

Application for Resource Consent:

Mr and Mrs J Book

139 Sturges Rd, Henderson

Assessment of Effects

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Introduction

This document is submitted as part of the application for resource consent application required by Auckland Council for the removal of an Oak tree at 139 Sturges road, Henderson, this tree has been classified a notable tree, removal of a notable tree is classified as a discretionary action.

The purpose of this document is to provide sufficient information to enable a full understanding of the proposal, the effects that the proposal may have on the environment.

Existing Environment

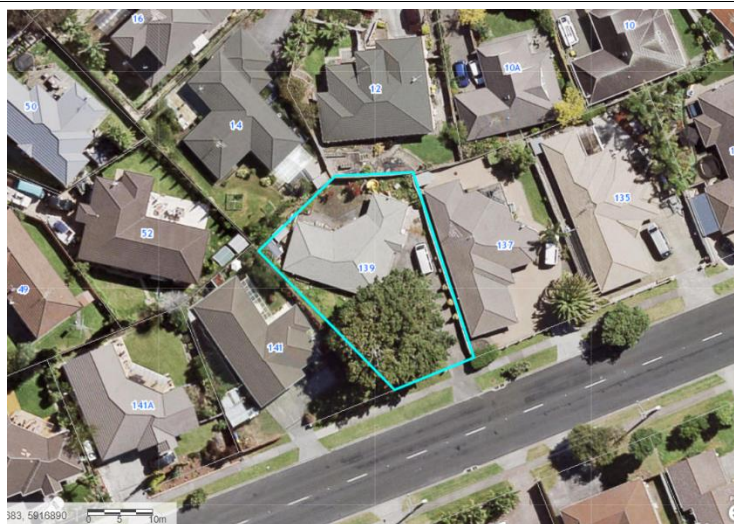
Description of the site

The 665m² semi rectangular site is located at 139 Sturges Road, Henderson, Auckland. The site is on the north side of Sturges Rd. The residence is classified as “Residential - Single House Zone” by the current unitary plan zoning and Auckland council’s GIS maps.

As the house is seen from the street, on the right, there is a driveway that is approximately 24 meters long, this leads to the main entrance of the house.

The site is relatively flat with the building towards the back of the property, the building is approximately 200m².

The property was purchased by the current owners and moved in April 2002.



Satellite image of site.

Unitary Plan notation

Property

The house is zoned Residential - Single House Zone under the Auckland Unitary Plan (“Unitary Plan”) and is subject to the following

Overlay:

Natural Heritage: Notable Trees Overlay - 2030, Oak

Controls:

Macroinvertebrate Community Index – Urban

Stormwater Management Area Control - Flow 2

2029	<i>Quercus palustris</i>	Pin Oak	Waitakere		Henderson 133 Sturges Road, Henderson	Lot 5 DP 188223
2030	<i>Quercus sp.</i>	Oak	Waitakere		139 Sturges Road, Henderson	Lot 1 DP 188223
2031	<i>Quercus sp.</i>	Oak	Waitakere		20 Croydon Road, New Lynn	Lot 2 DP 73783

The tree is scheduled as notable trees (ID2030) in Schedule 10 of the Unitary Plan. The relevant excerpt from Schedule 10 provided.

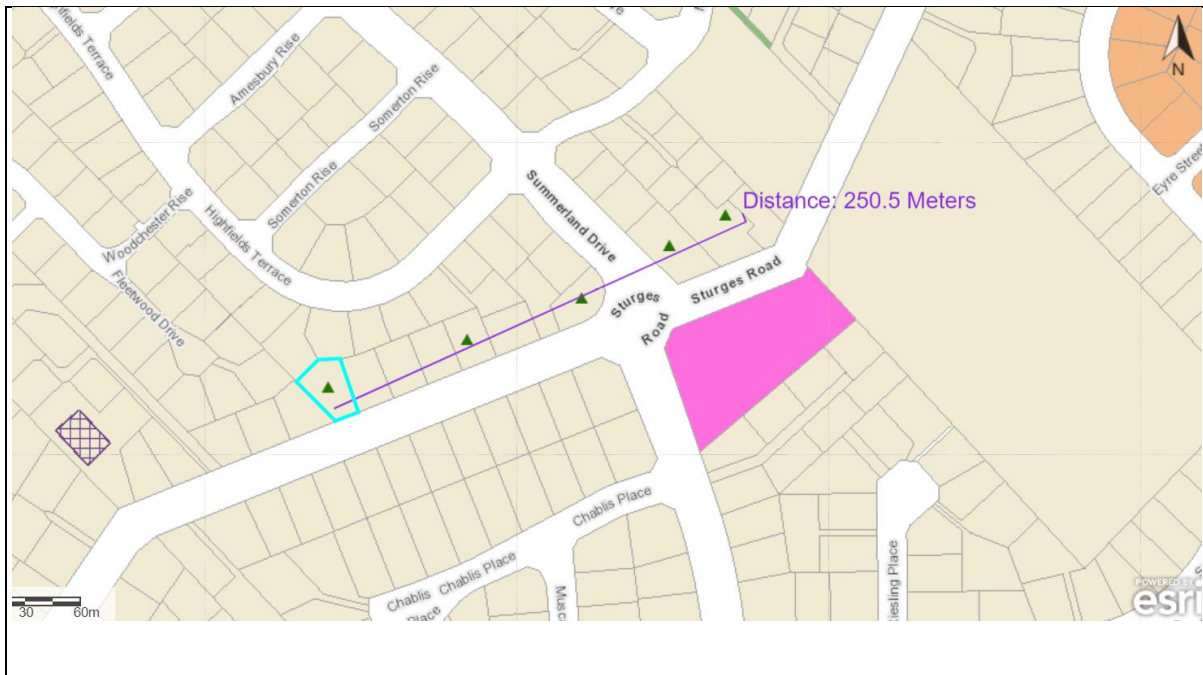


The notable tree has been circled in red.

Surrounding Area

There are other 4 notable trees within a 250 meter range, 3 of those are considerably more visible as these are close to area of shops classified as “Business - Local Centre Zone”, the tree proposed to be removed is not visible from this area.

As seen in the following images most of the surrounding area is classified as “Residential - Single House Zone”



Extract from the Unitary Plan zoning map

139 Sturges rd outlined in Blue.

This and Other Notable trees with 250 meters.

Business - Local Centre Zone filled in pink



Proposal

It is proposed to remove the oak tree in the front lawn of the property.

To mitigate the removal of the tree it is proposed to plant a smaller tree, and fund the planting of 20 native trees in the Auckland area.

About the tree.

As shown in the previous extract of the schedule 10 from the unitary plan, the tree has an identified as notable with an ID of ID2030. It is unclear when the tree classification occurred.

The tree poses a number of risks. The tree is in close proximity to the building, there are serious concerns around damage to property from root activity, safety to pedestrians, residents and visitors of the property from falling branches, safety concerns from acorns on the ground and fire hazard risk and damage from leaves and other debris from the tree.

