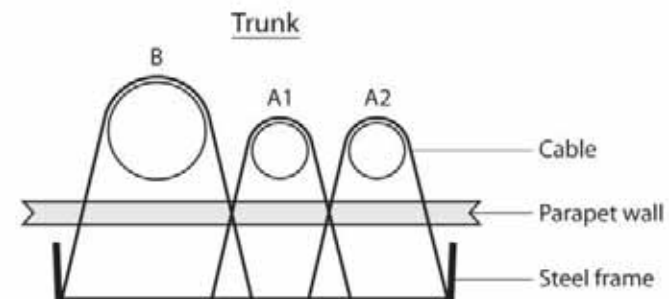


Photo T4-32. Method C: Proposed propping system with the help of a steel frame to be installed on the southern edge of the pavement at Bonham Road.

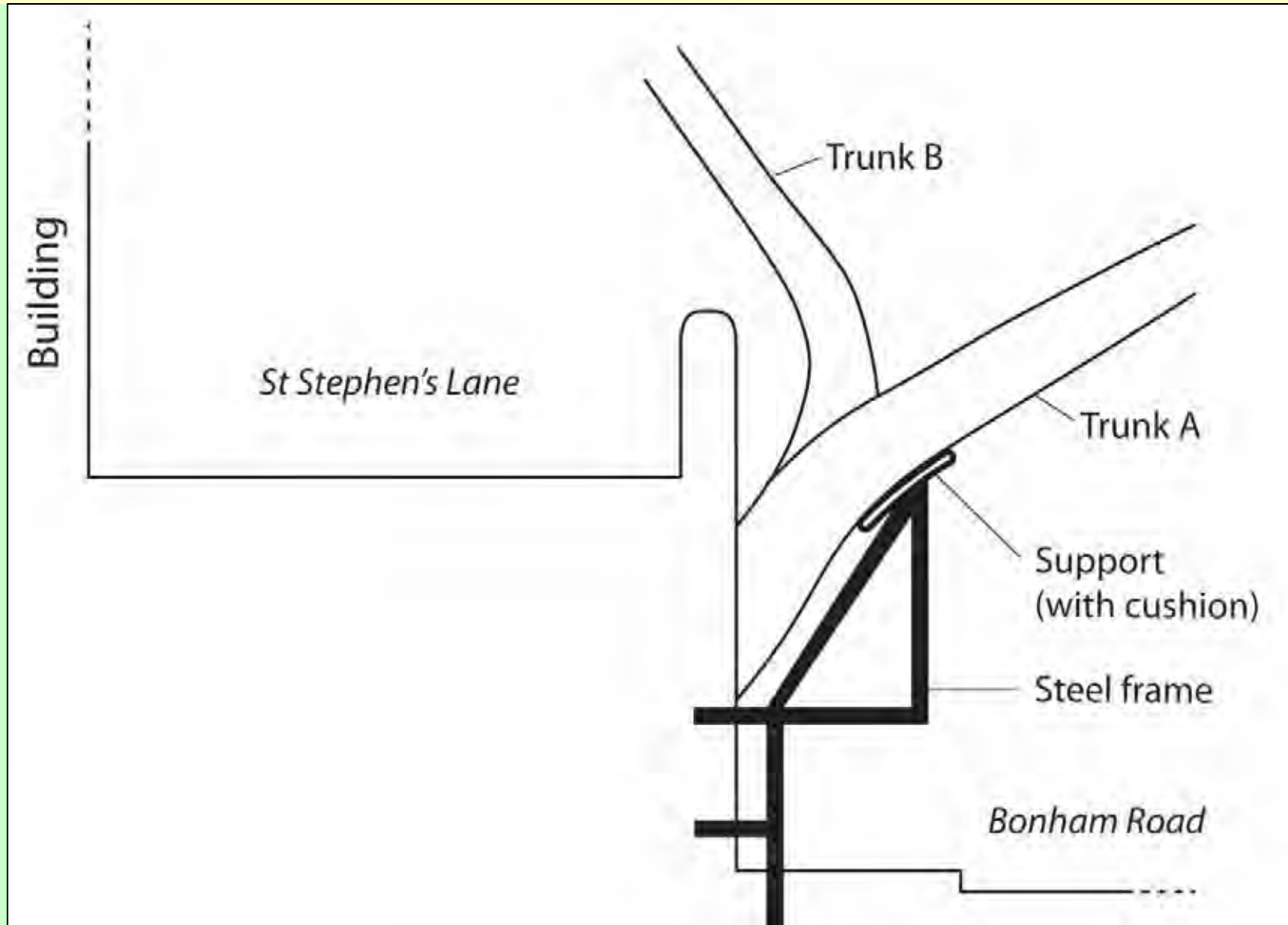
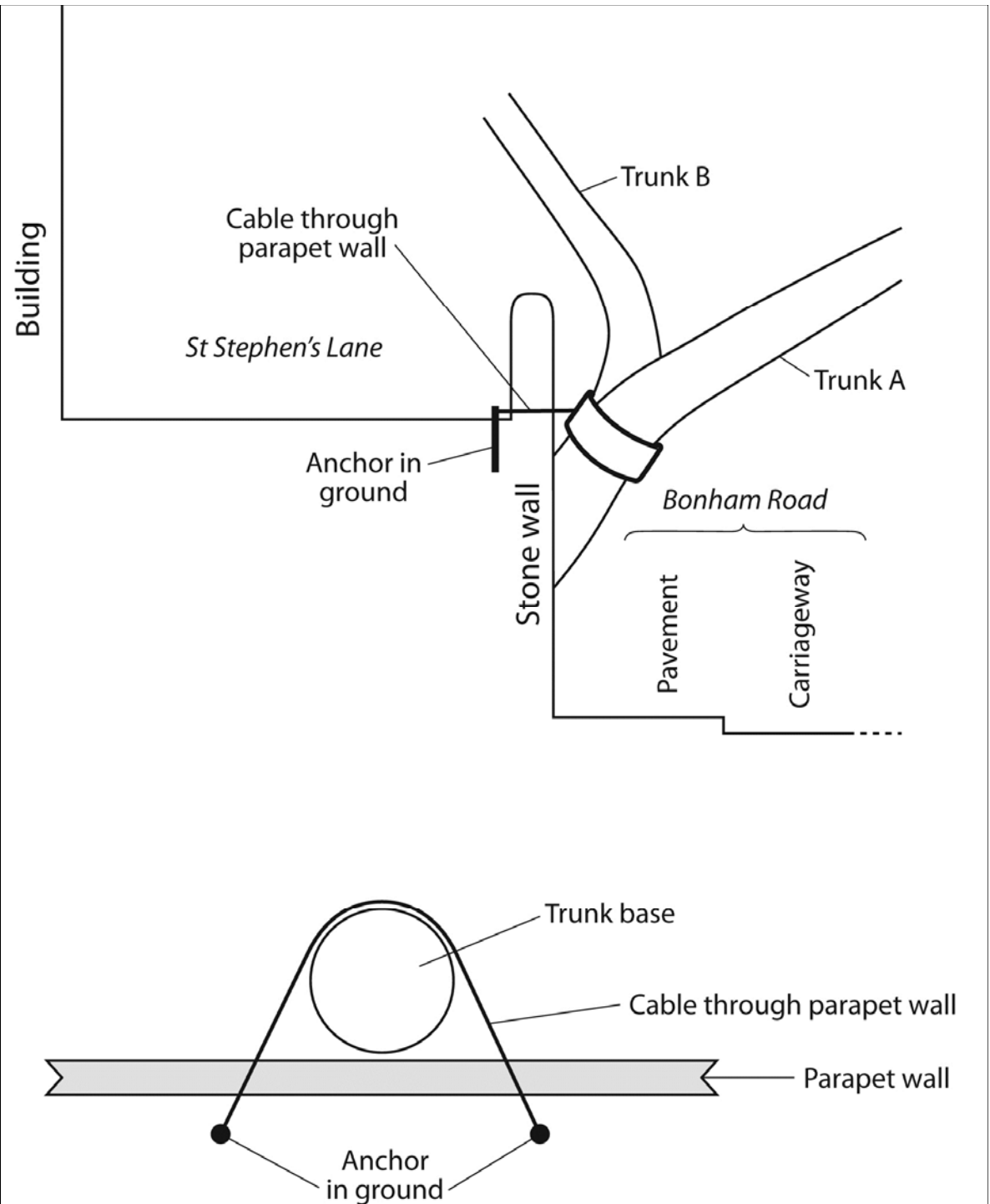


Photo T4-33. Method D:
Proposed temporary
cable bracing to be
anchored in the ground
at St Stephen's Lane.



