



FAST TRACK APPROVALS Act 2024(FTAA 2024) TECHNICAL ADVICE

Carter Group Ōhoka Substantive Application
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File No	FTAA-2606-1253
Date	7 th October 2026
Memo To	Kate Barry-Piceno Ōhoka Residential Subdivision Expert Panel Chair
From	Dylan Pedersen, Tree Asset Officer, Waimakariri District Council
Subject	Proposed Street Trees

1. INTRODUCTION

Purpose of the Memorandum

1.1 This memo provides arboricultural advice on the proposed street tree planting and streetscape design. It assesses whether the proposed species, planting environments and street layout are likely to support the intended long-term tree and canopy outcomes, and identifies potential conflicts between tree performance, infrastructure and ongoing maintenance.

1.2 Document(s) reviewed:

- Updated Application Masterplan (DCM, September 2026)

1.3 Key areas discussed in this memo:

- The suitability of the proposed street tree species.
- The adequacy of the rooting environment to support mature tree development.
- The interaction between street trees, swales and transport infrastructure.
- Potential canopy, parking and maintenance conflicts.
- The likely long-term performance and viability of the proposed streetscape planting.

2. QUALIFICATIONS

2.1 I hold a National Certificate in Arboriculture (level four), National Certificate in Utility Arboriculture (level four), and a National Certificate in Horticulture. I am also qualified in Quantified Tree Risk Assessment (QTRA) through the International Society of Arboriculture (ISA).

2.2 I have over 13 years of industry experience in arboriculture and vegetation

management, with expertise spanning public vegetation management, tree risk assessment, asset management, vegetation planning, and consultancy services. My professional experience includes the assessment and management of trees within public spaces, providing technical arboricultural advice, developing vegetation management strategies, and supporting planning and asset management outcomes for local government and private industry.

3. CODE OF CONDUCT

- 3.1 I confirm that I have read and agree to comply with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023. This technical review has been prepared in accordance with that Code. In particular, unless I state otherwise, the opinions I express are within my area of expertise, and I have not omitted to consider material facts that might alter or detract from the opinions that I express.

4. KEY ISSUES

Constrained rooting environment

- 4.1 Trees should be centrally located within a berm width (excluding cut-outs and swales). The following trees require a berm width of not less than three metres: *Quercus robur*, *Quercus coccinea*, *Quercus palustris* and *Fraxinus excelsior* 'Green Glow'. Offsetting these species within the berm will constrain the available rooting environment and increase the risk of root growth beneath adjacent footpaths and road pavement.
- 4.2 Compaction associated with transport infrastructure further encourages shallow root development, increasing the risk of pavement displacement and infrastructure damage. Based on the notional root zone approach in AS 4970:2025 ('*Protection for Trees on Development Sites*'), the available planting environment would not adequately accommodate the expected mature root structure of these species.

Root zone compaction

- 4.3 Flush and mountable kerbs adjacent to trees, together with parking cut-ins, berm parking and carriageway proximity lead to vehicle loading within the anticipated notional root zone causing soil compaction. This constrains root growth and reduces the ability of the rooting environment to support long-term tree establishment and viability of reaching maturity.

Berm swale design

- 4.4 The applicant has not demonstrated that the proposed street tree planting is compatible with the swale design. Trees planted adjacent to swales will be subject to substantially different soil moisture conditions within the same root zone, including periodically saturated, low-oxygen soils beneath the swale and comparatively drier conditions beyond it. These conditions are also likely to vary significantly on a seasonal basis. The proposed species selection does not demonstrate an appropriate response to these site-specific hydrological conditions or the resulting constraints on long-term tree establishment and performance.

- 4.5 In several locations, trees are positioned between the swale and footpath, including the offset planting arrangement shown on the 20 metre road cross-sections. This reduces the available rooting environment and shifts planting closer to fixed infrastructure, increasing the likelihood of future root conflicts with adjacent footpaths and other assets. Collectively, these factors raise concerns regarding the long-term viability of the proposed street tree planting.