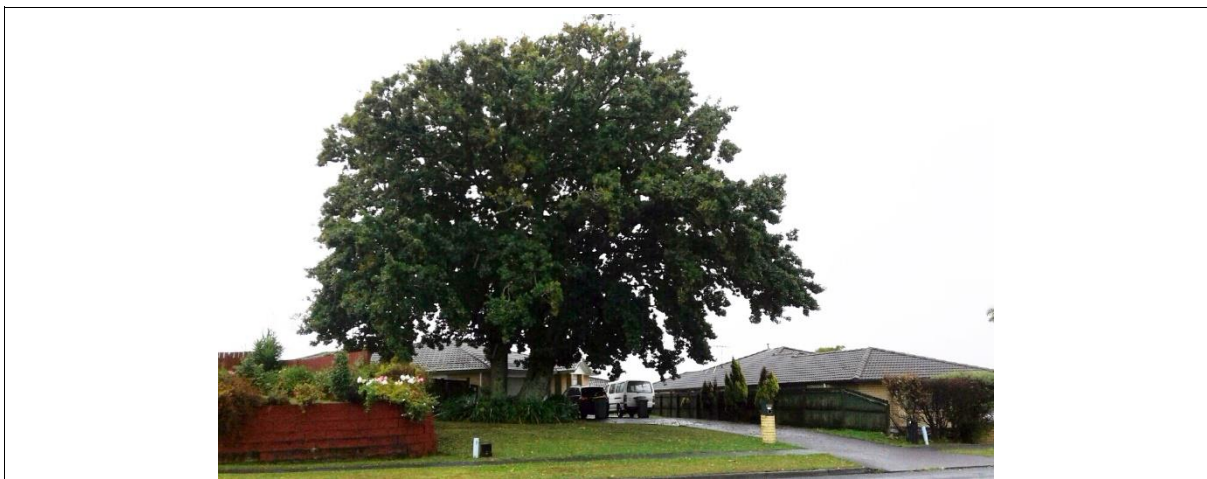


Image of the tree from the street.

Matters for consideration

Vehicle damage

Acorns have fallen on cars, these cannot be parked close to the tree because of the risk of surface and wind shield damage. Leaves build up has also caused surface damage on one of the vehicles contributing to rust.



To minimize damage to vehicles, these have to be parked at the end of the driveway or the street.



This image shows an aerial view of the small area available for parking.

Pedestrian and residents safety.

There have been a number incidents where people have slipped or rolled ankles from the acorns dropped by the tree. Object like branches and acorns have fallen on people or near people. There was an instance where a branch of the thickness larger than an arm fell a few inches away from the owner.

At the times of the year, when these acorns fall, the resident's children are no longer allowed to play

on the grass or driveway at the fear that they will hurt themselves. There are large numbers of acorns produced by this large tree, it is impossible to predict where these might fall and when. These acorns are even more dangerous at night, making it very dangerous for people arriving to the residence at night.

At times of the year when the tree in full bloom street light also blocked. Images are attached of acorns on the ground.



Image shows acorns on the ground, picture taken in Feb 2019, and large amounts of acorns it can be very dangerous to slip on these. These acorns also reach the foot path area.



A few months later, May 2019, there is different type of debris, this image show other debris from the tree on the driveway only a few days after cleaning.

In red it has also been highlighted that a branch that that is substantial enough in size to cause injury or damage to vehicles.



Roots have caused some areas of the driveway to lift causing making it dangerous for pedestrians



This image is an example of that shows large numbers of leaves and debris that is highly flammable.

The large volumes of leaves, poses a fire hazard to this property and neighbouring properties. It is not practically possible to keep the property and surrounding properties clean, it would require a number of hours per day. There is more evidence of the extent of the cleaning required in the "Professional cleaning" section below.

The following New Zealand fire and emergency publications indicate that dry, or dead material within the plant, such as twigs, needles and leaves can be considered to be highly flammable.

<https://fireandemergency.nz/farms-rural-properties-and-rural-businesses/landscaping-fire-safety/>
<https://fireandemergency.nz/at-home/flammability-of-plant-species/>

Mental health

These issues are causing huge stress on the house owners, from the damage to the driveway, damage on the vehicles and large amount of work daily to keep footpath and driveway, especially at this time of the year because the acorns could cause injury to residents or to the public. The removal of the tree will simply the owners life considerably. It also causes work, on the neighbours, especially from 141 Sturges road, since branches of the tree overhang their property.

Property damage

There are a number of cracks in the driveway, these are particularly noticeable in areas of the driveway that are closest to the tree.

There are also great concerns that the tree roots could cause long term problems to the house structure.

Neighbours have expressed concerns from the amount of leaves that the tree generates, there have the amount of work needed by the neighbour to clean their driveway, but there are also concerns around the potential damage to neighbour's gutters or other damage caused by the tree.

The adjacent neighbours on Sturges Rd have shown full support for the removal of the tree.

There are also have short and long term liability concerns, as we are aware of court cases at the end of last year where a house owner was found liable for damages.

The following article shows an example of case compensation from tree "The High Court has accepted a claim by a property owner in relation to damage to their property caused by tree roots coming across the boundary from their neighbour's property as well as leaves and branches falling from overhanging tree branches." <https://www.raineycollins.co.nz/your-resources/articles/over-43000-in-damages-costs-for-tree-roots-and-branches>

The tree produces large amounts of leaves, these very quickly build up on gutters, driveways and in other surrounding areas. The tree leaves also fall into the neighbour's property.



Acorns blocking drainage systems.



Leaves in roof and gutter from overhanging branches that are likely to cause blockage and damage.



Drain system blockage from tree roots.



Driveway damage lifting and cracking.



Based on the length of the cracks the direction and the number of them there are serious concerns around the long terms impact of this to the house.



Some of these cracks can be seen at around 17 meters away from the trunk of the tree.

Exploratory excavation for root activity.

To help make a better assessment if there is root activity was found close to the driveway and house an exploratory excavation was done.

This work was relatively superficial and was limited to manual excavation to minimise any damage to roots.

There were also limitations around damaging the concrete driveway so the excavation was focused on the grassed area adjacent to the concrete where the concrete showed potential damage from root activity.

In both locations it was found that the soil had approximately 10-20 cms of top soil, below that compacted metal, also around 10-20 cms, then clay below that. It was very difficult to manually excavate past the compacted metal.

Excavation #1

This area was chosen because it has an origin from the grassed area, it is relatively far from the tree, it is heading towards the building.



Root activity was found in the direction of the crack, 2 roots of approximately 2 cms in diameter each, just below the concrete.

