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Arboricultural Assessment of Effects and Tree Protection Plan

For
Alterations and additions to the existing property

at
142 Konini Road, Titirangi

Prepared for	**Nicholas Simpson** Elevate Planning Limited	**Prepared by**	**Sean McBride** Director
		Date	29 January 2025
		Job ref #	3155
		Reviewed by:	Tracey Funnell

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1. Instructions

1.1 The property owner proposes to undertake additions and alterations to the existing dwelling at 142 Konini Road, Titirangi. The Tree Consultancy Company have been instructed by the property owner, Hugh Johnstone, to provide an arboricultural assessment of effects of the proposal as this relates to protected trees. For this assessment, a 'protected' tree refers to a tree for which a Resource Consent is usually required to undertake activities to and around it that may affect its wellbeing. The scope of services is as follows.

- Review the information provided, carry out a site visit and ground-based visual tree inspection
- Liaise with the project team around arboricultural limitations. Assist with design alternatives
- Prepare a GIS Tree Plan, depicting the extent of vegetation clearance and provide a tree protection methodology
- Prepare an arboricultural assessment, detailing our findings.

2. Site description and proposed activities

2.1 The subject site is a 1763 m^2 residential site on the southern side of Konini Road, near Kopiko Road, Titirangi. According to the Unitary Plan, the site is in the Residential – Large Lot zone (Figure 1). An existing dwelling is at the property, and works are currently being undertaken internally as part of the alterations. From Konini Road, the existing driveway traverses up to an area, where an existing carport and shed used to be located. These buildings have been removed, and earthwork and retaining wall construction for a new garage has been completed. As part of the proposal, formalising the widening of the driveway will occur. A large proportion of the northern property is covered with a Significant Ecological Area overlay (SEA).

