Resource Consent Application - Form 9

Submission date:	**13 December 2021, 4:13PM**
Receipt number:	**RCA-82**
Related form version:	**3**

Before you begin, please note...

This form will guide you through applying for a Resource Consent under the Resource Management Act 1991 (RMA).

To ensure you have everything you need, we strongly recommend you read through our Applicant's Information Checklist first.

Make sure you fill in the form in full. If we need to request more information from you it may cause delays in the processing of your application.

Payment of application fee

The initial fee payment is a deposit only. If payment isn't made we may stop processing your application until it's received.

Additional charges will be made for the processing of your application, based on an hourly rate set out in our Planning Fees & Charges. These will be invoiced once your application has been completed.

If you need assistance with your application, please contact Council via enquiries@horowhenua.govt.nz or 06 366 0999.

This form provides Council with your contact details, and details about your proposed activity. Note that all the information provided in your application is available to the public.

Information you'll need

Please check that you have:

Type of Resource Consent

Type of Resource Consent(s) sought:	**Land use**
Resource Consent Deposit	**$1500.00**

1. Applicant Contact Details

Please Note:

- Should any of these details change, at any time, please notify us as soon as possible.
- For individuals, you must provide the full names of all individuals. For companies and other incorporated entities you must provide the company name, registration number and registered office details. You must also provide the name of a person or persons who will represent your company and be responsible for the consent. We will not accept applications made in the name of unregistered companies.
- For partnerships or unincorporated entities (such as private or family trusts or unincorporated bodies or societies) we must have the details of all authorised partners, trustees or members. We may also request a copy of your society's rules to verify your status as a formal body or society. Any consent granted will then include these names (where needed), and all individuals will be legally responsible for the consent and any associated costs. Should these persons, or their contact details change, then you must notify us.

Full name(s) of applicant: This is the name(s) that the consent will be issued to. Please provide the full name of the persons, company, society or trust applying for this resource consent. If the applicant is a trust, please provide the full name(s) of all trustees of that trust.	**Horowhenua District Council**
Company / Organisation: (If applicable)	**Horowhenua District Council**
Company registration number:	**Territorial Authority**
Applicant's postal address: (or alternative method of service under section 352 of the RMA)	**Private Bag 4002, Levin 5540**
Applicant's residential address: If different from postal address above	**126, Oxford Street, Levin 5510**
Applicant's phone number (home):	**06 366 0999**
Applicant's phone number (business):	**06 366 0999**
Applicant's phone number (mobile):	**N/a**
Name of contact person: (If different from the applicant)	**Arthur Nelson**

Email Address: A copy of your submitted details will be sent to the email address provided below.	
Preferred address for service:	**Email (Council's preferred correspondence option)**

2. Consultant / Agent details

Name / Company name:
Contact person:
Postal address: (or alternative method of service under section 352 of the RMA)
Email Address:
Phone number (home):
Phone number (mobile):
Phone number (business):

Partnership / unincorporated entity details (if applicable)

Note to Applicant: If necessary, please attach evidence of all further partners/trustees/members.

Name of first person:	**N/a**
Status of first person: (Eg 'partner' or 'trustee')	**N/a**
Residential address of first person: Enter the address, including the postcode	**n/a**
Name of second person:	**N/a**
Status of second person: (eg 'partner' or 'trustee')	**N/a**
Residential address of second person:	**N/a**
Evidence of all further partners / trustees / members:	

Who should we send application correspondence to?

Preferred address for service:

Preferred address for invoicing:

Note to Applicant: All further costs will be invoiced directly to the Applicant unless otherwise specified.

Declaration:

3. Location of Proposal

Physical address:	**Oxford Street**
Legal description: This can be found on your Rates Invoice, eg Lot 1 DP 12345	**State Highway 1, Oxford Street, Levin**
Valuation number(s):	**Road**
Map reference:	**Road**
Locality description: Include the name of any relevant stream, river or other water body to which the application may relate, and proximity to any well-known landmark(s) etc.	**No Major landmarks**
Photo or plan of the site location:	**Queen Street Trees.png**
Is the activity in a coastal marine area? (As defined by the RMA 1991)	**No**
Is this property subject to inundation? You can find out if Horizons Regional Council has identified your property as being subject to inundation on their Flood plain mapping page.	**No**
Advice received from Horizons Regional Council regarding inundation and your proposal:	

4. Owner / Occupier of Site Details

Are the landowner details the same as the applicant details:	**Yes**
Landowner's full name, phone number and address:	
Are the occupier details the same as the applicant details:	**Yes**
Occupier's full name, phone number and address:	

5. Description of Proposed Activity

Describe the proposed activity of the application: Please describe and discuss the proposed activity in detail and the reasons why resource consent is required, ie which rule(s) in the Horowhenua District Plan are infringed and the specific degree to which the proposal breaches the rule(s). Alternatively you can upload a separate document below.	**Resource consent is required to remove all the notable trees (Platanus x acerfolia) northward from Queen Street West to Devon Street on both sides of the highway (27 number). This request is in breach of Rule 17.6.23 of the current Operative District Plan.**
Upload Proposed Activity Description:	**Proposed Works Oxford Street Plane Trees.docx**
Activity status:	**Discretionary**

6. Other Consents or Activities

Please let us know of any other consents that you have applied for or know that you need to apply for related to this activity.

Select all that apply:	**No other resource consents are required for the proposed activity**
Resource consent number (if known):	
Regional Council consent number (if known):	
Type of Regional Council consent: Please select all that apply.	

National Environmental Standards (NES)*

Notes to Applicant:

- Please let us know if you require consent under a National Environmental Standard. National Environmental Standards are regulatory documents that contain standards pertaining to certain matters, eg management of contaminated land, telecommunications.
- National environmental standards are regulations which prescribe technical standards, methods or requirement for land use and subdivision, use of the coastal marine area and beds of lakes and rivers, water take and use, discharges, or noise. They can also prescribe technical standards, methods or requirements for monitoring.

Is an NES applicable to this application?	**No**
Select which NES is applicable: Please select all that apply.	
Does the proposed site have, or has it had, an activity or industry described in the HAIL* undertaken on it: **HAIL stands for "Hazardous Activities and Industries List". It is a list published by the Ministry for the Environment and can viewed on the MfE's website. Please contact Council if you're unsure or wish to see a list of HAIL activities.*	**No**
Please describe other activities that are part of the proposal to which the application relates (if applicable): **Note to Applicant:** For any permitted activities, please explain how the activity complies with the requirements, conditions and permissions for any Plan or regulation so that a resource consent is not required for that activity under section 87A(1) of the Resource Management Act.	**No other activities**

7. Assessment of Proposal

Notes to Applicant:

- For your application to be considered, an AEE must be included. The AEE should discuss all the actual and potential effects on the environment arising from the proposal. The amount of detail provided must reflect the nature and scale of the effects. For example, if there are major effects arising from the proposal, a detailed analysis and discussion of these effects should be included in the AEE. It may require the provision of information from specific experts such as an acoustic consultant or traffic engineer. If the effects of the proposal are very minor then a less detailed AEE can be submitted.
- For more information see clauses 6 and 7 of the Fourth Schedule of the RMA which lists the matters to be covered in an AEE. Also, please refer to the assessment criteria contained within the Horowhenua District Plan that are specific to the type of application you applying for. These will help focus you on the types of effects that need to be addressed in your assessment. These criteria are identified in Section 25 of the Plan and are specific to both subdivision and land use applications.
- Further information relative to an AEE for both subdivision and land use applications is contained in Section 28 of the District Plan and Council's "Subdivision and Development Principles and Requirements 2012".
- If you have trouble compiling the information, or need some advice on aspects of your application, please consult Council's Duty Planner - a planner is always available to assist with planning enquiries to provide assistance.