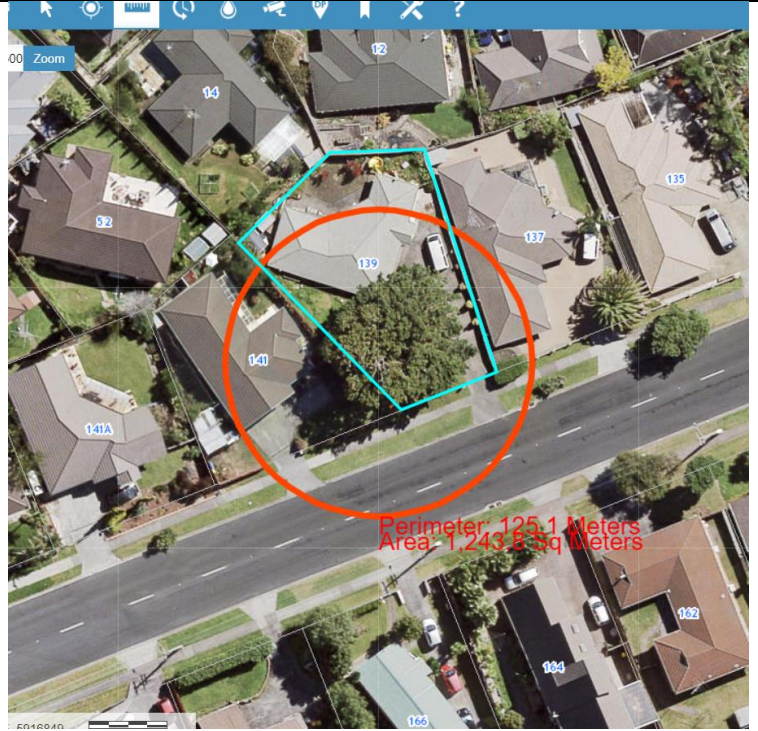




The red dot marks the point of excavation. Because of the location of the house, this distance it can already be assumed that other roots could have reached the side of the house.



If we assume that the length of the crack is an indicator of the length of the root system, we could assume that an unobstructed root system could extend to the perimeter shown in the image.



Excavation #2

This location was picked as another potential location for root damage, because of the amount of lift.



Initial excavation did not show any root activity in this area.



It was then re-assessed that this lift could have been caused by root pressure from a different location closer to the centre of the concrete pad.

A slight crack was found closer to the centre of the concrete pad.



Root activity was found under this crack, also approximately 2cms in diameter and consistent with the crack found above.



Exploratory excavations showed that root activity is significantly enough and destructive at distances that are at least equal to the distance of the house from the tree.

Root activity shows that even a 2 cm root in diameter, can exert a significant amount of force, it is able to lift a concrete pad around 8cms and likely to be the cause to crack concrete up to 17 meters from the tree trunk and is likely to cause further damage to the driveway and likely to cause structural damage to the house perhaps neighbours property.

The fact that these roots at a these far distances of 17 meters are able to generate enough force to cause concrete to crack, are indicators that these roots can cause significant damage at far distances.

Another factor to consider is subsidence and structural damage linked to tree roots, The Royal Horticultural Society reports that Quercus (oak) accounts for the highest number of subsidence cases in the UK. (<https://www.rhs.org.uk/advice/profile?pid=225>).

The cost of this exploration was around 5 hours of manual labour, relatively expensive, mainly because of the compacted metal, further exploratory excavations would be costly and destructive.

An article published by the Departments of Horticulture and Forestry from Michigan State University in March 2011, shows that from the tree species studied, Oak trees have the highest tree population

to damage ratio, Oaks made up 2.1 percent of the tree population, but caused over 11 percent of the damage.

https://www.canr.msu.edu/news/reducing_damage_caused_by_tree_roots

The following article recommends that safe distances for an oak tree to distances are no less than 30 Meters from property, this property is only 5 meters away from the tree. Of the 26 tree species mentioned, oak trees are one of the tree species that are likely to require greater distances from buildings.

Species	Normal Mature Height (M)	Safe Distance (M)
Willow	24	40
Poplar	28	35
Elm	25	30
Oak	24	30
Horse Chestnut	20	23
Plane	30	22
Ash	23	21
Cypress	25	20
Maple	21	20
Sycamore	24	17
Beech	20	15
Walnut	18	14
Hawthorn	10	12
Cherry	17	11
Damson	12	11
Plum	12	11
White Beam / Rowan	12	11
Apple / Pear	12	10
Birch	14	10
Laburnum	12	9
Pine	29	8
Spruce	18	7
Holly	14	6
Laurel	8	6
Magnolia	9	5
Yew	12	5

<https://www.bickersinsurance.co.uk/about-us/latest-news/property-owners-news/a-list-of-trees-and-the-recommended-safe-distance-from-buildings/>

Option to cut branches

An option to trim branches to a level that acorns will be localised within the lawn area. The following calculations have been done to give an indication on how far falling objects would travel from the tree, to try and find the amount of branches to remove. These calculations do not take drag into considerations, this is better suited for objects like acorns or branches falling from the tree, because of drag, most objects would have a drag, these will travel further from the tree. These calculations should give a conservative estimate of distances. Images used are the most recent aerial views available, but the current branches are longer they extend over boundaries, the percentage of branches needed to be removed would be higher.

Data Output

https://difo.niwa.co.nz/pls/niwp/wgenf.genform1_proc

The National Climate Database

Station information:

Name	Agent Number	Network Number	Latitude (dec.deg)	Longitude (dec.deg)	Height (m)	Position	Observing Precision	Authority
Reefton Ewe	3925	F21192	-42.118	171.860	198	O		NIWA / WEST COAST RURAL FIRE DIS

Note: Position precision types are: "W" = based on whole minutes, "T" = estimated to tenth minute, "Q" = derived from gridref, "E" = error cases derived from gridref, "H" = based on GPS readings (NZ20049), "D" = by definition i.e. grid points. [For more info](#)
[Back to Database Query Form](#)

Statistics codes in this query are:

Code	Description	Units
15	Mean Daily Wind Run	Km
33	Mean Wind Speed	M/Sec

Note: Statistics calculations are based on Local-Time
 DAY OF EXTR gives the Local-Time day for a Monthly Extreme.