T5

Tree T5 Part A
Overall tree structure and condition

Photo T5-1. The tree in relation to neighbours T6 (left) and T4 and T3 (right)



Photo T5-2. The rather upright tree with single trunk viewed from Bonham Road.



T5

Photo T5-3. The rather upright tree with single trunk viewed from St Stephen's Lane.



T5

Tree T5 Part B
Assessment of surface roots and interface
with the stone wall

Photo T5-4. Limited spread of surface roots and their grafting with neighbours T4 & T6, and restriction to root penetration at wall toe.



Photo T5-5. Relationship between tree and wall crest, viewed from the east.



Photo T5-6. Relationship between tree and wall crest, viewed from the west.



Photo T5-7. Relationship between tree and wall crest, viewed from the south. Rubbish accumulation in the gap.



Tree T5 Part C
Assessment of large basal cavity

Photo T5-8. Large cavity with decay extending from trunk base upwards. Crosses denote drilling positions.



**Strong response
wood
development at
edge of cavity**

Point 1

Point 2

Photo T5-9. Upper end of the trunk cavity with upward extension of wood decay. Cross denotes drilling position.



Point 3

Photo T5-10. Several limbs were removed from the trunk. Cobra cable bracing linked to T4.

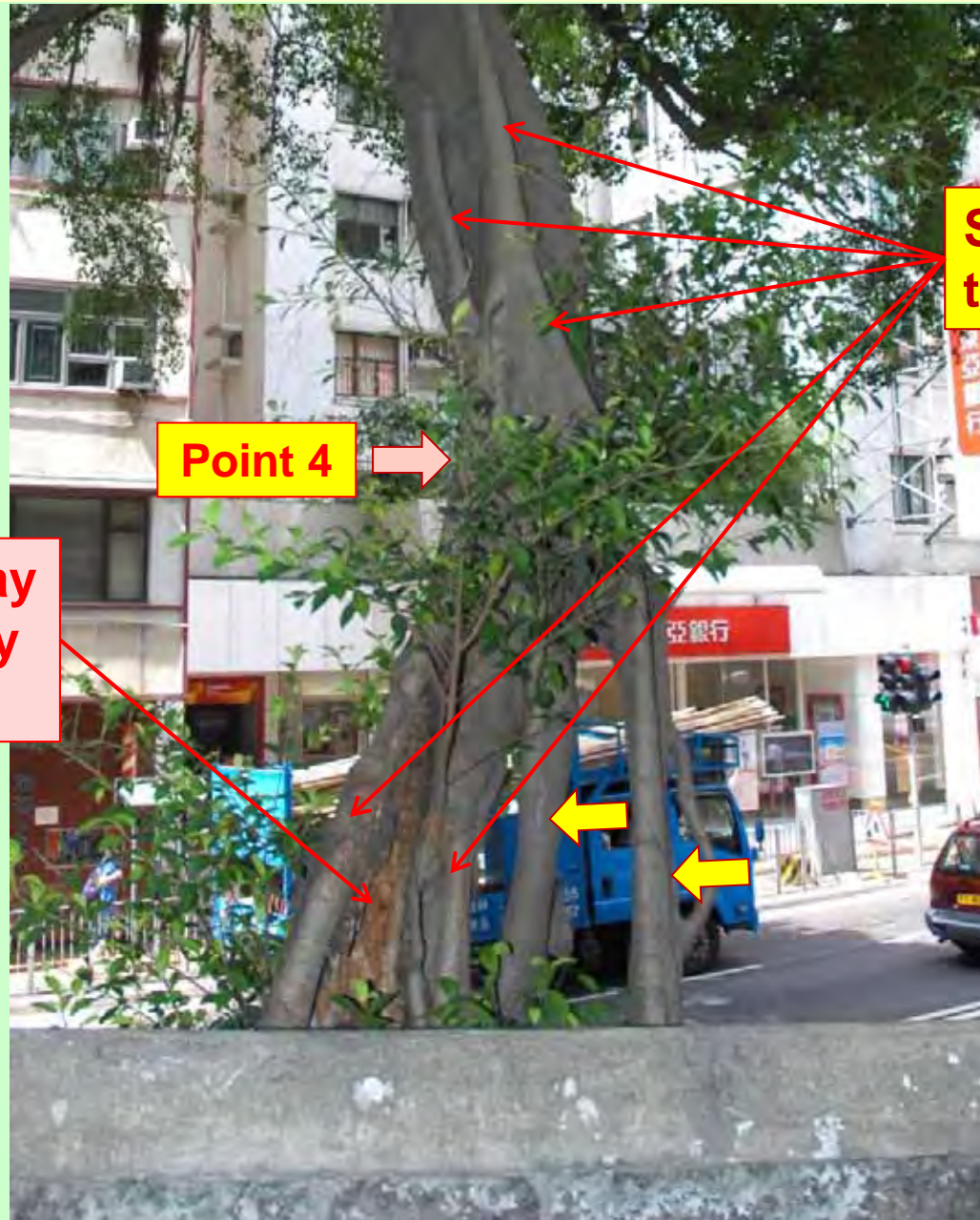


Photo T5-11. Reinforcement of decayed and hollowed trunk base by two strong lignified aerial roots and thickened root prop.