Assessment of Environmental Affects (AEE): *Please provide an assessment of the activity's effects on the environment in accordance with Schedule 4 of the RMA.*	**assessment provided as per attached**
Upload Assessment of Environmental Effects (AEE):	**Assessment of Environmental Effects Oxford Street Plane Trees Dec 2021.docx**

The Resource Management Act 1991 requires this application to include an assessment of the proposed activity against the Operative District Plan. If you believe your proposal is inconsistent with the relevant policies and documents discussed, it is recommended you seek professional planning assistance to help you with your application.

Please provide any additional information that is required to be provided under the relevant matters of Part 2 of the RMA and any relevant provisions of a National Environmental Standard, regulations, National Policy Statement, Regional Policy Statement, Regional Plan and District Plan.

Relevant statutory provisions:	**There are no statutory provisions that apply to the application in terms Part 2 of the RMA.**
Upload relevant statutory provisions:	

8. Pre-Application Information

Have you dealt with a Council Planner regarding your application?	**No**
Have you had any other conversations with any other Council staff?	**No**
If a pre-application meeting with a Council Planner was carried out, please enter the date:	
Council reference or Council staff member details:	
Upload meeting notes: If notes of the meeting or other conversations were provided to you, please attach copies.	

9. Consultation

Have you consulted with iwi?	**No**
Who did you consult with?	
Who else have you consulted (eg neighbours)?	**No formal consultation**
Did they have any concerns?	
Please provide details of the concerns:	
How have you addressed these concerns?	
Have you obtained the written approval of any potentially affected persons?	**No**
Upload written approval of any potentially affected persons:	
Please provide details (names, site address and electronic address for service):	

10. Site Visit Requirements

In order to assess your application it will generally be necessary for the planning officer to visit your site. This typically involves an outdoor inspection only, and there is no need for you to be home for this purpose.

Do you require prior notice of any site visit?	**No**
Are there any locked gates/security system restricting access?	**No**
Are there any dogs on the property?	**No**
Are there any other health and safety issues that the planning officer needs to be made aware of?	**No**

Please provide details of issues:

11. Signature of Applicant(s) or Agent

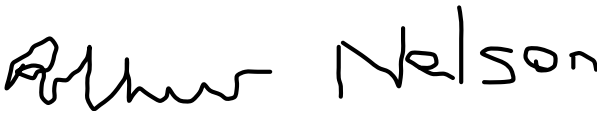
Note: If signing on behalf of a trust or company, please provide additional written evidence that you have signing authority.

Privacy information

Council requires the information you have provided on this form to process your application under the RMA. This information will be held and administered by Horowhenua District Council in accordance with the Local Government Official Information and Meetings Act 1987 and the Privacy Act 1993. Your information may be disclosed in accordance with the terms of these Acts. It is therefore important you advise the Council if your application includes trade secrets and/or commercially sensitive material. You have the following rights with regard to the information held about you:

- To access your personal information.
- To request incorrect information to be amended.
- To expect the information to be safely stored and used by or disclosed to authorised users only.
- To expect your personal information to be accurate and consistent in accordance with sound practices of record keeping and information systems management.

Please upload evidence if signing on behalf of a trust or company:

Declaration:	**I hereby certify that, to the best of my knowledge and belief, the information given in this application is true and correct.** **I undertake to pay all actual and reasonable application costs incurred by the Council.**
Applicants / Agents signature:	**Name of signatory: Arthur Nelson**  Link to signature
Date:	**13/12/2021**

12. Draft Conditions

When a consent is granted, Council can include conditions to manage any adverse effects.

Do you wish to see draft conditions prior to Council making a decision on the application?	**Yes**
Review of draft conditions:	**I understand that the opportunity to review the draft conditions is an act of good faith by the Council intended to assist with identifying errors before consent is granted. I further understand that Council has the right to continue processing the application if too much time is taken in the review of draft conditions. By requesting draft conditions I agree to an extension of time under section 37 of the RMA.**

13. Additional Attachments

Certificate(s) of title for the subject site: This must be less than three (3) months old. Please attach the title(s) and any consent notices, covenants, easements attached to the title(s).	Location of Plane Trees on Oxford Street.docx

Note to Applicant about Site or Scheme Plans

The site plan should include the following where relevant:

- North point
- Title or Reference No.
- Scale
- Date the plans were drawn
- Topographical information
- Natural features including protected trees, indigenous vegetation, water courses
- Archaeological and/or cultural/heritage sites
- Record of Title boundaries/location of fence positions relative to boundaries
- Accessways and road frontages, including proposed crossing places/right of ways
- Onsite manoeuvring and existing and proposed car parking spaces
- Legal and physical roads
- Existing buildings
- Existing wells and/or effluent disposal systems
- Buildings on adjacent sites
- Layout and location of proposed buildings and activities in relation to legal site boundaries
- Earthworks design and contours/areas of excavation (please include area and volume of soil removed/imported and depth of cut/fill).
- Landscaping
- Site coverage calculations
- Details of any signage (sign design, dimensions and location on buildings)
- Areas subject to hazards eg unstable slopes, areas of flooding, peat soils or fill
- Areas of potential or confirmed contamination.

Site Plan or Scheme Plan:

Please ensure the attached plan(s) are an appropriate scale (for example 1:100) showing the location of the building(s) or activity in relation to all site boundaries.

Location of Plane Trees on Oxford Street.docx

Elevation Plans (if applicable):

Please provide at an appropriate scale (for example 1:50, 1:100 or 1:200) and show all structures to be constructed or altered, showing the relationship and appearance of proposed buildings.

Floor plans of proposed building or buildings to be used for the activity (if applicable):

Please clearly show the use of each area/building(s)

Engineering design plans for any water, wastewater and stormwater works (if applicable): Only concept engineering plans are required at this stage.	
Specialist Reports (if applicable): These may include traffic impact studies, landscape and planting plans, acoustic design certificates etc.	Treescape assessment on Oxford Street Plane Trees Aug 2015.pdf Oxford Street Plane Trees - Ar Assessment - 33759 - May 2020.PDF

14. Final Checklist

Please check the following has been included in your application:	**A description of the activity** **A description of the site where the activity will occur** **The full name and address of each owner or occupier of the site** **A description of any other activities that are part of the proposal to which this application relates** **A description of any other resource consent required for the proposal to which the application relates** **In accordance with the fourth schedule of the Resource Management Act 1991, I have provided an assessment of environmental effects in such detail that corresponds with the scale and significance of the effects that the proposed activity may have on the environment.** **An assessment of the activity against Part 2 of the Resource Management Act 1991. This will need to address section 5 'Purpose', section 6 'Matters of national importance', section 7 'Other matters' and section 8 ''Treaty of Waitangi'** **An assessment of the activity against any relevant objectives, policies or rules in the District Plan** **An assessment of the activity against any relevant requirements, condition or permissions in any rules in a document listed in section 104(1)(b) of the RMA, including but not limited to the National Environmental Standard, National Policy Statement, Regional Policy Statement and the Regional Plan.**

15. Payment of fees and charges

A deposit fee is required for your Land use application.