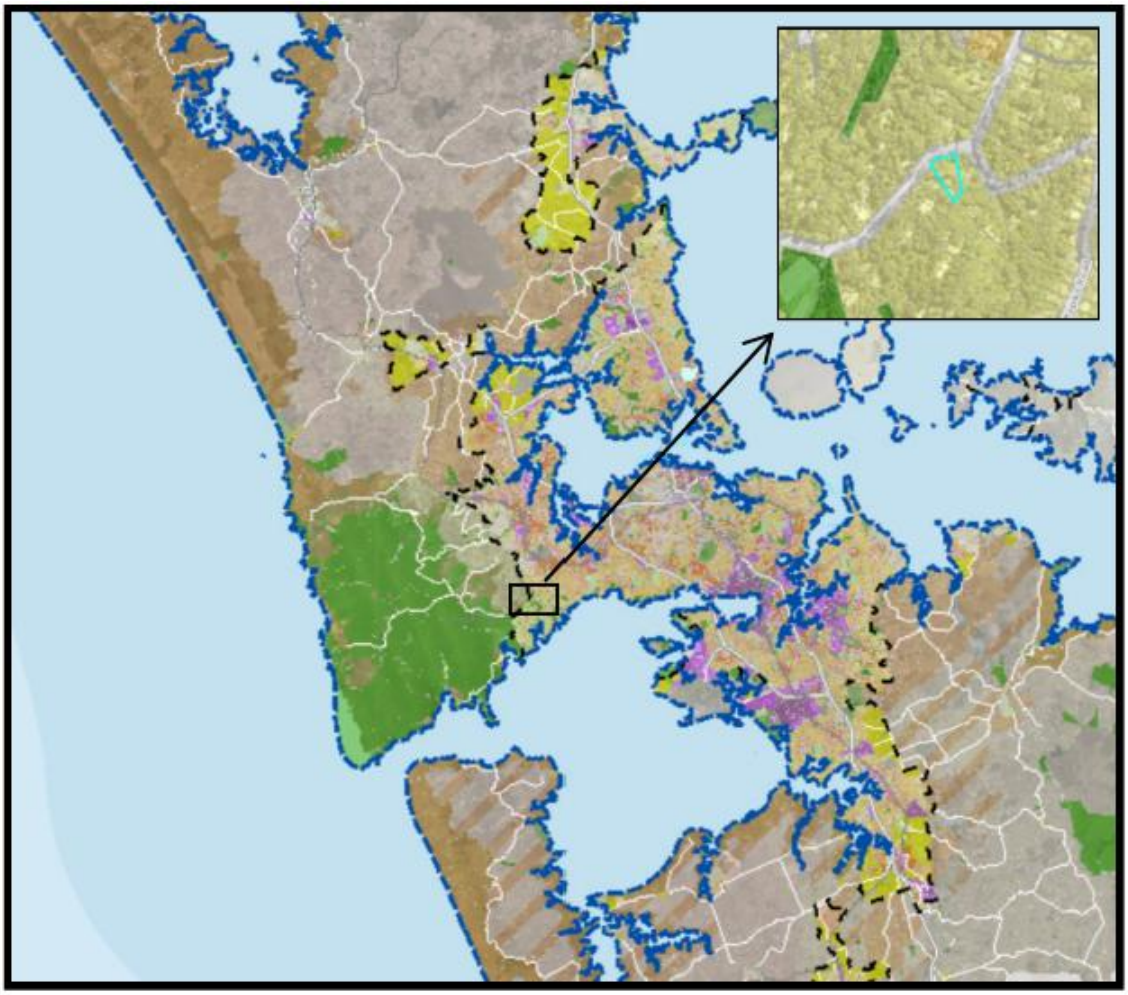


Figure 1: Site location (black rectangle – main image; blue outline (142 Konini Road – inset). Source – Auckland Council GeoMaps

2.2 It is proposed to undertake additions to the existing dwelling, by extending the footprint to the south (which is outside of the SEA). To the north of the existing dwelling, a new garage will be constructed, that is to be surrounded by a retaining wall to raise the finished floor level. This retaining wall will then continue down towards the existing driveway, which is proposed to be slightly widened (≈500 mm) on its northern side. To construct the driveway extension, the ground will be excavated to prepare and pour the new concrete. The driveway works are also within the SEA. The proposal is depicted and described on the information referenced below which has been relied upon for this assessment of effects.

- Walker Engineering Consultants Limited structural and civil engineering drawings (Job # 24106, dated November 2024, Rev 1)
- Technitrades Architecture Limited architectural drawings, dated 10 December 2024, Revision A.

3. Site investigations and methodology

3.1 I visited the site on the 10th of January 2025 to undertake an arboricultural site survey of the trees within the SEA and road reserve which are potentially impacted by the proposal. For each individual tree, I recorded its species and general condition. Given the trees are within a SEA and are part of a wider native forested area, I grouped many of the trees, in relation to various areas of the proposed works (i.e. those adjacent to the existing driveway, and to the rear of the proposed garage). Of the trees visually inspection, I also made qualitative observations of tree condition (form, structure, vitality) and made quantitative estimates of live crown volume, which can help to inform the overall picture of tree vitality. The design drawings referenced in 2.2 were georeferenced into a field data collection app, to assist in visually assessing the location of the proposed works in relation to the existing trees.

3.2 For trees that have not been positioned by a surveyor, I have manually plotted these into geospatial software (QGIS), utilising aerial images and obvious site features that can be seen. The location of the grouping of vegetation must be treated as approximate only. With the works that have recently occurred on site, I have sufficient confidence that I can accurately assess the potential impacts on the trees without their location being accurately surveyed.

4. Summary of tree details

4.1 There are three key areas where SEA vegetation withing the site could be impacted by the proposed works. They are:

- Area 1 – To the north-west of the existing dwelling where new paved stairs are to be constructed
- Area 2 – Surrounding and adjacent to the proposed garage
- Area 3 – Adjacent to either side of the existing driveway and vehicle crossing.

4.2 The three areas and the key site features are shown on the site plan (3155_001_A) in Appendix C, with a summary of vegetation description provided below.

4.3 Area 1 comprises mainly small-growing native vegetation, including tree ferns, whitewood, mapou and hoheria. The vegetation sits behind an existing stone wall, which will be acting as a form of barrier for tree roots to grow towards the proposed paved steps. It is also noted that the existing topography plan shows existing paving within this area.

4.4 Area 2 surrounds the eastern and northern side of the proposed garage, where a retaining wall has been constructed, along with the soil levels being raised. The native vegetation that is present in Area 2 comprises tree ferns, mapou, whiteywood, coprosma and nikau. On the proposed garage's northern side is a cleared area, approximately 3 m from the retaining wall edge. One whiteywood, off the north-eastern garage corner, exhibits internal decay and cracking in the main stem (Figure 2).