Stats: Monthly

Station	Mon-YYYY (local)	Stat Code	Stat Value	Day of Extr
3925	Jan-2018	15	130.9	-
3925	Jan-2018	33	1.5	-
3925	Feb-2018	15	133.8	-
3925	Feb-2018	33	1.6	-
3925	Mar-2018	15	110.0	-
3925	Mar-2018	33	1.3	-
3925	Apr-2018	15	89.9	-
3925	Apr-2018	33	1.0	-
3925	May-2018	15	91.7	-
3925	May-2018	33	1.1	-
3925	Jun-2018	15	82.2	-
3925	Jun-2018	33	1.0	-
3925	Jul-2018	15	102.3	-
3925	Jul-2018	33	1.2	-
3925	Aug-2018	15	103.0	-
3925	Aug-2018	33	1.2	-
3925	Sep-2018	15	124.2	-
3925	Sep-2018	33	1.4	-
3925	Oct-2018	15	128.5	-
3925	Oct-2018	33	1.5	-
3925	Nov-2018	15	153.8	-
3925	Nov-2018	33	1.8	-
3925	Dec-2018	15	138.2	-
3925	Dec-2018	33	1.6	-
3925	Jan-2019	15	141.2	-
3925	Jan-2019	33	1.6	-
3925	Feb-2019	15	129.8	-
3925	Feb-2019	33	1.5	-
3925	Mar-2019	15	117.3	-
3925	Mar-2019	33	1.3	-
3925	Apr-2019	15	115.7	-
3925	Apr-2019	33	1.4	-

The following is wind data from NIWA's climate database, from a nearby station in the Henderson area from April-2018 to April 2019

Untitled 1 - LibreOffice Calc

File Edit View Insert Format Styles Sheet Data Tools Window Help

Liberation Sans 10 B I U A

	A	B	C	D	E	F
1	Station ID	Date	Mean Wind Speed m/s			
2	3925	01/01/18	1.5	-		
3	3925	01/02/18	1.6	-		
4	3925	01/03/18	1.3	-		
5	3925	01/04/18	1	-		
6	3925	01/05/18	1.1	-		
7	3925	01/06/18	1	-		
8	3925	01/07/18	1.2	-		
9	3925	01/08/18	1.2	-		
10	3925	01/09/18	1.4	-		
11	3925	01/10/18	1.5	-		
12	3925	01/11/18	1.8	-		
13	3925	01/12/18	1.6	-		
14	3925	01/01/19	1.6	-		
15	3925	01/02/19	1.5	-		
16	3925	01/03/19	1.3	-		
17	3925	01/04/19	1.4	-		
18	Avg		1.375			
19						
20						
21						
22						
23						

Sheet1 Sheet2

Sheet 2 of 2 Default English (New Zealand) 100%

The average wind was calculated to around 1.375 m/s

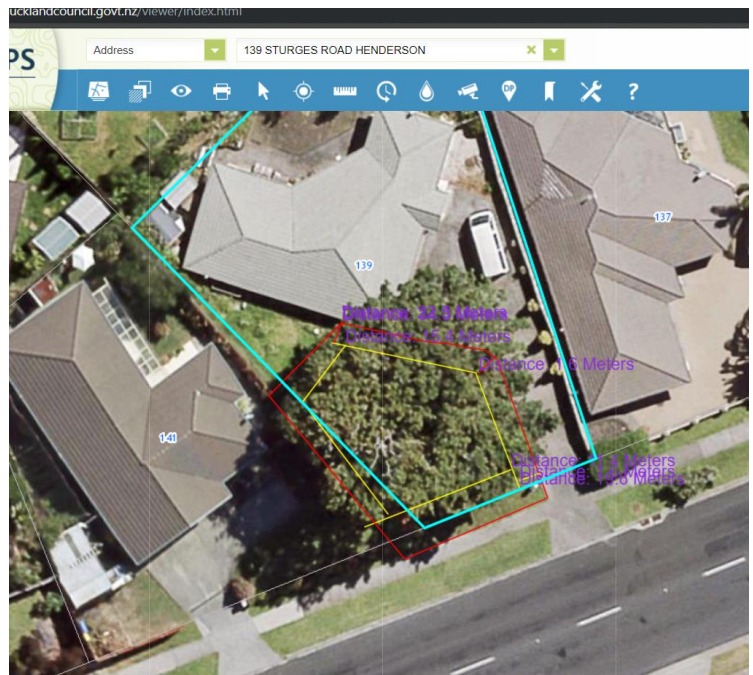
Gravitational acceleration	9.80665 m/s² ▾
Initial velocity	0 m/s ▾
Height	7 m ▾
Time of fall	1.1948 sec ▾
Velocity	11.717 m/s ▾

Being conservative by picking the midpoint height of the tree at around 7 meters. We can calculate that an object would fall for around 1.195 seconds.

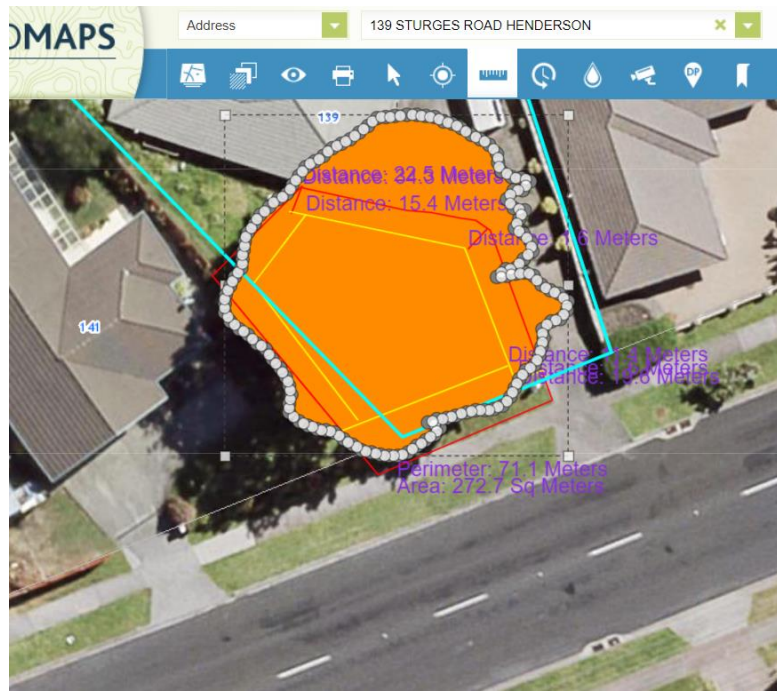
Distance	1.643125 m ▾
Time	1.195 sec ▾
Speed	1.375 m/s ▾

At wind speeds of around 1.375, calculations show that object would travel around **1.6 meters** from the vertical axis.

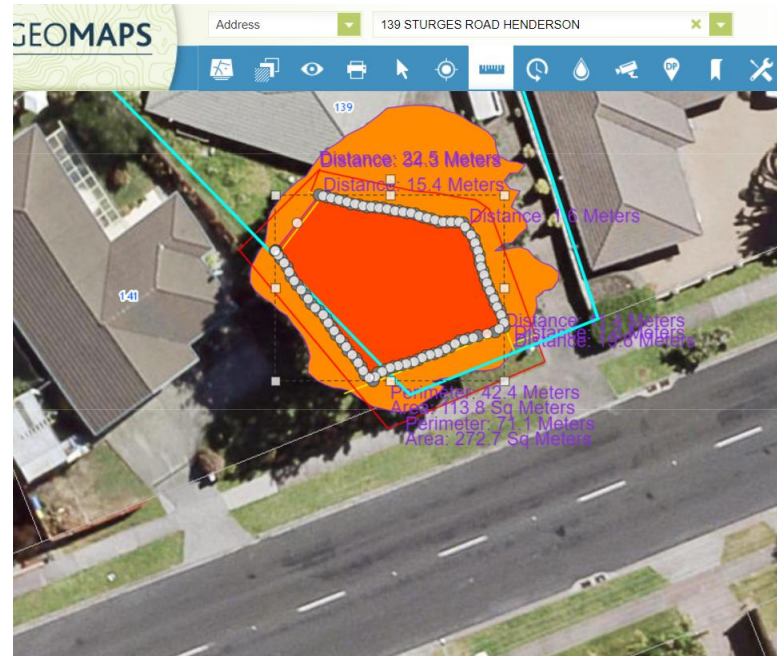
With these values, we calculated how the point where the branches would need to be trimmed to, to considerably minimize the drop of acorns and branches to a reasonable level on the grassed area only.