You must pay the charges payable to Council for this application under the RMA. No action will be taken on your application until payment has been receipted by Council and matched to your application. Please refer to our Planning Fees & Charges page for details.

Note to Applicant: Please note that the initial deposit payment may not cover the full cost of processing the application. In accordance with Section 36(3) of the RMA, Council reserves the right to recover actual and reasonable costs for consent applications where the costs exceed the initial preliminary deposit.

Refunds

Should it be necessary for Council to refund part or all of the fee paid, please provide below the details of the bank account you wish this to be paid to. It may be necessary to validate your bank account details at the time of refund.

Account Name:	**Horowhenua District Council**
Bank Account Number:	

Payment Options

I would like to pay by (please choose one of the following options):	**Internet Banking**
Date of payment already made:	
Evidence of payment already made:	

If paying by Internet Banking, our Bank Account Details are: Horowhenua District Council, 02-0668-0070607-02. Please ensure you include your name (eg AB SMITH) in the Particulars section, the Property Address in the Analysis Code section, and the Receipt Number provided on your copy of the online application, eg 'RCA-1'.

If paying in person, you can pay by EFTPOS or by cash, by visiting one of our Customer Service Centres in Levin, Foxton or Shannon. Please bring along the Receipt Number provided on your copy of the online application.

16. Office Use Only

This Section is for office use only. Please continue to the bottom of the page and click Submit.

Application No.(s):

Receipt Date:

Deposit Paid:

Paying by Credit Card, Debit Card or POLi

If you've chosen to pay by Credit Card, Debit Card or POLi you'll see 'Pay with Card' and 'Pay with POLi' options available below.

Payment by card can be made with Visa or MasterCard credit cards or debit cards. Payment by POLi is a service provided by POLi with no additional fees charged to applicants.

IMPORTANT: Please keep a note of the Transaction ID included in your payment confirmation.

Terms & Conditions for Paying by Credit Card or Debit Card

The following Terms and Conditions apply:

1. This card transaction is carried out in terms of the arrangement between you and your card issuer. Please check with your card issuer for any fees or charges that may apply.
2. If payment is made using a credit or debit card issued outside New Zealand, any currency conversion will be carried out according to the terms and conditions of the card and you may be charged currency conversion fees by the issuer.
3. Please allow time for your transaction to be processed. If your payment is made before 10.30pm New Zealand time, your payment will appear in your Horowhenua District Council account the following business day. Transactions after 10.30pm will appear after two working days.
4. By submitting this application form you are confirming that you have read and understood the Online Payment Terms and agree to accept and abide by them.
5. Our full Terms and Conditions can be viewed on our Online Payments page.

Payment:


EXETER STREET
BRISTOL STREET
STANLEY STREET
OXFORD STREET
QUEEN STREET WEST
CAMBRIDGE STREET
QUEEN STREET EAST
CENTRAL SERVICE LANE

Proposed Works Oxford Street Plane Trees

Removal of all Plane trees from Queen Street West Northward to Denton Street with grinding out stumps and reinstatement of tarmac footpaths and roads.

ASSESSMENT OF ENVIRONMENTAL EFFECTS – REMOVAL OF 27 X NUMBER PLATANUS X ACERFOLIA FROM OXFORD STREET

The trees concerned are in the commercial zone (Oxford Street, Levin).

PART 1: ASSESSMENT CRITERIA FOR ACTIVITY AS PER HOROWHENUA DISTRICT PLAN

1.0. Existing Condition of the Notable Trees

The ultimate height and spread of Platanus acerfolia in the wild is somewhere between 30-40m in height and somewhere between 20-25m in width. As such they are not appropriate in urban streetscapes unless actively managed. It is noted that active management of the trees as pollards ceased in 1992 and the replacement regime was to manage the trees at a maximum height of 11m and maximum spread of 8m. It would appear between 1992 and 2002 this work was not consistently undertaken leading to some of the problems identified today.

Council officers engaged Treescape who are a well-established arboriculture contractor to undertake an evaluation of a test group of trees in August 2015[1]. The report is attached as Appendix A. Treescape evaluated 11 trees between Bath Street and Queen Street on Oxford Street and compiled a report. The evaluation concluded that. "*Many of the trees have visible and detectable signs of decay, decline, and reduced vigour*" (Commers, 2015). In terms of condition and amenity they completed a STEM analysis. The results indicated that out of a possible 270 points, one tree achieved a score of 150; three achieved a score of 144; four achieved a score of 138 and three achieved less than 132.

In terms of condition and amenity therefore all trees fall into the lower end of the upper mid-quartile, or upper end of the lower mid-quartile. The trees are not therefore prime examples of type, achieving value as a group (see 2 below), rather than individual specimens.

Council subsequently engaged Arborlab in May 2020 to undertake a condition assessment of the Plane Trees on Oxford Street (38 x number), and consider a retrenchment process on the trees concerned. The results of the assessment are shown below as Table 1: Tree Inventory. The report is attached as Appendix B. All the trees were assessed as being in fair condition with the majority having some form of structural issue whether decay, cavities, or dead/dying branches. Loughborough notes. "*The previous and now lapsed pollard management pruning of the Oxford Street Plane trees has left the majority of the avenue trees with the poor crown structure typical of lapsed pollards"* (Loughborough, 2020).

2.0. Ecological, Cultural and Historic Heritage

There are approximately 38 London Plane trees (Platanus x acerfolia) on Oxford Street in Levin. The trees are the vestiges of an avenue of 65 trees that were planted along the Levin Main Street (Oxford Street) to commemorate Queen Victoria's Diamond Jubilee in 1897.

In 1999 Council undertook a project to identify notable trees in the district. The Oxford street Plane Trees were identified as 'notable trees' under Plan Change 7 and became notable trees when the plan change became operative in 2000.

The original Plane trees would have been planted at the same time that similar avenues of trees

[1] Treescape undertake a range of arboricultural works for a range of public authorities including a number of Councils and Kiwi Rail.

would have been planted out in the UK in large industrial towns and cities such as London, Manchester and Liverpool. London Plane trees (Platanus acerfolia) and or Lime trees (Tilia platyphyllos) were generally used in industrial towns and cities because they tolerate polluted air and severe pruning.

The current avenue of trees are not the original trees, none are considered to be older than 80 years.

Given these trees are not those originally planted and all are generally of poor form and condition the historic heritage is restricted to the pollarded avenue concept arising from the original planting. Over the last 10-15 years it would appear that as and when trees have failed they have either not been replaced or replaced with indigenous trees (Cordyline, Psuedopanax etc), as such the integrity of the original concept being an avenue planting paralleling those in industrial cities in England for Queen Victoria's Diamond Jubilee has been seriously compromised. In addition, the Arborlab report of May 2020 suggests. "*The size, age and crown structure of the Oxford Avenue Plane trees make them unsuitable for re-pollarding*" (Loughborough, 2020).

There are currently no strategic plans to reinstate the avenue of Plane trees with the redevelopment of the town centre yet to be formalised by the transforming Taitoko strategy. Any replanting (not currently proposed) would take a lead from that strategic document.