Figure 2: Whiteywood, with decay and cracking in the trunk (arrows)

4.5 Directly adjacent to the existing driveway are groupings of nikau and two 10-12 m tall kanuka trees. They are positioned within 1m from the existing driveway edge and are set slightly lower than the existing driveway surface. Immediately off the south-eastern driveway edge is a mature kanuka that has had excavations occur near the trunk base, where a new retaining wall has been built. Extensive exposed roots are present (Figure 3).

Figure 3: Mature kanuka with extensive root severance present.

5. Arboricultural assessment of effects

5.1 All construction projects carry an inherent risk of damage to nearby trees. Such damage can be caused by machine tracking through tree root zones, soil churning and soil compaction in tree root zones, overhead branch strikes, spillage, or discharge of phytotoxic substances such as petrol or diesel. These sorts of collateral impacts can, in extreme cases, cause damage to trees, but can be practicably managed through an arboricultural work specification. A critical component of this is to appoint an appropriately qualified and experienced supervising arborist to assist with the work. The assessment of effects in this section is predicated on the recommended tree protection measures in Appendix A being implemented on site during construction.

5.2 For the most part, the earthworks to construct the new paved stairs, garage and retaining wall works have been completed. In light of this, the impacts to construct the structures will be minimal, as these are generally above ground (to avoid roots), however, the impacts of the historical earthworks won't be fully known on the trees until several years. The exception to this is the whiteywood and kanuka trees shown in Figures 2 and 3, along with several trees adjacent to the driveway.

5.3 The Whiteywood exhibits significant decay on the tree, along with cracking in the trunk, which appears to have been there for a short time. With the significant structural alteration that has occurred to the trees' trunk, removal will be required to minimise potential damage to surrounding native plants.

5.4 Equally, the kanuka tree has sustained extensive root severance near the base on two sides of the trunk; well within what would be calculated to be the structural root zone area, where excavations need to be kept out to prevent whole tree failure. It may be several months, perhaps a year or two, before the canopy shows signs of stress from root loss; however, the principal concern is around the stability of the tree. Removal is therefore required.

5.5 The civil drawings provided, show earthwork occurring approximately 500 mm outside of the existing footprint. From my visual inspection on site, some degree of widening has already occurred (Figure 4), and it is uncertain what root disturbance resulted to the immediately adjacent kanuka and Nikau palms. It is likely that once the construction works are completed, renewing the concrete will be required, along with reconstructing the sub-base material.

Figure 4: Visible signs of driveway widening (arrow)

5.6 The edge of the current accessway/driveway is almost at the base of two mature kanuka trees, two tree ferns and a mapou. When the concrete and sub-base is lifted, it will be difficult to ensure no root damage occurs, and given the closeness of the new driveway, earthworks shown on the civil plans provided, and uncertainty on what root disturbance has already occurred, removal of the five trees is required.

6. Mitigation

6.1 An ecologist is engaged by the property owner to provide an assessment and a recommendation for mitigation planting. As ecological effects will almost certainly outweigh arboricultural effects from tree removal, I defer to the project ecologist on mitigation.

7 Statutory assessment

7.1 Chapter E15 of the Unitary Plan contains the rules for trees in urban environments and within private properties. The assessment has demonstrated that the removal of native trees from within a Significant Ecological Area overlay will take place.

7.2 Given vegetation alteration and works have occurred surrounding an existing dwelling and buildings with gross footprints greater than 100m² and smaller, along with Standards set out at E15.6 of the unitary plan, I defer to specialist planning advice on the consenting requirements of the previous and future works.

8. Conclusions

8.1 The property owner proposes to undertake additions and alterations to the existing dwelling at 142 Konini Road, Titirangi. The additions include the construction of a new garage and widening of the existing driveway, within a Significant Ecological Area overlay. Retaining wall construction and earthworks have occurred on this site, resulting in the need to remove one mature kanuka tree that has sustained root severance. A second tree (whitewood) needs to be removed due to extensive wood decay and cracking in the trunk being visible. To widen the driveway, the removal of five trees will be required, as the civil drawings show earthworks in close proximity to the base of two kanuka, two tree ferns and a mapou.

8.2 Mitigation for the vegetation loss is covered in the applicant's ecological impact assessment, and reasons for consenting triggers are covered by the applicant's planner.