Mature canopy effects

- 4.6 The proposed oak species are large-growing trees capable of achieving canopy spreads exceeding 15 metres at maturity. The berm widths proposed do not provide a planting environment capable of supporting trees of this scale without substantial engineered rooting infrastructure. As a result, long-term viability of the trees will be constrained by limited rooting volume and conflicts with adjacent infrastructure. The mature canopy form illustrated in the application visualisations ('Illustrative Renders') is therefore unlikely to be achieved under the proposed conditions.

Tree form and maintenance

- 4.7 The three 22 metre road layout designs will require ongoing clearance pruning to maintain varying road and pedestrian clearance requirements. This will result in unbalanced canopy development, as growth is repeatedly removed from the lower canopy at varying heights resulting in unbalanced scaffold branch development. Over time, canopy asymmetry and branch isolation will increase the risk of branch failure and require increased maintenance standards beyond council specifications and service levels.
- 4.8 Trees should be centrally located within a berm width (excluding cut-outs and swales). The following trees require a berm width of not less than three metres: *Quercus robur*, *Quercus coccinea*, *Quercus palustris* and *Fraxinus excelsior* 'Green Glow'. Offsetting these species will constrain the available rooting environment and increase the risk of root growth beneath adjacent footpaths and road pavement.

Parking and canopy conflict

- 4.9 Locating parking beneath mature oak canopies creates an inherent conflict between vehicle use and tree function. As trees mature, acorn and seasonal leaf fall will generate ongoing nuisance, maintenance demands, and concerns regarding vehicle cleanliness or damage. Oak species are also susceptible to aphid activity, resulting in honeydew deposits and associated sooty mould on vehicles, footpaths and surrounding surfaces.
- 4.10 The resulting pressure for pruning, canopy management and litter control will conflict with natural tree form and function. As a result, the proposed arrangement creates an ongoing operational conflict between parking activity and successful mature tree establishment.

Species suitability

- 4.11 The large growing species are poorly suited to the proposed street environment due to inadequate allocation of dedicated root zone area, planting location in relation to residential lot boundaries associated with their mature size, broad canopy spread,

significant seed fall, and associated maintenance burden.

5. INFORMATION GAPS/CLARIFICATION REQUIRED

- Details of available rooting volumes and any proposed engineered soil systems.
- Evidence that the proposed species can achieve their anticipated mature size within the available planting environments.
- Demonstration of species compatibility with swale hydrology and seasonal moisture variation.
- Identification of infrastructure constraints within anticipated root zones.
- Evidence supporting that the mature canopy outcomes illustrated in the application material are achievable.
- Clarification of how long-term conflicts with parking, transport infrastructure, waste collection and maintenance requirements will not exceed council's levels of service requirements.

6. AREAS OF AGREEMENT

- 6.1 This memo supports the use of street trees as an important component of urban streetscape design and recognises the benefits that large-growing canopy trees can provide where suitable planting conditions exist. It also accepts the role of swales in integrated stormwater management can be beneficial for appropriately selected tree species.
- 6.2 The 16m and 18m road corridor tree planting present viable tree species section, however, not to the scale illustrated in cross sections (the same tree illustration representing all species).

7. AREAS OF DISAGREEMENT

- Most proposed planting environments have not been demonstrated as sufficient to support the mature growth, canopy spread and long-term viability of the proposed tree species.
- Most proposed species selection has not been demonstrated as compatible with the available rooting space, street layout and surrounding infrastructure constraints.
- The suitability of locating large-growing tree species selected within, adjacent to, or influenced by swale systems is not considered viable.
- The visualised or anticipated mature canopy outcomes have not been demonstrated as achievable within the proposed streetscape design.
- Potential conflicts between mature tree growth, parking, transport infrastructure and service corridors have not been adequately resolved.
- The proposal has not demonstrated that future maintenance requirements, including pruning and infrastructure management, can be accommodated without materially altering intended tree form and canopy outcomes.
- The proposal has not demonstrated that the intended urban forest outcomes

can be achieved without creating ongoing operational or infrastructure conflicts.