3.0. Dead, Diseased and Dying.

The Treescape report notes that. "*Many of the trees have visible and detectable signs of decay, decline, and reduced vigour*" and further notes "*the subject trees have been previously diagnosed with the presence of anthracnose (Apiognomonia veneta)" (*Commers, 2015*)*. Anthracnose may reoccur annually and can reduce the overall vigour of the tree leading to tissue death and tree decline as exhibited in the current avenue of Plane trees. This process contributes to the likelihood of stem or branch failure.

It is worth noting that Plane anthracnose is a fungal disease and as such is encouraged by high levels of humidity. The lack of active management of the trees in recent times has resulted in dense crowns which in turn creates high humidity. This together with the high levels of rainfall experienced in spring and summer in Levin is more than likely contributing to the overall decline of the trees by providing an ideal environment for fungal infection.

4.0. Threat to Nearby Residents

Pollarding can be defined as the initial removal of the top of a young tree at a prescribed height to encourage multi-stem branching from that point. Once started, it should be repeated on a cyclical basis always retaining the initial pollard point, or bolling as it becomes known. The Treescape report notes. "*It appears that the trees have been through periods of varied management approaches ranging from pollarding to natural regeneration."* (Commers, 2015)

Pollarded trees that are allowed to lapse have a significantly denser crown than those of a natural form. Current research notes. "*A larger canopy will catch more wind and minimize the transfer of wind energy to the trunk and root system.*" (James, 2006) The research further notes. "*The tree constantly responds to the loads it experiences with two mechanisms, by either growing or shedding limbs*" (James, 2006).

The research further indicates "*trees have evolved to grow many branches in a complex three-dimensional architecture that minimises sway motion and the resultant stress because of the branch masses dynamically interacting with the main trunk mass*" (James, 2006). In a tree of natural form

wind energy would be dissipated initially through side branches to the main branch and thence to the trunk. However, in a lapsed pollard this dynamic has changed with the multi-stem structure arising from the bolling meaning wind loads are experienced locally at the growth nodes rather than dynamically across the entire tree structure.

The Arborlab report notes.

> *"The regrowth of both pollarded and topped trees is weakly attached in comparison to maiden branches, and are subsequently more vulnerable to failure. Regular cyclic pollard pruning mitigates this by ensuring the regrowth remains small, in both diameter and length. However, if cyclic pollard pruning is not maintained regrowth from pollard points will tend to have a higher incidence of failure" (Loughborough 2020).*

Anecdotal evidence and arboriculture theory suggests. "*The trunks of lapsed pollard (where pollarding has stopped) carry the heavy burden of crown units often of large tree size and their trunk shells are prone to catastrophic fragmentation*" (Fay, 2016).

Whilst the Plane trees on Oxford Street do not generally show the growth of very large limbs as would be expected in more open landscapes, it should be noted that 9 of the 11 trees assessed by Treescape in August 2015, exhibited average to poor limb structure. This suggests limb failure would be in the region of 10-60% for the majority of trees in the avenue when put under significant wind, or other stress. Given the close proximity to high volumes of pedestrians, traffic and businesses on Oxford Street a failure of a large limb could have significant repercussions.

5.0. Safety of the Roading Network

In terms of maintaining the safety of the road network the current avenue requires ongoing maintenance and inspection. The Arborlab report suggests an aerial survey of the canopies every three years for safety. In addition Council spends around $30,000 each year to carry out regular pruning.

Pruning includes crown reduction, crown thinning, crown lifting where branches may be impeding the view of road signage, and other works to reduce potential H&S issues on the state highway.

Many of the trees are located in the road leading to potential trips as the roots uplift tarmac as per Image 1 adjacent. There is also a risk of vehicles striking the stems whilst parking.

Image 1: Tree situated in road showing cavities and asphalt uplift.

6.0. Nuisance

The Plane trees have been flagged by local retailers as problematic. They allege that flooding in their respective premises is contributed to by leaf fall from the trees particularly over the autumn/winter

period. An example of some of the complaints received by Council over the last five years are attached as Table 2: Flooding Complaints Oxford Street (below).

There are also potential issues with roots approaching shop frontages which may or may not contribute to future issues of subsidence and potentially expose Council to liability claims.

7.0. Constraining Growth of Adjacent Trees

The Plane trees are not currently constrining the growth of more desirable specimens nearby.

8.0. Need for Removal, Practicality of Alternatives (including relocation)

Given the Plane trees are mature there is no possibility of relocating them. In general the trees are of fair health and amenity value and as such do not befit relocation.

9.0. Adverse Effects on the Value of the Notable Trees

As per Table 1 below the majority of tree rootzones in the avenue are substantially located beneath hard surfaces. All fall within the range of 70-100% covered by an impermeable surface. The Arborlab report of 2020 states. "*This poor rooting environment is not conducive to good tree health*" (Loughborough, 2020). The trees as such are prone to compaction of the root zone, water run-off, and physiological stress particularly during hot days. All these factors have an ongoing and negative impact on tree health leading to decline of the avenue.

10.0. Adverse Effects on the Health of a Notable Tree Arising from Maintenance

Maintenance activities are not considered to be adverse to tree health.

11.0. Integrity of the Tree Avenue

The Oxford Street avenue of Plane trees has been severely compromised by failure to replace trees as they are removed, and a proliferation of native plantings. The Transforming Taitoko agenda as it develops will consider what landscape might replace the Plane trees should they be removed as part of a program.

12.0. Ability to Continue Activities that do not Effect the Tree

Should consent not be achieved to remove the avenue of Plane trees officers will continue with a maintenance and removal program (as trees decline and die) to mitigate those issues identified. There is no strategic plan nor budget to re-establish an avenue of Plane trees along Oxford Street. The Transforming Taitoko agenda is likely to result in a wholesale rethink of the aesthetic along Oxford Street.

13.0. Replacement Trees

A provisional budget of around $1,000,000 NZD has been identified in the 21-41 Long Term Plan from Year 6 to re-establish a landscape design (including trees). This budget has been identified to facilitate the Transforming Taitoko landscape agenda following the revocation of Oxford Street as a State Highway upon completion of O2NL.

PART 2: INFORMATION REQUIRED ON ENVIRONMENTAL AFFECTS AS PER SECTION 6 of the RMA

Activity Effects

a) The existing avenue of trees has outgrown the location, are not of high amenity value in terms of STEM analyses and are physiologically stressed in the environment they currently inhabit. It is not considered that removal will have a significant adverse effect;

b) The activity will result in a significant potential change to the visual amenity of Oxford Street in Levin. However, the current integrity of the original avenue planting has been compromised by the removal of dead and dying trees over a number of decades. No plans exist to maintain the avenue. Future landscape design will be significantly influenced by the Transforming Taitoko strategy;

c) The activity does not include the use of hazardous installations;

d) The activity does not include the discharge of contaminants;

e) A provisional budget of around $1,000,000 NZD has been identified in the 21-41 Long Term Plan from Year 6 to re-establish a landscape design (including trees). This budget has been identified to facilitate the Transforming Taitoko landscape agenda following the revocation of Oxford Street as a State Highway upon completion of O2NL;

f) Persons affected by the application will be local retailers and shopkeepers and the public at large;

g) If the activity is approved Council's Parks & Property team will oversee the removal of the trees;

h) There are no implications for customary rights.