8.3 As the majority of the earthworks have already been completed, the above-ground construction activities have less risk of damaging and causing effects on the retained SEA trees. This conclusion is predicated on the following recommendations being followed.

9. Recommendations

9.1 It is recommended that a suitably qualified and experienced on-site supervisory arborist (the 'supervising arborist'), be engaged at the start of the project. The role of the supervising arborist will be to coordinate, supervise, and document activities on the site that may affect vegetation, e.g., vegetation clearance, constructing the haul roads, etc.

9.2 Subject to approvals, it is recommended that vegetation removal be limited to the three kanuka, two tree ferns, one mapou and one whiteywood. The tree removal is to be carried out by trained and experienced arboricultural professionals in a manner which avoids any unnecessary damage or disturbance to any retained vegetation and their root zones.

9.3 Prior to works commencing, construction exclusion fences are to be erected around the trees as directed by the supervisory arborist, and in accordance with detail contained in Appendix B. The fence must remain in place for the duration of works. There is to be no storage or stockpiling of materials, tools and equipment within the area enclosed by the fence. The protective fence may only be removed / relocated at the direction of the appointed works arborist.

9.4 No person vehicle or machinery are to enter the area enclosed by the fence unless otherwise authorised to do so by the supervising arborist. If for any reason it becomes necessary to move the protective fence, then the area previously enclosed by the fence shall be regarded in the same way as if the fence were still in place.

9.5 Suitably visible weather-resistant signs are to be hung on each face of the fence, translated as necessary to read.

CONSTRUCTION EXCLUSION ZONE
PROTECTED TREES
KEEP OUT

9.6 Silt and sediment control measures are to consist of aboveground methods when within the root zone of trees, as per GD05 recommendations[1], e.g., a filter sock.

9.7 It is recommended that the tree protection methodology in Appendix A be followed at all times during construction.

Please contact the author for further information.

Author

Sean McBride

Director

[1] "***Do not*** *install silt fences across watercourses or in areas of concentrated flows. Avoid trench excavations within the root zones of protected trees and trees that are to be retained."* – Section F-Sediment control practices. P113

Appendix A – Tree protection methodology

1. Tree protection must form a part of any site-specific hazard management and is to be included in daily toolbox meetings and all site inductions.

2. No work shall take place within the tree protection zone of the trees without prior approval from the supervising arborist. Any amendments to the tree protection methodology shall require prior written approval from the supervising arborist. (see 3).

Pre-start

3. The person or organisation who has ultimate responsibility for the project is to engage the services of a suitably qualified and experienced on-site supervisory arborist (the 'supervising arborist'), who is to supervise and coordinate all works and activities within the root zone of protected trees.

4. Prior to any works commencing on site, the person or organisation who has ultimate responsibility for the project is to arrange a site meeting with the supervising arborist, council's monitoring officer, council's arborist and the contractor who has overall responsibility of the works. The purpose of this meeting is to discuss conditions of consent. At this meeting, the contractor responsible is to confirm to the satisfaction of the supervising arborist and council the following:

    - Programming of works
    - Tree removal and tree pruning
    - Site access, and transportation of materials
    - Temporary storage areas for materials
    - Silt and sediment controls
    - Tree protection measures including fencing
    - Excavations within the vicinity of protected trees
    - When the supervising arborist is required to be present

Reporting

5. At the completion of works, the supervising arborist at their discretion shall 'sign off' the work of the contractor, and if requested, provide a brief account of the project to the council arborist (if necessary, with photos). The account of works shall include, but not be limited to:

    - The effects of the works to the subject trees
    - Any remedial work which may be necessary

Silt and sediment control

6. Silt and sediment control measures are to consist of aboveground methods when within the root zone of trees, as per GD05 recommendations[2], e.g., a filter sock.

Trunk and branch protection

7. Prior to works commencing, the tree trunk of trees 1 and 4 must be wrapped and protected to a height of 4 m according to detail TP-03 in Appendix B. The trunk protection must remain in place for the duration of the project, be periodically checked to ensure that it is not too tight and causing damage to the trees, or not too loose that it is falling off. The trunk protection is to be removed once work is complete.