In the image, red shows a perimeter from the tree where that it would be somewhat acceptable to have objects from the tree fall, this excludes the driveway area and footpaths, it is not ideal as the residents would still not be comfortable for the children to play on the grassed area but it may be safer for the pedestrians and residents if objects did not fall outside this area and cleaning of the acorns and branches would not have to be done as regularly. In the image yellow shows the red perimeter minus 1.6 meters, this is the estimated perimeter where that the branches need to extend to, to avoid the drop objects on the driveway and footpath at the wind speeds and height previously mentioned.



Total tree top view area is approximately 272 sqm.



Area to keep (in red), tree top view area is approximately 113 sqm.

$273 - 113 = 160$ sqms (to be removed in square meters)

$160 / 273 * 100 = 59\%$ (to be removed as a percentage)

Based on these numbers approximately **60%** of the horizontal area of the tree would need to be removed.



This image of the driveway shows the actual distances that the acorns reached, it is a good indication that our conservative 1.6 meters lateral debris travel distance could be too low.



From measured distances it is likely that these could more around 2.9 meters, which would indicate that a volume much **larger than 60%** of the tree crown would need to be removed.

Based on calculations and images of accords on the ground it is estimated that more than 60% of the crown of the tree would need to be removed as an attempt to localize the acorns in the lawn area. Public information indicates that no more than 20% of a tree's crown should be removed, less for mature trees.

This option could help to minimize the acorns on the footpaths and driveway and minimize some of the volumes of leaves to some level, but because of the tree height and distances we have seen the leaves travel it is likely that significant volumes of leaves will still be problematic.


Root barrier options.

Two root barrier systems were looked at as alternatives.

Vercan™ Root Barrier is the simple long term solution to help prevent cracked paths, roads, pipes and damage to other utilities.

Made from textured high density polyethylene, it has been designed to help control the unwanted spreading of roots.

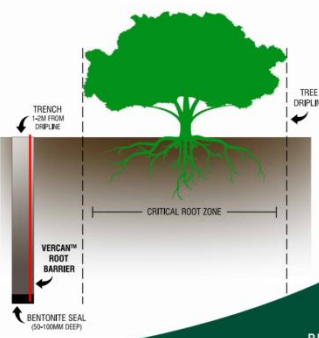
Vercan™ Root Barrier works by directing tree roots downward along the barrier and to the soil beneath the barrier perimeter. It can be used on new plantings or existing trees.



Vercan™ Root Barrier is a sustainable product made from recycled HDPE (high density polyethylene).

VERCAN™ ROOT BARRIER

FLEXIBLE IMPERMEABLE ROOT BARRIER SYSTEM



BARRIER INSTALLATION:

1. Dig a trench approximately 100mm wide to the required depth.
2. Place root barrier into the trench, leaving approx 50mm above the ground height.
3. Place a layer of sodium bentonite or other growth inhibitor at the base of the trench 50-100mm thick.
4. Back fill the trench to secure the barrier and stabilise the ground.
5. Barrier can now be trimmed to just below lawn mower height, ensuring the top of the barrier remains above ground.

AVAILABLE SIZES:

- 600mm x 50m
- 900mm x 50m
- 1200mm x 50m

Also available in cut lengths by the meter.

PERMATHENE
PERFORMANCE POLYMER GROUP

www.permathene.com.au
T: 1800 608 095

Vercan root barrier, Supplied by Permathene Ltd. 404 Rosebank Road, Avondale, Auckland 1026, New Zealand.



For this product, the recommended installation distance from the tree canopy is around 1-2 meters. The yellow perimeter, shows an approximate location of the recommended placement of the barrier, it would not be impossible to place the barrier in this location.

Biobarrier Root Control Installation Guidelines (Vertical Application)

BEFORE YOU START:

- Contact your utility company prior to trenching if you suspect service lines are present. Consult a professional arborist if root rimming is required.
- Follow all EPA label instructions located on the box and yellow packaging sleeve when installing product. Additional instructions in box.

IMPORTANT NOTES:

- Biobarrier should be installed on the side of the trench opposite the root source.
- Install and cover Biobarrier as soon as possible (within 12 hours) after opening sealed yellow bag; high temperatures and direct sunlight can reduce effective product life.

INSTALLING THE PRODUCT:

- Cut a trench a minimum of 4 inches (100mm) wide and at least equal to the length of mature tree canopy plus 10 feet, centered on the root source and adjacent to the structure using clean-cutting trench digging equipment (see figure 1).
- Cut all roots back flush to trench walls on both sides of trench. For some species, it may be necessary to spray the cut end of the severed root on the side opposite tree to prevent root regrowth under the hardscape. If this is necessary, use a systematic herbicide and be extremely careful to avoid contact with roots on the opposite side of the trench.
- Smooth soil surface to desired FINAL GRADE LEVEL on side of trench opposite root source (see Figure 2).
- CAREFULLY open yellow bag of Biobarrier on one end to prevent damage. Use yellow bag to store any unused product.
- Roll out Biobarrier and trim to proper length. Place excess material back in yellow bag and seal tightly with spare ties provided.

ROOT CONTROL IN

- General Instruction
- Golf Greens, Bunkers
- Swimming Pools
- Containers, Drain Lines
- Pot n Pot, Planting
- Retaining walls, Trenches
- Sidewalks, Paths, and Tennis Courts
- Earth dams, Dikes
- Underground Tanks
- Installation Sites & Methods

BioBarrier Root, Supplied by Barrier Root Control NZ Ltd, 20 Copeland St, Eden Terrace, Auckland 1021

<https://rootbarrier.co.nz/installation>



For this product, the recommended installation distance from the tree canopy is around 3 meters. The yellow perimeter, shows an approximate location of the recommended placement of the barrier, it would not be impossible to place the barrier in this location.

Installation information about the two products also highlights that the product manufacturers of these products believe that the perimeter of the critical root zone is well inside the building's perimeter. The recommended installation distances for these products show that it might not be possible for these systems to protect against roots and that it is very possible the roots for a tree of this size have reached distances where the house foundations could be affected in the future.

Professional cleaning

As mentioned by the heritage team we investigated the option of professional cleaning, here is some of the information found.