PART 3: **INFORMATION REQUIRED ON ENVIRONMENTAL AFFECTS AS PER SECTION 7 of the RMA**

a) The application to remove the avenue of Plane trees will have social, economic, and cultural effects:

- Social – the avenue of Plane trees has been in place in some form or another since Queen Victoria's Diamond Jubilee in 1897. As such it is likely that the avenue has contributed to, and continues to contribute to the social identity of local residents. Whilst it is proposed to reinstate a landscape on Oxford Street driven by the Transforming Taitoko agenda, and that of the Otaki to North Levin expressway, the funding is not available until year 6 (26-27) of the LTP. However, there will be wide-scale consultation with the local community as that agenda develops further, which will as a result define a new social perspective for the CBD;
- Economic – maintenance and pruning the trees comes at a reasonably significant cost to Council, and clearance of gutters and flooding potentially contributed to by leaf fall from the trees becomes a cost to local businesses. It is estimated that cost of removal of the trees together with reinstatement of the damaged footpaths will cost in the region of $100,000. This is roughly equivalent to three years of the tree maintenance budget. After three years there is likely to be a net reduction in economic costs of maintaining the avenue;
- Cultural – the concept for the existing avenue of trees arose from a celebration of Queen Victoria's Diamond Jubilee and has been in place in some form or other since then. Council has agreed to develop and install a new landscape aesthetic as part of the Transforming Taitoko agenda, given this strategic aim the existing landscape is no longer 'fit for purpose'.

b) There will be a significant impact on the visual amenity of Oxford Street should the trees be removed. Provision has been made to relandscape the area in year 6 of the Long Term Plan. Landscape design will be driven by the Transforming Taitoko agenda;

c) Given the trees are part of a highly modified environment and pruning is undertaken on an annual basis it is not anticipated the removal of the trees will represent anything more than a minor loss of habitat;

d) The removal of the Plane trees will have limited historic and cultural impacts relating to the initial purpose of the planting (in celebration of Queen Victoria's Diamond Jubilee). But given the avenue has been seriously compromised over recent years with the death and decline of trees (leading to removal), and none of the trees are original, the impact is considered minor. The current avenue lends little to the town aesthetic as the trees are over-large, in decline, and the original avenue is in serious decline. In addition there is a strategic proposal (Transforming Taitoko) to upgrade the entire CBD landscape. As a consequence the existing avenue has relatively little value. There are no recreational, scientific, or spiritual values to be considered;

e) There will be no discharge of contaminants into the environment as a result of the application;

f) In terms of maintaining the safety of users removal of the trees is likely to improve H&S outcomes (please see 1, 3, 4 and 5 of Part One).

PART 4: SUMMARY

Whilst the avenue of Plane trees in some form or other has been in place on Oxford Street since 1897 the original value of the avenue has been seriously compromised by lack of maintenance and renewals. The current avenue is a poor representation of the original concept.

The value of the avenue was always in the fact that it was set out at the same time as similar plantings in UK for Queen Victoria's Diamond Jubilee. The failure to maintain pollarding (in part due to the constraints placed on the trees by Notable status), and lack of a renewals process has led to a significant decline in the original aesthetic. This has been compounded by the planting of native trees in replacement, or beneath the existing canopy.

The current avenue is creating nuisance for local shop-owners, and together with large shop canopies, walls, and a lack of regular maintenance has led to a claustrophobic aspect to the high street aesthetic. Current and previous strategic documents do not support the maintenance of the avenue as was originally intended and this has in some respects led to the now evident decline.

The tree canopy is likely to provide only minimal support to fauna biospheres given the need for ongoing pruning on an annual basis to keep the trees within acceptable height and spread parameters. There is little residual value left in terms of the avenues contribution to historic, cultural, and social outcomes. Strategic documents do not recognise the support of the current aesthetic.

Tree health is compromised by poor rooting medium, and existing decline. The trees as lapsed pollards present a higher risk to H&S than they would had they been maintained in a pollarded state. The trees further offer specific challenges to established retailers and Council infrastructure with root and canopy growth contributing to uneven footpaths and potential damage to buildings respectively. It has also been alleged by local shop owners that leaf fall is leading to flooding issues during heavy periods of rain.

Table 1: Tree Inventory

Tree #	Species	Height (m)	Girth (mm)	CSR (m)	Crown structure	Tree Health	Age Class	Ownership	Suitable for retrenchment & reduction prune	Comments
1	Platanus x acerfolia	10.8	1480	6	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface
2	Platanus x acerfolia	13	1680	7.8	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface Minor decay/cavities evident at pollard points
3	Platanus x acerfolia	10.9	1640	4.6	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface
4	Platanus x acerfolia	10.2	1880	5.2	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface Decay/cavities evident at lower pollard points
5	Platanus x acerfolia	10.2	1880	5.2	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface Decay/cavities evident at lower pollard points Metal bar partially occluded above lower pollard points Distortion/reaction growth evident on lower stem Hammer soundings do not indicate internal stem decay
6	Platanus x acerfolia	11.4	1460	5.9	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface
7	Platanus x acerfolia	9.7	1650	6.1	Lapsed Pollard	Fair	Mature	HDC	No	Tree root zone 100% hard surface Large swelling on NW base of stem, with cavity on its N side Large open cavity at 2m spreading from old pollard wound Hammer soundings indicate internal stem decay on NW side from ground level to open cavity below pollard cut Tree should be considered for proactive removal and replacement planting
8	Platanus x acerfolia	12	1310	7	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface Small cavity evident at lower pollard points Tree has regrown full crown
9	Platanus x acerfolia	12.5	1670	6.4	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface Small cavities evident at lower pollard points

Tree #	Species	Height (m)	Girth (mm)	CSR (m)	Crown structure	Tree Health	Age Class	Ownership	Suitable for retrenchment & reduction prune	Comments
10	Platanus x acerfolia	12.7	1900	8	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface Metal bar partially occluded above lower pollard point Small cavities evident at lower pollard points
11	Platanus x acerfolia	12.7	1510	4	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface Small cavities evident at lower pollard points
12	Platanus x acerfolia	13	1800	7.5	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface Seam on upper side of NW structural limb between upper and middle pollard points, possibly indicative of internal decay
13	Platanus x acerfolia	12.5	1910	8	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface Metal attachment on W side of stem
14	Platanus x acerfolia	9.5	1610	5.8	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 80% hard surface. Small garden bed has been installed around tree base Cavity evident at lower pollard point Pronounced swelling at base of stem Hammer soundings indicate decay on N aspect of stem
15	Platanus x acerfolia	9.6	1640	4.8	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 90%hard surface. Small garden bed has been installed around tree Large cavities evident at lower pollard point Hammer soundings below pollard point indicate decay
16	Platanus x acerfolia	11	1510	5.5	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 80% hard surface. Small raised garden bed has been installed around tree Height estimated due to obstructions at base