Notably thickened root prop



Photo T5-12. Reinforcement of decayed trunk base by two strong lignified aerial roots (arrows). Pink arrow denotes drilling position.



Advanced decay and large cavity at trunk base

Point 4

Strong response tension wood

Photo T5-13. Significant response wood development in lignified aerial root to compensate for trunk decay and cavity formation.



Tree T5 Part D
Assessment of tree crown

Photo T5-14. Narrow crown trapped between T4 and T6.
Truncated branch & elbow joint holding long epicormic branches.

Truncated branch
end with decay
holding several
elongated
epicormic branch

Heavy epicormic
branch attached
to parent stem
with elbow joint



T4

T5

Tree T5 Part E
Assessment of trunks and branches

Photo T5-15. The limited crown development with only two rather upright limbs with V-crotch (circle) and few branches.



**Upright
limbs with
intervening
V-crotch**

Photo T5-16. Branch stub on trunk with decay.



Photo T5-17. Seam and slight bulge on heavy limb with possible internal decay. Arrow denotes drilling position.



Photo T5-18. Existing Cobra cable bracing using T6 to hold T4 stem A.



Tree T5 Part F
Proposal for tree support systems

Photo T5-19. Method A: Proposed cable bracing system anchored on the structural columns or beams a nearby building at St Stephen's Lane.