[2] "***Do not*** *install silt fences across watercourses or in areas of concentrated flows. Avoid trench excavations within the root zones of protected trees and trees that are to be retained."* – Section F-Sediment control practices. P113

Protective fencing

8. Prior to works commencing, construction exclusion fences are to be erected around the trees as shown on the appended site drawing (3123_002_A) and in accordance with detail TP-01 in Appendix B. The fence must remain in place for the duration of works. There is to be no storage or stockpiling of materials, tools and equipment within the area enclosed by the fence. The protective fence may only be removed / relocated at the direction of the appointed works arborist.

9. No person vehicle or machinery are to enter the area enclosed by the fence unless otherwise authorised to do so by the supervising arborist. If for any reason it becomes necessary to move the protective fence, then the area previously enclosed by the fence shall be regarded in the same way as if the fence were still in place.

10. Suitably visible weather-resistant signs are to be hung on each face of the fence, translated as necessary to read.

CONSTRUCTION EXCLUSION ZONE
PROTECTED TREES
KEEP OUT

11. No material is to be stored, emptied or disposed of in or around the tree protection zone of any tree unless otherwise authorised to do so by the supervising arborist. Any material which is to be stored or temporarily placed in or around the tree protection zone of any tree shall be stored carefully on an existing or temporary hard surface such as asphalt or plywood sheets, respectively.

Ground protection

12. If, during the course of the works, machinery or vehicle access / manoeuvring is required in or around the tree protection zone of any of the trees, then those areas are to be covered with a protective overlay sufficient to protect the ground from being muddied, compacted, churned up or otherwise disturbed (for example 'Track Mats', or a layer of mulch or sand/SAP7 overlaid if necessary, with a raft of wired planks, plywood or similar) (see detail TP-04).

13. If machinery / vehicles are to be operated or stored within the tree protection zone area on an existing or temporary load-bearing surface, then the machinery / vehicle shall not cause any detrimental effect to the tree(s) through compaction, physical damage, spillage of lubricants and fuels or discharge of waste emissions.

Excavations in and around root zones

14. All excavations which are to take place in or around the root zone of any of the trees shall be done so in conjunction with the supervising arborist, through a careful combination of hand digging, hydro-excavation, pneumatic excavation, and machine excavation and to the satisfaction of the supervising arborist. Where the supervising arborist deems it likely that roots will be encountered in the areas, then these areas shall first be explored using or hand tools only to check for the presence of such roots.

15. Where concrete is to be poured into excavations containing exposed roots, then all exposed roots shall first be covered in a layer of polythene to prevent the concrete from contacting the exposed root (see detail TP-06).

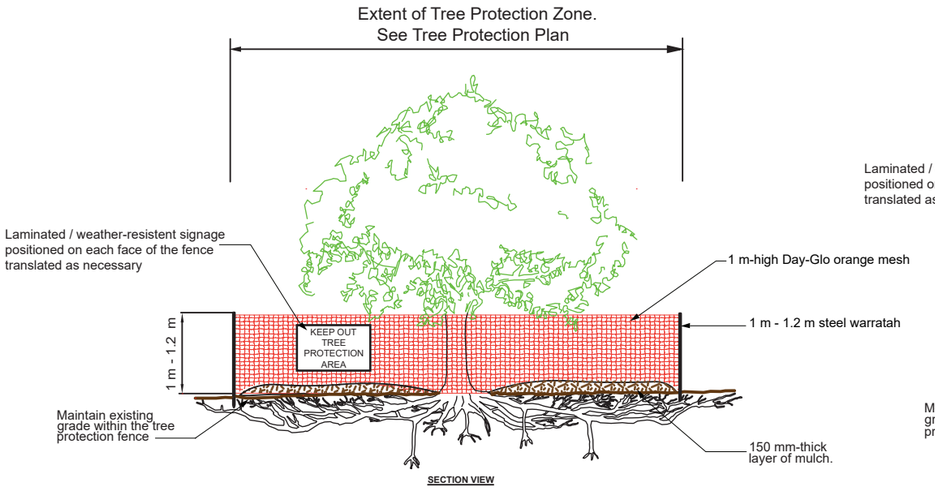
16. The cutting, breaking and lifting of any concrete and / or asphalt in and around the tree protection zone of any of the trees shall be done so in conjunction with the supervising arborist, through a careful combination of machine and hand operated equipment (for example, if the existing Blake Road concrete driveway needs to be reinstated). Ideally, the concrete / asphalt will first be cracked or broken with a steel bar or sledgehammer, and the sections carefully lifted out by hand. At the discretion of the supervising arborist, the cutting, cracking, lifting and removal of concrete / asphalt may proceed with machinery, such as a concrete cutter, and / or small excavator. All excavators and machinery shall sit on the existing concrete / asphalt surface and work slowly backwards away from the trees.