Tree #	Species	Height (m)	Girth (mm)	CSR (m)	Crown structure	Tree Health	Age Class	Ownership	Suitable for retrenchment & reduction prune	Comments
17	Platanus x acerfolia	11	1840	6	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 80% hard surface. Small raised garden bed has been installed around tree Large cavities present at both pollard levels Stem swelling evident Hammer soundings indicate decay on W side Height estimated due to obstructions at base Metal bracket attached to stem at base of crown
18	Platanus x acerfolia	10.3	1740	5	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 80% hard surface. Small raised garden bed has been installed around tree Cavities present at both pollard point levels
19	Platanus x acerfolia	9	3520	7	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 80% hard surface. Small garden bed has been installed around tree Cavities present at lower pollard levels Hammer soundings indicate decay on E side Well-formed reaction wood on stem to support structural limbs. Cavity at base of crown and lower pollard points
20	Platanus x acerfolia	9.3	1630	5.8	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 80% hard surface. Small raised garden bed has been installed around tree Cavities present at upper pollard levels
21	Platanus x acerfolia	10.5	1550	5.8	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 80% hard surface. Small raised garden bed has been installed around tree Height estimated due to obstructions
22	Platanus x acerfolia	10.5	2200	5.8	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 70% hard surface. Raised garden bed has been installed around tree Pronounced stem swelling Hammer soundings on stem indicate decay Height estimated due to obstructions

Tree #	Species	Height (m)	Girth (mm)	CSR (m)	Crown structure	Tree Health	Age Class	Ownership	Suitable for retrenchment & reduction prune	Comments
23	Platanus x acerfolia	9.5	2350	5.5	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 90% hard surface. Garden bed has been installed around tree Cavities at lower two pollard levels Pronounced stem distortion and swelling Hammer soundings on stem do not indicate decay Western structural limb bark necrosis Metal bracket at base of crown
24	Platanus x acerfolia	9	1380	4.8	Lapsed Pollard	Fair	Mature	HDC	No	Tree root zone 90% hard surface. Garden bed has been installed around tree Two southern structural limbs dead with narrow strips of live cambium One limb is heavily decayed and should be removed Structural issue at base of crown may make reduction problematic Consider pro-active removal and replacement
25	Platanus x acerfolia	11	1610	7.5	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 90% hard surface. Raised garden bed has been installed around tree
26	Platanus x acerfolia	11.2	1260	5.4	Fair	Fair	Mature	HDC	Yes	Tree root zone 90% hard surface. Garden bed has been installed around tree Maiden tree – unpollarded
27	Platanus x acerfolia	12.3	3210	7.5	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 90% hard surface. Garden bed has been installed around tree Cavities evident at lower pollard point Pronounced stem swelling and distortion Hammer soundings on stem do not indicate decay Wire and metal bracket partially occluded at base of crown
28	Platanus x acerfolia	14.6	1760	7	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface. Dead structural limb on S side

Tree #	Species	Height (m)	Girth (mm)	CSR (m)	Crown structure	Tree Health	Age Class	Ownership	Suitable for retrenchment & reduction prune	Comments
29	Platanus x acerfolia	12	1650	7.3	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface.
30	Platanus x acerfolia	11.6	1800	7	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface.
31	Platanus x acerfolia	14.2	2110	8	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface. Cavities evident at lower pollard points
32	Platanus x acerfolia	10.5	1400	5	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface. Stem swelling at 2m Bark canker on stem and lower crown Hammer soundings on stem do not indicate decay
33	Platanus x acerfolia	10.7	1280	6	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface.
34	Platanus x acerfolia	11.5	2200	8	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface
35	Platanus x acerfolia	9.4	1540	5	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface. Cavities present on lower pollard points
36	Platanus x acerfolia	12	1830	8.2	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface. Cavities present on lower pruning points
37	Platanus x acerfolia	12.4	2070	7.9	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface. Cavities present on lower pruning points
38	Platanus x acerfolia	12.2	1900	6	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface. Cavities present on lower pruning points

CSR – Crown Spread Radius. The greatest distance from the edge of the main stem, to the furthest distal branch tip.

Table 2: Flooding Complaints Oxford Street

Date	CRM Number	Type of Issue	Location	Town	issue	Completed
1/02/2020	160176/2020	Roading - Pavement - General Maintenance - (Pothole, Edge Break, Other road repairs, litter, detritis)	Oxford Street	LEVIN	Attn: Horowhenua District Council (Group) A new RFS 984252 has been added with the following details: Customer: [redacted] CustomerAddress: (Unknown) Home Phone: (Unknown) Cell Phone: (Unknown) Work Phone: (Unknown) Fax: (Unknown) Email: (Unknown) We have recorded the following information: RFS Started: 1-Feb-2020 10:36 Call In: 1034 Issue Location: 54 Oxford Street, Levin Details: Customer is calling to advise that the gutter outside of her business often becomes blocked with leaves and debris. She advised there is a metal grate over the gutter, the leaves get under the grate in the gutter and get stuck. This causes flooding etc of the footpath and business. She advised they have cleaned the gutter before but don't go under the grate itself and clean out the leaves which is what needs to be done to prevent the flooding. Problem Type: Gutter, Drain or Culvert needs cleaning out If Grate - where is it: (Unknown) Duty Officer Contacted: Not applicable Name/Number: (Unknown) Customer has requested feedback? No via (Unknown) Thank you	4/02/2020
22/08/2019	151833/2019	Parks A - General Information Request	Oxford Street	LEVIN	Hi Team, [redacted] - is a building owner down oxford street and is wanting to know when we will be trimming the trees, he is also experiencing issues from the leaves down oxford street. Could someone please call [redacted] to discuss, thank you	23/08/2019

4/06/2019	145585/2019	Roading - Drainage - Blockage (Culvert, Drain, Sump, Kerb&Channel)	Oxford Street	LEVIN	Report of flooding causing damage - 264 Oxford St - e-mail recieved D19/68322 as attached. [redacted] reports that: On the morning of Friday the 31st May the building at 264 Oxford that has had issues with leaves causing the roof guttering to clog has now had a major flood. This time due to the leaves blocking all the culverts along the back alley which resulted in a huge build-up that then found the lowest point and went through the Levin Club carpark and then the back door of the building and out the front door. We have had [redacted] working since Friday 11.30am to clear the water and then dry the entire downstairs tenancies that have had at least 2 - 3 cm deep water over all floor surfaces. This has involved having uplifting carpets and having heaters, dehumidifiers and large fans running 24/7 since then and there's still no guarantee that the tenants will be able to start work come Tuesday morning. This issue which is ongoing has not only resulted in what will be a significant cost, that we may not be covered by for insurance as it has happened previously but has now seen one tenant ([redacted]) advising yesterday that they will not be renewing their lease which comes due in August. They had previously agreed in mid-May to not only renew but extend the lease. The other tenant ([redacted]) has now also got their lawyers involved and is looking to have their lease terminated 3 years early due to again the flooding issues and Councils lack of action in rectifying the underlying issue. The above actions will now see yet another empty building within Levin's Main street and a significant property owner group out of pocket and disillusioned with how things are being dealt with by the Council. I have attached photo's of the actual flooding along with several photo's I took on Saturday and Sunday showing the build-up of the leaves. If I hadn't been coming down every few hours and cleaning the leaves out each time the building well may have flooded again. Duplicate CRM to be created for Stormwater [redacted]	10/06/2019