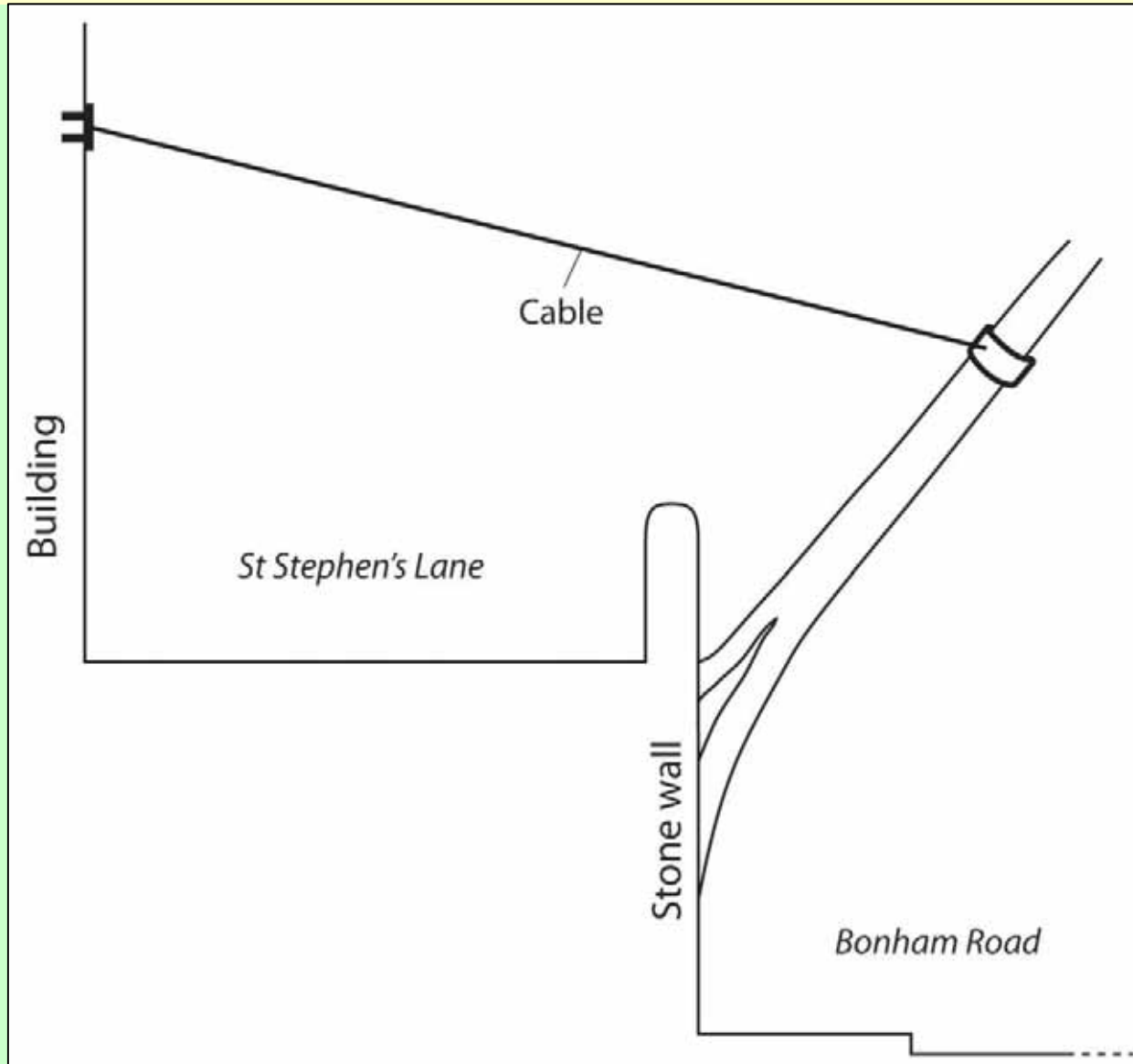
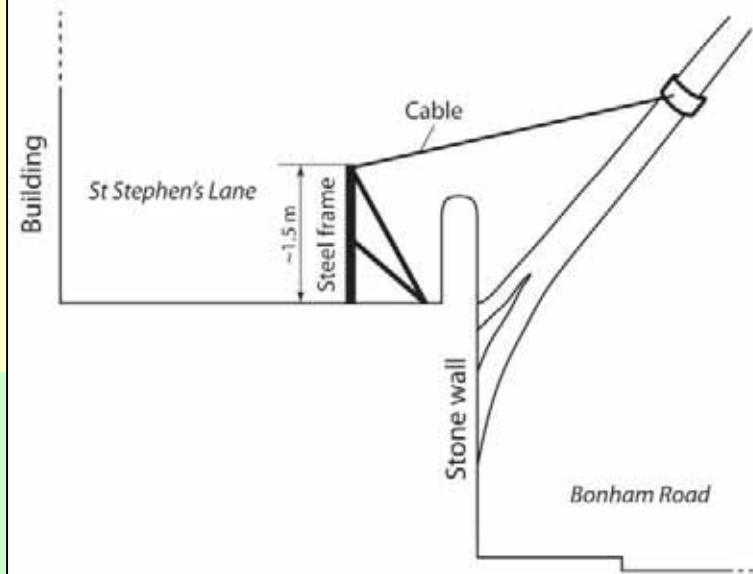


Photo T5-20. Method B:
Proposed cable bracing system
with the help of a steel frame to
be anchored on the northern
edge of St Stephen's lane.