Protecting and pruning roots

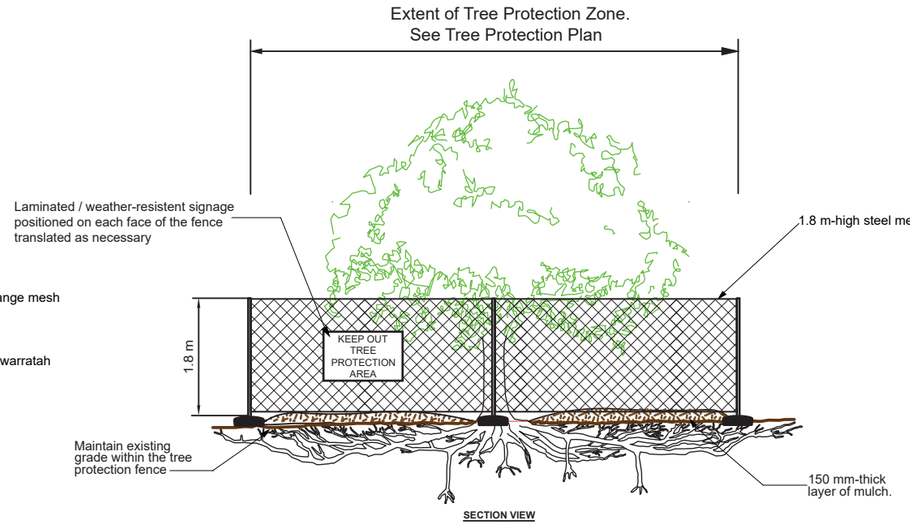
17. Every effort shall be made to avoid root severance from all trees by exploring on-site alternatives to construction / engineering. Where root severance is unavoidable, the severance of any root is to be carried out by the supervising arborist, who shall select the most appropriate implement for the task. Roots shall be cut cleanly to ensure that the traumatic cambium is able to initiate new root growth as effectively as possible, and the exposed cut faces should be covered over immediately with moist soil.

18. Where roots to be retained are encountered, and there is need for these roots to remain exposed in order that works are not impeded, then those roots shall be covered with a suitable protective material (such as moist Hessian, or a wool mulch) in order to protect them from desiccation and/or mechanical damage until such a time as the area around the root can be backfilled with the original material. The wrapping or covering of any roots shall be undertaken by the supervising arborist.

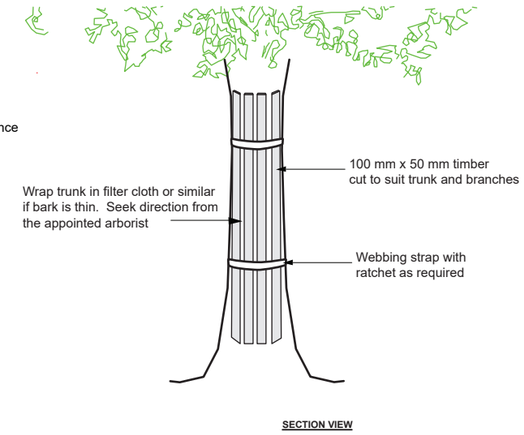
Appendix B – Tree protection details



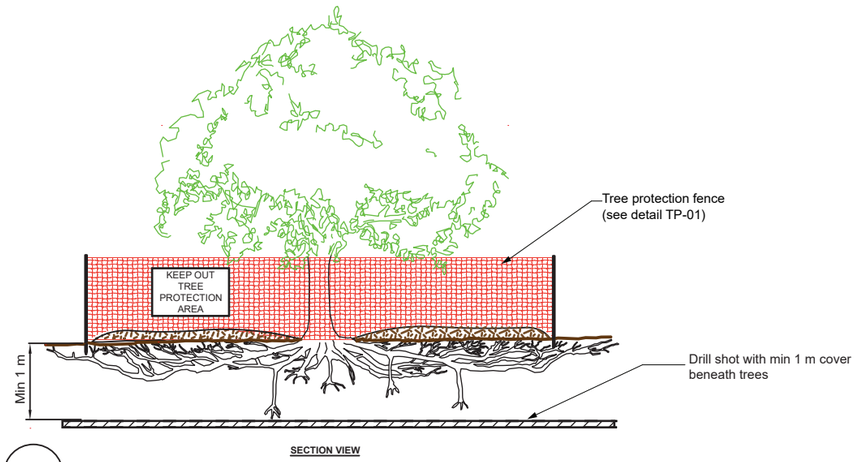
TP-01 TREE PROTECTION - TREE PROTECTION FENCING