4/06/2019	145584/2019	Roading - Drainage - Flooding / Ponding Enquiries	Oxford Street	LEVIN	Report of flooding causing damage - 264 Oxford St - e-mail recieved D19/68322 as attached. [redacted] reports that: On the morning of Friday the 31st May the building at 264 Oxford that has had issues with leaves causing the roof guttering to clog has now had a major flood. This time due to the leaves blocking all the culverts along the back alley which resulted in a huge build-up that then found the lowest point and went through the Levin Club carpark and then the back door of the building and out the front door. We have had [redacted] working since Friday 11.30am to clear the water and then dry the entire downstairs tenancies that have had at least 2 - 3 cm deep water over all floor surfaces. This has involved having uplifting carpets and having heaters, dehumidifiers and large fans running 24/7 since then and there's still no guarantee that the tenants will be able to start work come Tuesday morning. This issue which is ongoing has not only resulted in what will be a significant cost, that we may not be covered by for insurance as it has happened previously but has now seen one tenant ([redacted]) advising yesterday that they will not be renewing their lease which comes due in August. They had previously agreed in mid-May to not only renew but extend the lease. The other tenant ([redacted]) has now also got their lawyers involved and is looking to have their lease terminated 3 years early due to again the flooding issues and Councils lack of action in rectifying the underlying issue. The above actions will now see yet another empty building within Levin's Main street and a significant property owner group out of pocket and disillusioned with how things are being dealt with by the Council. I have attached photo's of the actual flooding along with several photo's I took on Saturday and Sunday showing the build-up of the leaves. If I hadn't been coming down every few hours and cleaning the leaves out each time the building well may have flooded again. Duplicate CRM to be created for Roading tasked to [redacted].	4/06/2019
29/04/2019	143504/2019	Roading - Drainage - Blockage (Culvert, Drain, Sump, Kerb&Channel)	Oxford Street	LEVIN	A new RFS 902570 has been added with the following details: - Customer: [redacted] Customer Address: 176 Oxford Street, Levin - Home Phone: [redacted] - We have recorded the following information: - RFS Started: 29-Apr-2019 7:21 Call In: 0720 - Issue Location: 176 Oxford Street, Levin - Details: Caller has advised that the gutter outside their address is full of leaves and starting to cause some flooding. - Problem Type: Gutter, Drain or Culvert needs cleaning out If Grate - where is it: (Unknown) - Duty Officer Contacted: Spoke to Officer Name/Number: [redacted], Higgins, 0723 - Customer has requested feedback? No via (Unknown) - Thank you	30/04/2019

2/12/2017	116094/2017	Roading - Drainage - Blockage (Culvert, Drain, Sump, Kerb&Channel)	Oxford Street	LEVIN	Customer: [redacted] CustomerAddress: [redacted], Levin Home Phone: [redacted] RFS Started: 2-Dec-2017 11:15 Call In: 1115 Issue Location: 54 Oxford Street, Levin Details: Called to say the drains by the below address were full of leaves/rubbish. She mentioned when the street cleaners come around, they always seem to miss around this end of Oxford Street. Problem Type: Gutter, Drain or Culvert needs cleaning out If Grate - where is it: (Unknown) Duty Officer Contacted: Not applicable	5/12/2017
16/03/2017	100897/2017	Roading - Drainage - Blockage (Culvert, Drain, Sump, Kerb&Channel)	Oxford Street	LEVIN	Lots of fallen leavesin gutter outside [redacted] on Oxford St that require removal. Reported by Recreational Services - Ph [redacted]. Will fwd photo separately by email	17/03/2017

Location of Plane Trees on Oxford Street

The site is legal road (SH1) and as such has no title

Environmental
993 Waitakere Road, Kumeu, Auckland 0841

STEM ARBORICULTURAL EVALUATION

Title:	**London Planetree Evaluation- Oxford Street**
For:	**Horowhenua District Council**
Site:	**Oxford Street; Bath St to Queen St, Levin**
Prepared By:	**Erika Commers – Treescape Environmental**
Brief:	**STEM evaluation for eleven notable London Planetrees**
Date:	**August 2015**

1.0 Introduction

1.1. This report was prepared by Treescape Environmental Ltd at the request of Horowhenua District Council. A health assessment and Standard Tree Evaluation Method (STEM) were carried out on a series of London Planetrees (*Platanus x acerifolia*) growing within the road reserve infrastructure along Oxford Street between Bath Street and Queen Street, Levin.

1.2. There are eleven trees present within the subject site which have been evaluated herein. These London Planetrees are members of a series of Notable plane trees along Oxford Street which date back to 1897, when original plane trees were planted to commemorate the Diamond jubilee of Queen Victoria; therefore holding historical significance and cultural value. The trees currently here are all likely replacement trees varying in age.

1.3. Appendices contained in this report provide information and reporting on the tree's recorded attributes from the visual tree assessment (VTA) carried out on the 20th of August 2015. The trees have been assessed using an attribute criteria that is contained in Appendix C of this report. All measurements within this report are an approximation only.

2.0 Arboricultural Assessment

2.1. The London Planetree (*Platanus x acerifolia*) is a hybrid of *Platanus orientalis* (oriental plane) and *Platanus occidentalis* (American sycamore). The species has been planted globally in temperate climates as a landscape and amenity tree, and has become well known to tolerate harsh growing environments and hard pruning.

2.2. The London Planetree is susceptible to a few common insect and pathogen problems, including anthracnose, powdery mildew, canker stain, borers, scale, lace bug, cicada, caterpillars and mites.

2.3. The subject trees have been previously diagnosed with the presence of anthracnose (*Apiognomonia veneta*), which may reoccur annually in varying severity, influenced by spring weather. Consecutive years of severe anthracnose causing leaf and twig damage can reduce the overall vigour of the tree and potentially lead to tissue death and tree decline.

2.4. The London Planetrees along Oxford Road in the urban centre add ecosystem service values to this rather difficult growing environment and would be challenging to replace with other species. The removal of the trees along this street would greatly change the streets character and aesthetic to its detriment.

2.5. The overall form and condition of the stand of trees is fair. The explanation for this rating is based upon the pruning history of the trees, and their resulting cavities, decay and wounding. It appears that the trees have been through periods of varied management approaches ranging from pollarding to natural regeneration. There also appears to be a history of root zone modification and infrastructure change.

2.6. Field assessment attributes of the Planetrees, as numbered in the District Plan Notable Tree Schedule, are shown in Table 1. The assessment criteria used in Table 1 can be found in Appendix C of this report.

Figure 1- Field assessment attributes

Notable Tree ID (HDC)	Geometry	Species	Girth	Height	Canopy Spread	Form balance	Crown health	Limb structure	Trunk	Rootzone health and safety	Defects	Amenity	Function	Rootzone impediments	Canopy impediments	Notes
35	POINT (175.285278372467 -40.6232768703635)	London Plane- *Platanus x acerifolia*	152	10	10	A	A	Average	Good	Average	A	G	G	Poor	A	
36	POINT (175.285400412977 -40.6231669362604)	London Plane- *Platanus x acerifolia*	170	10	12	A	A-G	A-P	A	A	A- P	G	G	P	A	Superficial sprouts at soil surface where it was filled. Cavities and decay
37	POINT (175.28558280319 -40.6229854936991)	London Plane- *Platanus x acerifolia*	140	8	9	P	P	P	P	A	P	A	A	P	A	Most bark sloughed off. Decay and cavities in visible cuts
38	POINT (175.285977423191 -40.6223113780987)	London Plane- *Platanus x acerifolia*	155	11	10	A	A	A	G	A	A	G	G	P	A	Planter box fill to 12 in depth around buttress.
39	POINT (175.285691432655 -40.6226172630308)	London Plane- *Platanus x acerifolia*	198	9	8	G	A	A	G	G	P	G	G	P	A	Hollow sounded on street side - east, a lot of decay in old pollard wounds.
40	POINT (175.285329334438 -40.6229549563332)	London Plane- *Platanus x acerifolia*	201	11	11	A, P	A, G	A	G	A	A	G	G	P	G- A	
41	POINT (175.28518114239 -40.6230946646681)	London Plane- *Platanus x acerifolia*	128	10	8	G	G	G, A	G	G	G	G	G	A,P	A	Dense sprouting, alike witches broom.
42	POINT (175.284937396645 -40.6233381992637)	London Plane- *Platanus x acerifolia*	132	10	9		G	A P	G	A	A,P	G	G	A,P	A	
43	POINT (175.284811332822 -40.6234483875611)	London Plane- *Platanus x acerifolia*	304	11	11	A, P	A	A,P	G	A	P , A	G	G	P	A	
44	POINT (175.285465791822 -40.6230877937732)	London Plane- *Platanus x acerifolia*	132	10	10	G	G	G	G	A	A	G	G	P	A	
46	POINT (175.285826213658 -40.6224783171371)	London Plane- *Platanus x acerifolia*	114	7	5	P	P	P	A	A	P	A	A	P	A	Trunk callus wound. Two dead limbs without callus response or shoots.