At least once, perhaps twice per year, acorns drop from the tree. This goes on for at least 12 weeks possibly longer. The last time observed was at least from Feb 2019 and some are still dropping now in May 2019.



After the acorns fall, leaves and twigs fall from the tree for a number of weeks.





Attempts to clean up are made on the weekends, but this is not sufficient.

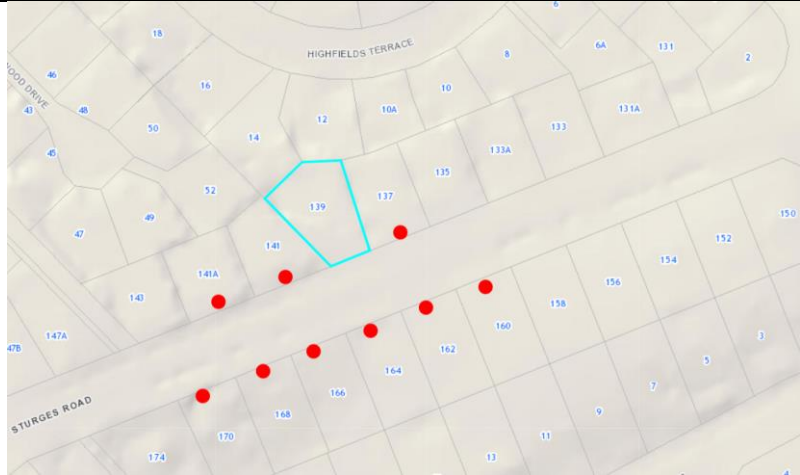




Leaves and debris on roof and gutter.



The following are spots where considerable amounts of leaves from this oak tree were found, considerable amounts were found up to around 33 meters away from the tree. The leaves are unique to the tree and easy identifiable, no other closer trees with the same leaves were found near by. More images are included at the end of the document.



Neighbour's property



Neighbour's property, 33 meters away from the tree.



We found that the hourly cost for garden maintenance are around \$60-\$100 per hour including garden waste disposal.

It was not possible to get estimates of cost for professional gardening services because it was difficult to scope the work since there are so many properties involved, but we estimate that at least 2 hours daily would be required to keep footpaths, driveways, gutters, clean at least from Feb – May

assuming that this is done 5 days a week over 12 weeks it would have a cost of \$7200-\$12000 depending on the hourly rate. These costs are not something that most home owners are able to afford. It is also possible that this might have to be done multiple times per year.

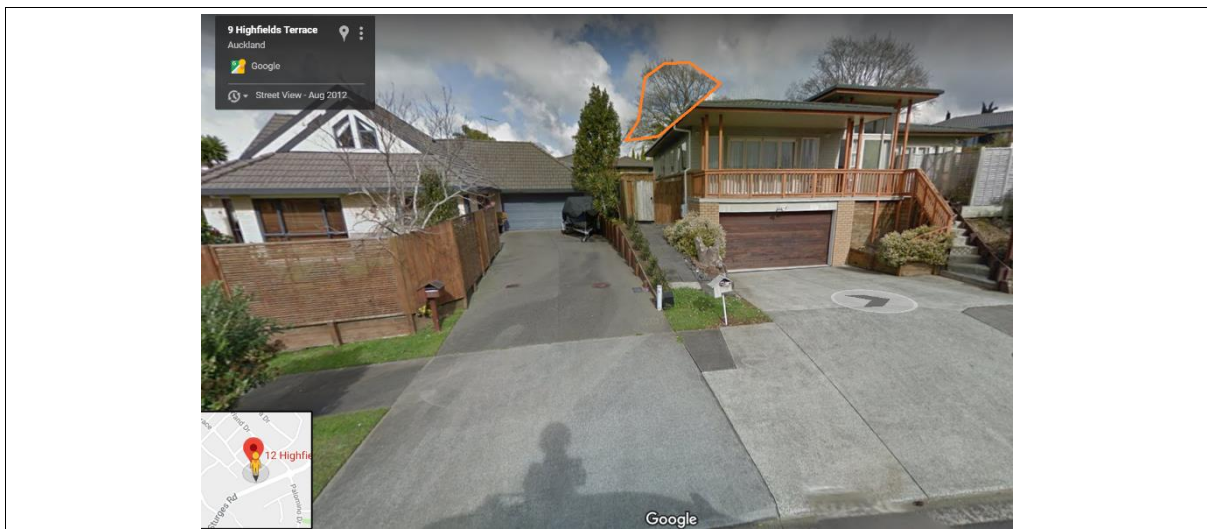
Professional garden services would reduce the risks of fire and damage but it would not fully remove the hazards of people falling or slipping on objects, because it is possible that debris could be on the ground in between cleaning runs.

Cleaning will address part of the problem any damage caused by the roots cannot be addressed by the cleaning.

Effects on the Environment

Visual amenity value assessment:

The tree has reached a size and height that has allowed it to be significant in size, resulting in a potentially large visual catchment. However, from most locations, views of the tree is obscured by intervening buildings and other vegetation.



View from north is either fully or mostly blocked. This image shows one of the best views of the tree from the north, tree outline has been outlined in orange, **view is minimal** from this parallel street.

(Street View Looking from North 9 Highfields Tce Highlight)



The tree **cannot be seen** from the south adjacent streets. (Street View Looking from South 5 Chablis Pl)



Street views from east the view is either **partially blocked** from relatively close distances. (tree in question is outlined in orange)



From the business area where there is a lot more foot and vehicle traffic be more, the tree is **fully blocked** behind other trees.



Views from the west are possible **up to 120 meters**.



But after 120 meters, because of the angle changes of the street after this distance is **not visible at all**.

The majority of views towards the trees is from road users that experience a glimpse views of the tree, with limited duration, pedestrians on these local roads, would experience these views for a longer duration.

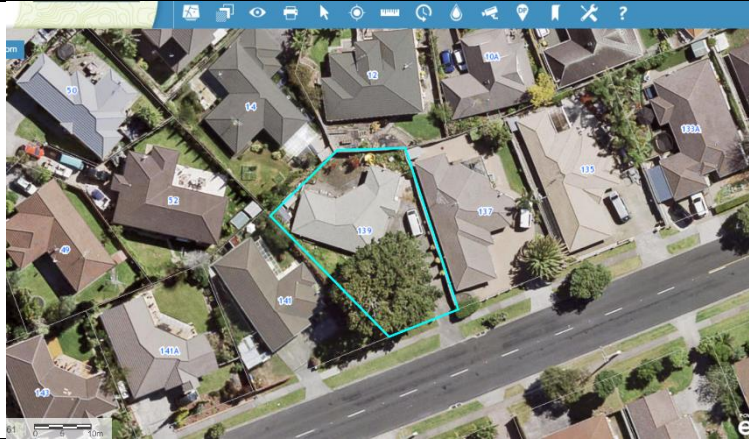
Overall, it is considered that the low sensitivity of these travelling viewing audiences, together with the typically glimpse nature of such views, would result in moderate-low to low, adverse visual effects resulting from the removal of the tree, dependent on location, orientation and duration of the particular viewpoint.