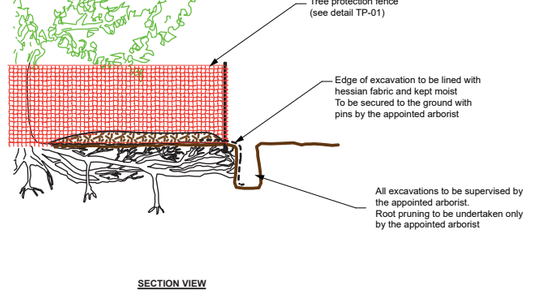
TP-02 TREE PROTECTION - TREE PROTECTION FENCING



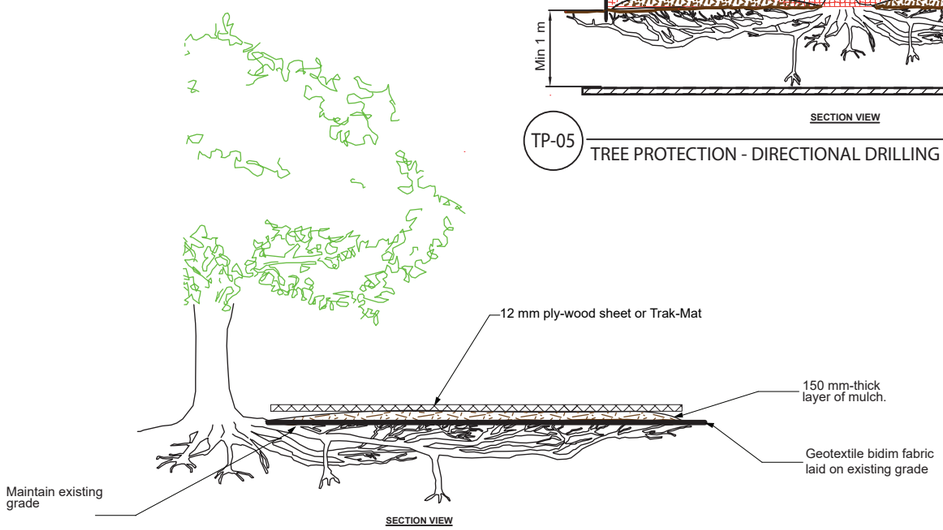
TP-03 TREE PROTECTION - TRUNK PROTECTION



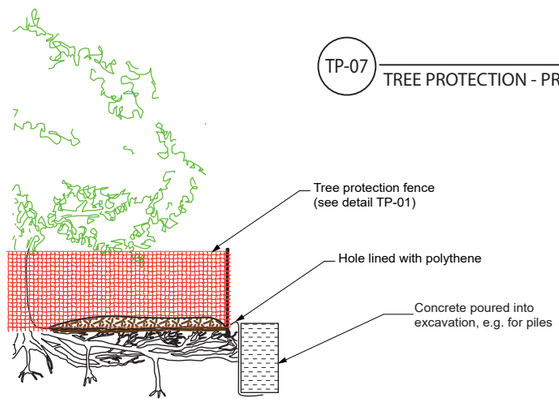
TP-05 TREE PROTECTION - DIRECTIONAL DRILLING



TP-07 TREE PROTECTION - PROTECTING ROOTS



TP-04 TREE PROTECTION - GROUND PROTECTION



TP-06 TREE PROTECTION - EXCAVATIONS CONTAINING ROOTS

All works around trees are to proceed in strict accordance with the tree protection methods
All works around trees are to be supervised by an appointed works arborist
No pruning of branches or roots unless undertaken by the appointed works arborist
No equipment or material is to enter or be stored inside the protective fence
Details scaled as shown