- The memo does not agree that long-term management implications, including pruning requirements and infrastructure conflicts, have been sufficiently addressed.

8. RECOMMENDATIONS

Increase rooting volume

- 8.1 Provide larger planting berms with sufficient width and soil volume to support long-term root development and reduce infrastructure conflict risk.
- 8.2 This may be achieved through wider berms, relocation of infrastructure, or engineered soil systems designed to accommodate the anticipated notional root zone and future root growth.

Reduce conflicts between trees, parking and transport infrastructure

- 8.3 ... Remove parking bays from under the expected canopy spread of tree species to reduce soil compaction, improve rooting capacity and avoid long-term conflicts between vehicle occupancy and tree function.
- 8.4 Avoid flush or mountable kerbs adjacent tree planting areas to address the risks associated with vehicle loading within the anticipated root zone, or where vehicle loading cannot be avoided, provide suitable engineered soil systems to minimise soil compaction and root damage.

Species selection

- 8.5 Replace *Quercus* species and other large-growing trees with species better suited to the available planting environment, as and where adequate rooting volume at maturity cannot be achieved.
- 8.6 Species selection should respond to site constraints including available rooting area, mature canopy spread, proximity to infrastructure, swale design, maintenance requirements and parking interfaces.

Demonstrate compatibility with swale design

- 8.7 Demonstrate that proposed species will be compatible with the anticipated hydrological conditions created by the swale design, including seasonal variations in soil moisture and oxygen availability.
- 8.8 Where proposed species is deemed non compatible with swale design, provide suitable alternative tree species so that long-term health and stormwater function can be maintained without conflict.

Demonstrate long-term viability

- 8.9 Where reliance is placed on engineered soil infrastructure, provide sufficient detail to demonstrate how the required mature tree performance will be achieved.

9. OVERALL POSITION /CONCLUSIONS

- 9.1 The proposed street tree planting design raises significant concerns regarding long-term tree viability, infrastructure conflict, maintenance requirements, and the suitability of the selected species. Constrained planting spaces, extensive use of mountable and flush kerbs, integration with swale infrastructure, and the selection of large-growing species collectively reduce the available rooting environment and increase the likelihood of future conflict between trees and surrounding infrastructure assets.
- 9.2 The rooting environments provided will be insufficient to support the mature size and anticipated root development of the proposed tree species, particularly the *Quercus* species and *Fraxinus excelsior* 'Green Glow'. As trees mature, this will result in root restriction, pavement damage, constrained canopy development, reduced tree performance, and increased pressure for maintenance intervention.
- 9.3 The proposed layout will result in ongoing operational and maintenance pressures exceeding existing council maintenance cycles. This includes elevated pruning requirements, increased management of leaf and seed fall, additional swale maintenance associated with tree debris accumulation, and resident requests for service relating to shading and vehicle parking beneath tree canopies.
- 9.4 Concerns also remain regarding the compatibility of the proposed planting with the swale design, particularly where trees are located within, adjacent to, or between swales and footpaths. These locations further constrain the available rooting environment and increase the risk of future conflicts with surrounding infrastructure. Experience from comparable local streetscapes incorporating open swale designs indicates that these arrangements lead to poor root architecture, increased infrastructure damage, reduced tree viability and vigour, and elevated maintenance costs.
- 9.5 In its current form, the proposal does not demonstrate the viability of intended mature canopy outcomes without creating conflict with surrounding transport and stormwater infrastructure. A review of tree species selection, rooting volume provision, parking layout, kerb design, and tree-swale separation is recommended for the long-term sustainability and reduce future asset management risks.
- 9.6 The current design plans illustrate limited viability to achieve tree maturity and canopy coverage outcomes depicted in illustrative renders, with the trees requiring removal due to infrastructure conflict prior to reaching maturity.