Shading and privacy effects:

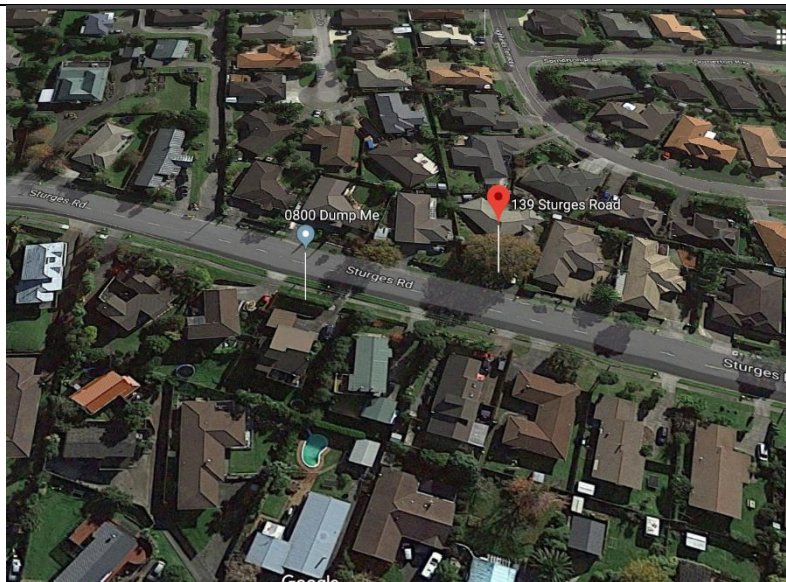
The property is located on the northern side of the road. There are parts of the house where light is currently blocked by the tree. The tree currently covers some of the light for the neighbour's property also.

Because of the height of the tree, the branches are no longer at a level where they provide privacy from the street. So the removal will be no adverse effect on that neighbour's privacy.

The removal of the tree will reduce the existing level of shading on the owners and neighbour's house.



Satellite imagery from google maps and Auckland council's GIS show in both instances that the shade from the tree is mostly covers the road and any shading from the tree on property is mainly on the garage or on a small part of the neighbour's house.



This reduction in shading / increased admission of sun and light to these areas will be positive during winter months and arguably negative during summer months, when shading can be beneficial for a number of reasons.

Overall, there could be some small adverse effects in terms of shading in summer, there are also some positive effects in winter from having more natural heat. As seen later, there is full support from the immediate neighbours that reside in Sturges rd, where the shading could affect their properties.

Ecological Effects:

There are more than 600 species of Oak trees (*Quercus* sp.) many of these are native to the northern hemisphere but are common across the globe.

These trees produce acorns, but there are no known wild life around the area that take advantage of these fruits.

Like all trees, they have ecological value as they convert carbon dioxide to oxygen, improve air quality, conserve water, preserve soil, provide shelter from wind, drop litter that eventually composts on the ground below and may support wildlife.

However, Oak trees are not recognised for having any other ecological value over and above other trees: they do not significant produce significant resources that are critical to the survival of wildlife in this area that are unable to be provided by other vegetation.

Overall, it is our opinion that the ecological impact of removing this trees will be minor, and proposed mitigations will greatly outweighs the benefits of the loss of the tree.

Natural Hazard Effects:

Oak trees do not perform any significant function in preventing or mitigating any natural hazards in this case. Accordingly, the removal of the trees will not have any adverse effects in terms of natural hazards.

Cumulative Effects:

A cumulative effect is an effect which arises over time or in combination with other effects.

A cumulative effect of this proposal would include an effect generated by the proposed tree removal, which is additional to, or cumulative upon, the effect of any other applications approved by the Council in the immediate area, or any other activities on the site.

We are not aware of any other significant vegetation removal applications approved by Council in the immediate area upon which the effects of this proposal would be cumulative and note that the Accordingly, I am satisfied that the proposed tree removal will not result in any cumulative effects that are significantly greater than the effects described in the sections above.

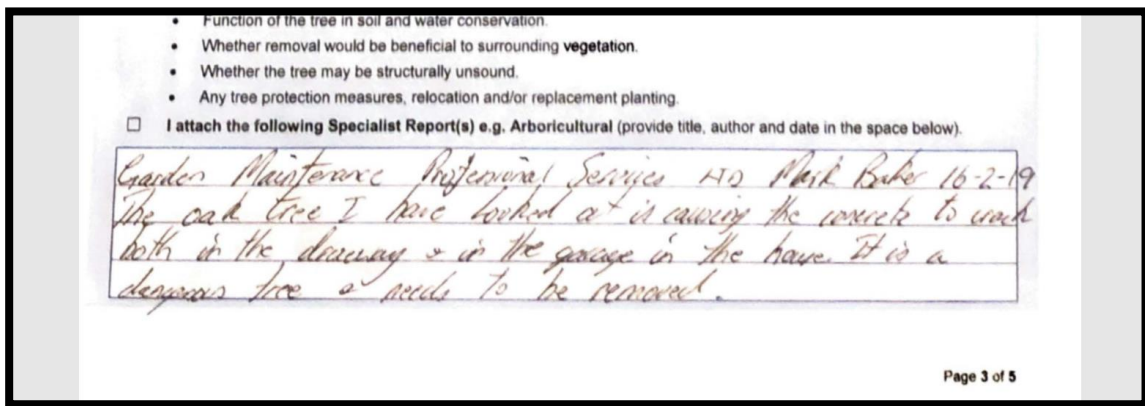
Arborist report:

After clarification with the arborist that issued the report and conversations with Gavin Donaldson from Auckland Council, it was decided to use the arborist report to only support the driveway issues.

Arborist Contact info:

Company: GMPS
Contact Person: Mark Baker
Postal Address of Agent: 10 Pinotage Pl, Huapai, Auckland 0810
Mobile: 027 249 5391
Email: markbaker@xtra.co.nz

Specialist report: "The oak tree at 139 Sturges road, Henderson, is causing damage to the driveway at this property and it is likely to cause structural damage to the dwelling at the address in the future. Cutting branches so that these will not drop acorns or leaves on the address or neighbour's property, driveway and house roof and cutting roots at the grass perimeter will damage the tree and will likely result on the tree dying and make it unstable and unsafe.