(a) General design



(b) Steel frame



(c) Cable bracing

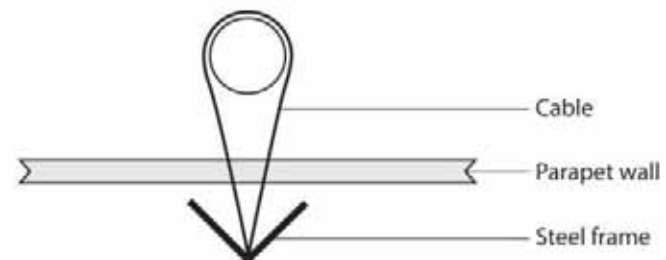
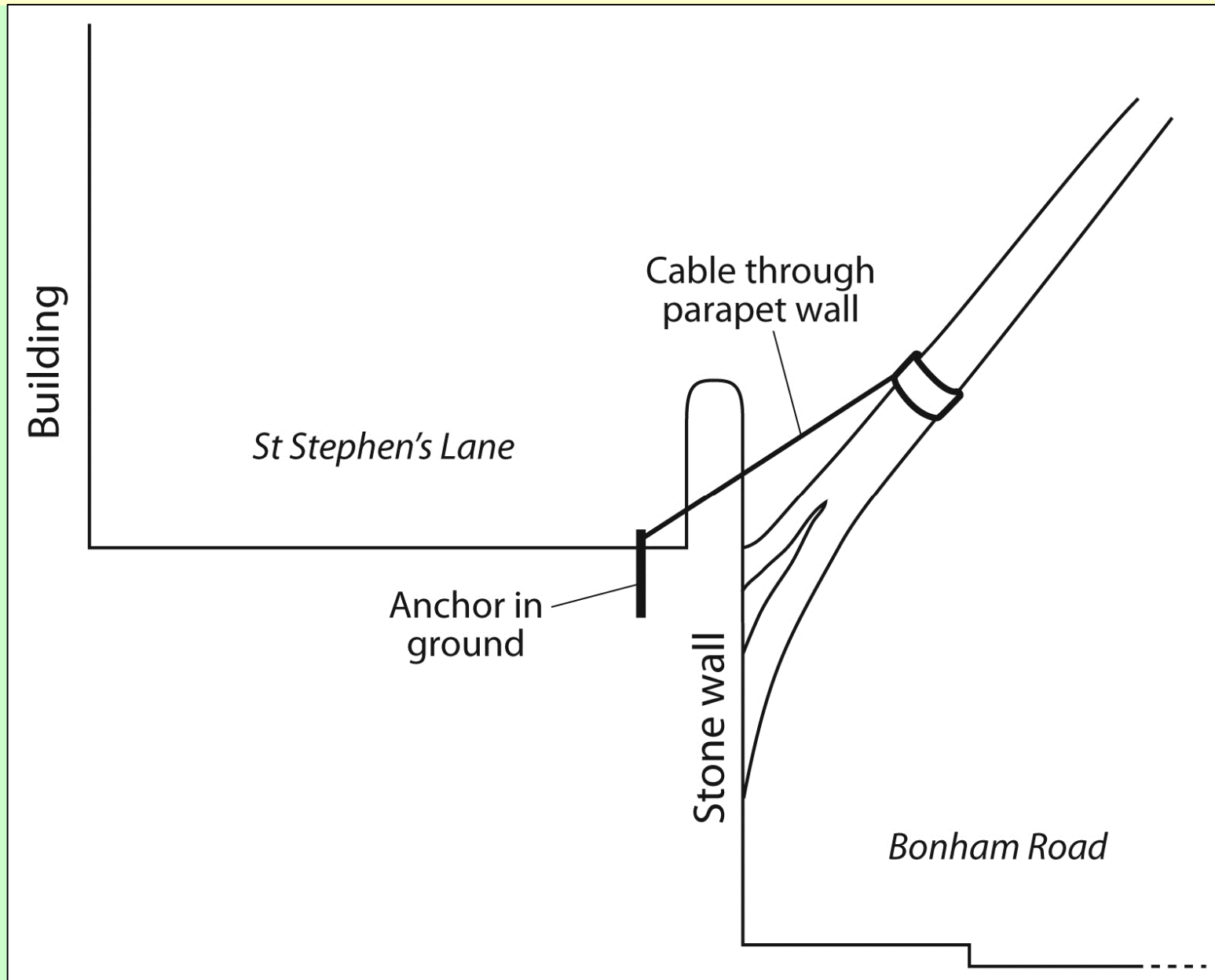


Photo T5-21. Method D: Proposed temporary cable bracing to be anchored in the ground at St Stephen's Lane.



T6

Tree T6 Part A
Overall tree structure and condition

Photo T6-1. The tree in relation to its neighbours to the right, namely T5, T4 and T3.



Photo T6-2. The relatively small tree viewed from Bonham Road, tilting mainly towards the road and to the east side.