STANDARD TREE PROTECTION DETAIL

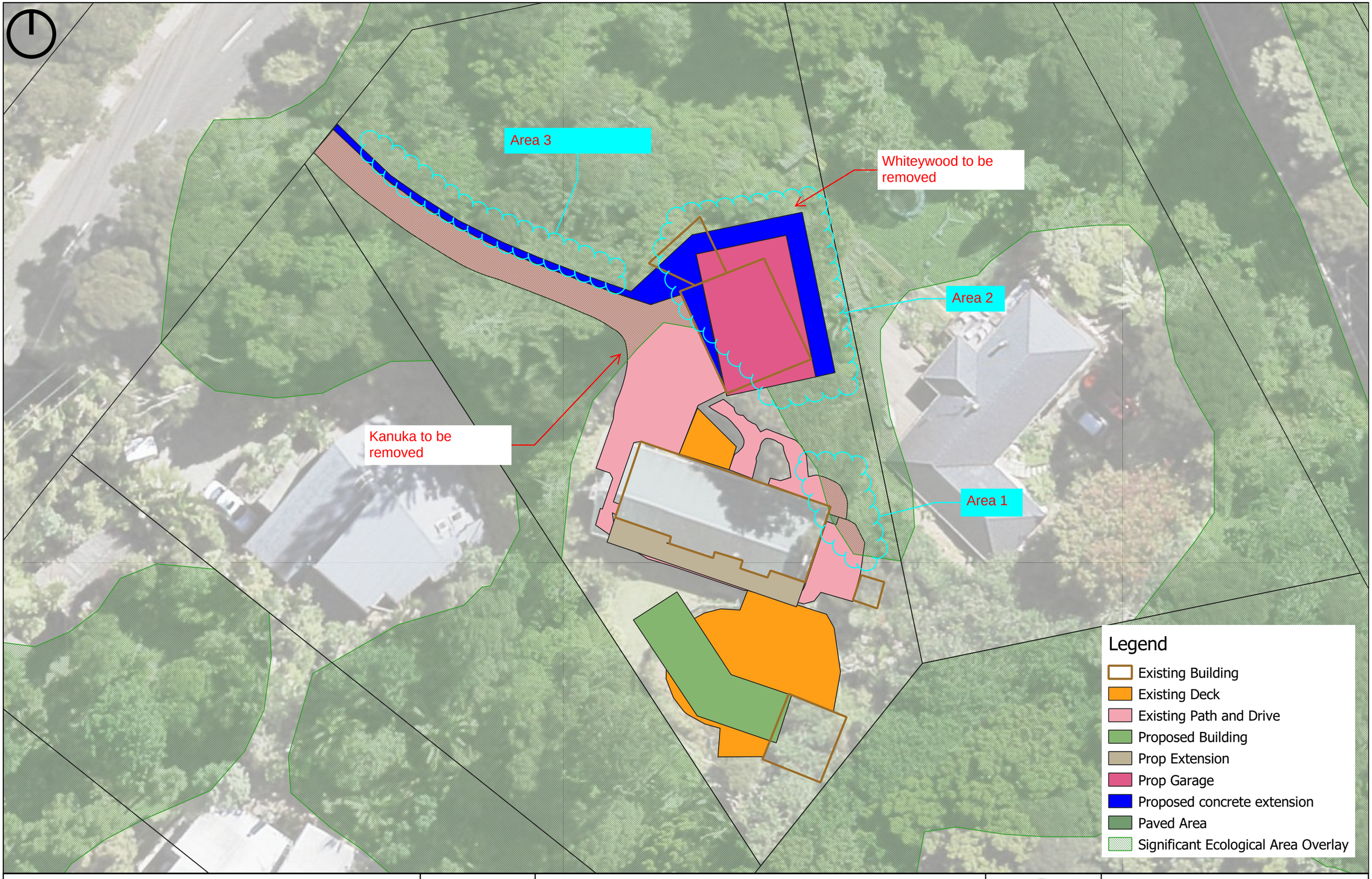
The TREE CONSULTANCY – COMPANY –

Drawing TTCC- TP- 2020

Revision 001

Date 14-08-2020

Appendix C – Tree location and site works plan 3155_001_A



Appendix C - 142 Konini Road, Titirangi Bay
Tree Location Plan

The TREE CONSULTANCY COMPANY

Project No. 3155

Drawing: 3155_001_A

Rev: A