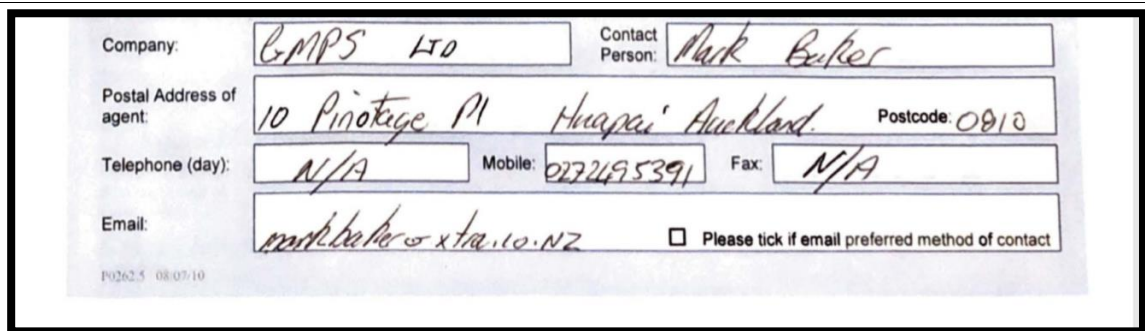


• Function of the tree in soil and water conservation.
• Whether removal would be beneficial to surrounding vegetation.
• Whether the tree may be structurally unsound.
• Any tree protection measures, relocation and/or replacement planting.

I attach the following Specialist Report(s) e.g. Arboricultural (provide title, author and date in the space below).

*Garden Maintenance Professional Services LTD Mark Baker 16-2-19
The oak tree I have looked at is causing the concrete to crack
both in the driveway & in the garage in the house. It is a
dangerous tree & needs to be removed.*

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Company: GMPS LTD Contact Person: Mark Baker

Postal Address of agent: 10 Pinotage Pl Huapai Auckland. Postcode: 0810

Telephone (day): N/A Mobile: 0272495391 Fax: N/A

Email: markbaker@xtra.co.nz Please tick if email preferred method of contact

P02625 08/07/10

To address any items that have not been addressed D13.8.2 around the assessment criteria relevant to the need for the direction and supervision of a qualified arborist while the works are being carried out, we have engaged with the above arborist.

Methods to contain and control plant pathogens:

There are currently no known diseases on the tree, and no known pests or pathogens specific to the area. Branch and leaf material will be disposed of at the concourse refuse station, they are equipped to accept this type of material. Trunk material will be either donated as firewood or disposed of at a refuse station.

Offsetting the loss of the tree

It is our intention to plan another tree in the front section of the house, the new tree will be picked from a type that will not likely to grow large as an oak tree and will not bear fruit that is dangerous like acorns. We are proposing that a Feijoa tree will be planted in its place, but we are happy to consider other options.

Through a well-established organisation (Trees That Count), we are also proposing that we will fund the planting of 20 native trees.

The organisation that we have been working with, Trees That Count, are happy to ensure that the allocation of trees funded will be allocated to the Auckland area.

Trees That Count is managed by the Project Crimson Trust. For over 25 years, Project Crimson has been championing native tree planting through our large-scale restoration and environmental education projects. We know what it takes to get good conservation outcomes, so you can be sure your trees will be planted by a great group.

It is our opinion that the tree that will be planted in front of the house and in the 20 trees that will be planted in the greater Auckland area, will be of much greater long term benefit to the birds and environment, than the loss of the oak tree.

Consultation/Support

Consultation has been undertaken with neighbours on both sides of the property. There is full support from the adjacent neighbours from 141 and 137 Surges Rd, as they are directly affected. The written support letters follow.

I/We have signed this form to assist with the application to council for consent and Assessment environmental effects.

I/We are showing full support of the removal of the large Oak tree in front section of 139 Sturges Road shown in the image below. We believe that the removal will: (Cross out if not applicable):

- Improve safety on footpath from fallen acorns
- and improve daylight into our property.

Affected person(s)	
Full Name: MARIA-YUKICH	Date: 11-3 2019
Signature: <i>M. Yukich</i>	Tick all applicable <input checked="" type="checkbox"/> Owner <input type="checkbox"/> Occupier
Address: Sturges Rd, Henderson, Auckland 141 Sturges Rd Henderson	Contact #: RH 8377-815
Full Name:	Date:
Signature:	Tick all applicable <input type="checkbox"/> Owner <input type="checkbox"/> Occupier
Address: Sturges Rd, Henderson, Auckland	Contact #:



I/We have signed this form to assist with the application to council for consent and Assessment environmental effects.

I/We are showing full support of the removal of the large Oak tree in front section of 139 Sturges Road shown in the image below. We believe that the removal will: (Cross out if not applicable):

- Improve safety on footpath from fallen acorns
- and improve daylight into our property.

Affected person(s)	
Full Name: <i>Craig Annette O'Donnell</i>	Date: <i>12/3/19</i>
Signature: <i>[Signature]</i>	Tick all applicable <input checked="" type="checkbox"/> Owner <input checked="" type="checkbox"/> Occupier
Address: <i>137</i> Sturges Rd, Henderson, Auckland	Contact #:
Full Name:	Date:
Signature:	Tick all applicable <input type="checkbox"/> Owner <input type="checkbox"/> Occupier
Address: Sturges Rd, Henderson, Auckland	Contact #:



Noise from tree removal.

There will be noise from the removal equipment, chainsaws, etc. But this will be for a short period of time, it is not expected that the work will be sustained for more than 4 days.

Other support images

<p>Tree location Building location</p>	 <p>An aerial satellite view of a residential neighborhood. A cyan polygon highlights a large tree located between houses 139 and 137. A yellow polygon highlights a building located between houses 137 and 135. Other houses visible include 104, 102, 141, 141A, and 135. A road is visible at the bottom of the image. The text '500 Zoom' is in the top left corner, and 'POWERED BY' is in the bottom right corner.</p>
<p>Front lawn</p>	 <p>A photograph of a front lawn. The lawn is mostly covered with brown, fallen leaves and some sparse green grass. The ground appears to be a mix of dirt and grass.</p>

Driveway



Front lawn



Driveway



Driveway



Driveway drain



End of driveway



Side of driveway



Tree over house



Tree over house



Image of tree from neighbour's house



Image of one of the tree trunks



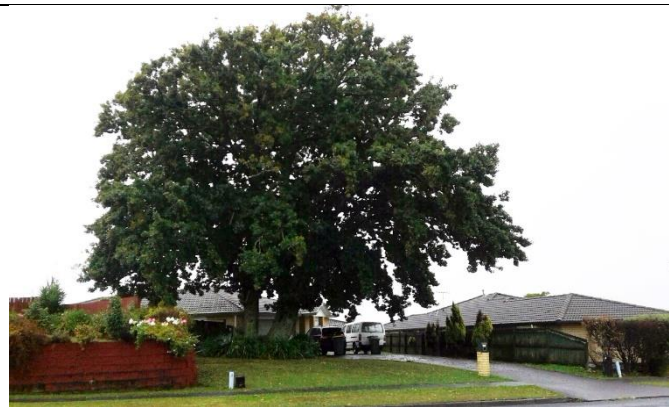
Image of tree and house



Image of tree trunk



Image of tree from street





Neighbour's lawns



Side of house





164 Sturges Rd.