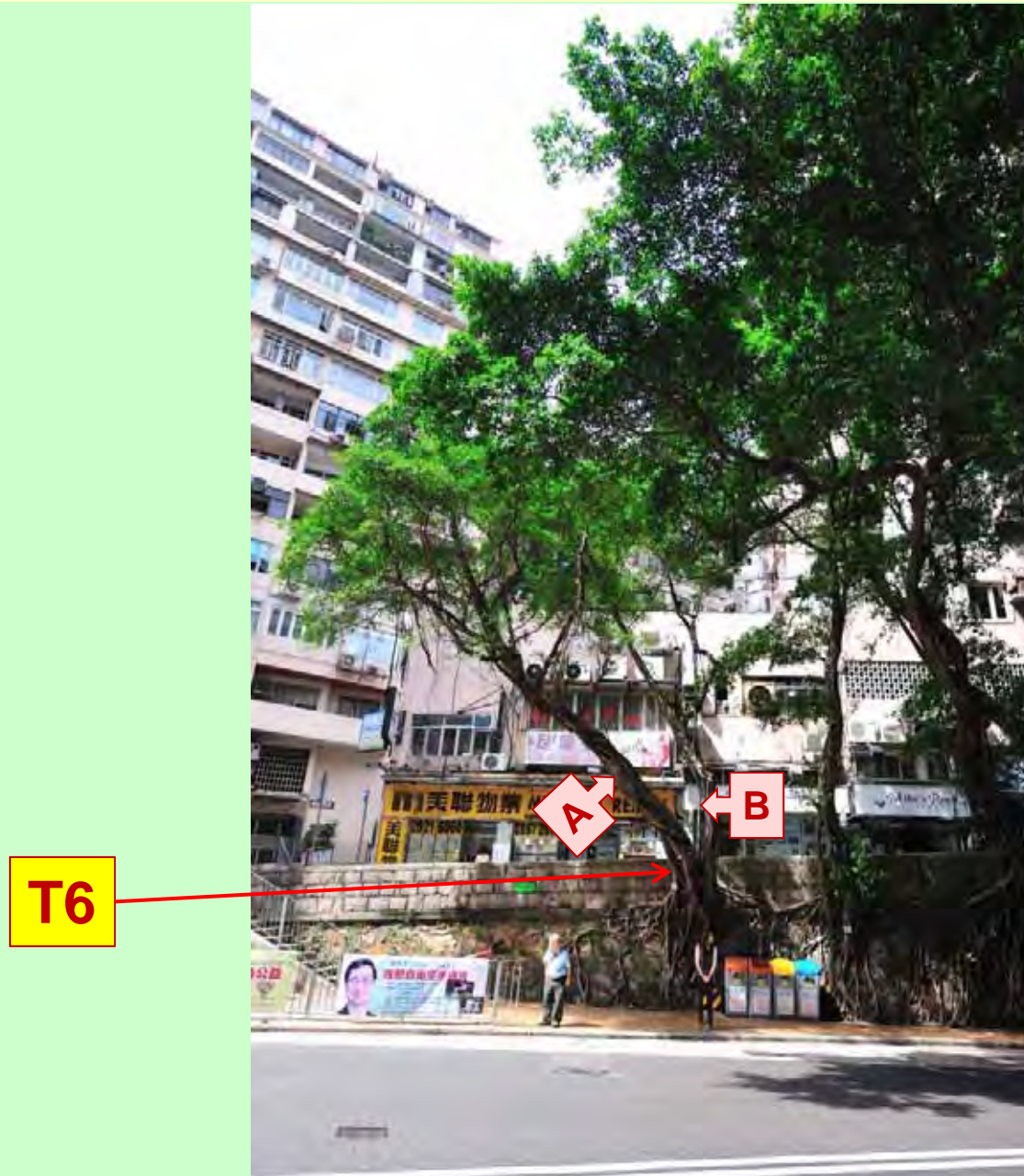


Photo T6-3. The tree viewed from the west at St Stephen's Lane, with rather low live crown ratio.



Photo T6-4. The tree viewed from the east at St Stephen's Lane, indicating tilting towards Bonham Road.



Tree T6 Part B
Assessment of surface roots and interface
with the stone wall

Photo T6-5. Limited spread of surface roots and their grafting union with neighbour T5; twin-stem tree.



Photo T6-6. Restriction to root penetration at the toe of the rather low retaining wall.



Photo T6-7. Relationship between tree and wall crest, viewed from the south.



Photo T6-8. The organic litter and rubbish accumulated in the gap between the trunk and the wall can be regularly removed.



Photo T6-9. Surface root mass on the west side with loosened mortar. Litter accumulation in surface roots.



Tree T6 Part C
Assessment of tree crown

Photo T6-10. Stem A tilts notably towards the east.



Tree T6 Part D
Assessment of trunks and branches

Photo T6-11. Rather upright epicormic branch emerging with an elbow joint from the parent stem A.



Photo T6-12. Stem B and its branches are well reinforced by lignified aerial roots. Notable loss of lower branches.



Photo T6-13. Stem B with branch removal wound and decay.





The End