Figure 2- Notable Planetree locations.

3.0 Stem evaluation

A STEM evaluation score sheet has been applied to each Notable Plane tree within the subject area, and can be found in Appendix A of this report. The Amenity Value and Condition Value scores have been arborist assessed for each of the subject trees. The Notable Evaluation score is to be carried out by a Horowhenua Council Planner. The STEM table has been appropriated from the STEM handbook (*Flook, R. 1996*).

4.0 Management Options

4.1. Anthracnose fungi occur primarily on leaves and twigs, and produce an abundance of microscopic spores that spread via water drops to new growth where they germinate, entering leaves and newly expanded twigs. If wet conditions prevail, a successive generation of spores occurs in the infected parts of new leaves. Removal of infected twigs and branches during winter is beneficial to increase air circulation in the canopy and remove the previous season's infected twigs and branches. This will usually be confined to peripheral growth resulting in limited control of the disease problem.

4.2. The pollarding method can be used on London Planetrees to control anthracnose because it removes pathogen-infected shoots. Cut back to good wood to remove any cankered stems.

4.3. To stimulate vigorous growth of trees suffering severe affects of anthracnose, fertilize after the leaves open and spring rains have stopped. Avoid irrigation systems that wet leaves.

4.4. Some pesticides are available to prevent anthracnose infections, but they don't reliably control the disease. Complete coverage of large, tall trees is difficult to achieve; spraying is not very efficient and might not be justified or feasible. While control might occur in some situations, anthracnose can return annually and warrant a continued, preventative spray program.

4.5. For new plantings, choose London Planetree varieties that are resistant to anthracnose fungi.

4.6. Soil grade among a root zone should not be modified around an established tree. Root loss to greater than 25% of a trees root system can be detrimental to the health of a tree. Root loss can be caused by root severance, soil compaction, or root system burial.

5.0 Conclusion

5.1. At the request of Horowhenua District Council a health assessment and Standard Tree Evaluation Method (STEM) assessment were carried out on a series of eleven Notable London Planetrees (*Platanus x acerifolia*) growing alongside Oxford Street between Bath Street and Queen Street in Levin.

5.2. Many of the trees have visible and detectable signs of decay, decline, and reduced vigour. Management options for the retention and/or future replacement of the locally significant and notable trees have been supplied in addition to the condition and amenity evaluations of the STEM assessment.

5.3. Appendix A provides a report of the tree's recorded attributes from the visual tree assessment (VTA) carried out on the 20th of August 2015. The trees have been assessed using an attribute criteria that is contained in Appendix B of this report. All measurements within this report are an approximation only.

For further information please contact the author.

Erika Commers

Treescape Environmental

Appendix A- STEM Evaluations

NT 35

STEM EVALUATION FORM						
CONDITION EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
FORM	Poor	Moderate	Good	Very good	Specimen	9
OCCURRENCE	Predominant	Common	Infrequent	Rare	Very Rare	15
VIGOUR & VITALITY	Poor	Some	Good	Very good	Excellent	15
FUNCTION	Minor	Useful	Important	Significant	Major	15
AGE (yr)	10yrs. +	20yrs. +	40yrs. +	80yrs. +	100yrs. +	9
Subtotal Points (Condition)						**63**
AMENITY EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
STATURE (m)	3 to 8	9 to 14	15 to 20	21 to 26	27+	9
VISIBILITY (km)	0.5	1.0	2.0	4.0	8.0	3
PROXIMITY	Forest	Parkland	Group 10+	Group 3+	Solitary	27
ROLE	Minor	Moderate	Important	Significant	Major	21
CLIMATE	Minor	Moderate	Important	Significant	Major	15
Subtotal Points (Amenity)						**75**
Subtotal Points (Condition + Amenity)						**138**
NOTABLE EVALUATION						
Recognition	Local	District	Regional	National	International	**Score**
Points	**3**	**9**	**15**	**21**	**27**	
STATURE • Feature						
• Form						
HISTORIC • Age 100+						-
• Association						
• Commemoration (Original planting in 1897 Queens Diamond jubilee)						
• Remnant						
• Relict						-
SCIENTIFIC • Source						-
• Rarity						-
• Endangered						-
Subtotal Points (Notable)						
TOTAL POINTS (Tree Evaluation Points)						

NT 36

STEM EVALUATION FORM						
CONDITION EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
FORM	Poor	Moderate	Good	Very good	Specimen	9
OCCURRENCE	Predominant	Common	Infrequent	Rare	Very Rare	15
VIGOUR & VITALITY	Poor	Some	Good	Very good	Excellent	15
FUNCTION	Minor	Useful	Important	Significant	Major	15
AGE (yr)	10yrs. +	20yrs. +	40yrs. +	80yrs. +	100yrs. +	15
Subtotal Points (Condition)						**69**
AMENITY EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
STATURE (m)	3 to 8	9 to 14	15 to 20	21 to 26	27+	9
VISIBILITY (km)	0.5	1.0	2.0	4.0	8.0	3
PROXIMITY	Forest	Parkland	Group 10+	Group 3+	Solitary	27
ROLE	Minor	Moderate	Important	Significant	Major	21
CLIMATE	Minor	Moderate	Important	Significant	Major	15
Subtotal Points (Amenity)						**75**
Subtotal Points (Condition + Amenity)						**144**
NOTABLE EVALUATION						
Recognition	Local	District	Regional	National	International	**Score**
Points	**3**	**9**	**15**	**21**	**27**	
STATURE • Feature						
• Form						
HISTORIC • Age 100+						-
• Association						
• Commemoration						
• Remnant						-
• Relict						-
SCIENTIFIC • Source						-
• Rarity						-
• Endangered						-
Subtotal Points (Notable)						
TOTAL POINTS (Tree Evaluation Points)						

NT 37

STEM EVALUATION FORM						
CONDITION EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
FORM	Poor	Moderate	Good	Very good	Specimen	9
OCCURRENCE	Predominant	Common	Infrequent	Rare	Very Rare	15
VIGOUR & VITALITY	Poor	Some	Good	Very good	Excellent	9
FUNCTION	Minor	Useful	Important	Significant	Major	15
AGE (yr)	10yrs. +	20yrs. +	40yrs. +	80yrs. +	100yrs. +	15
Subtotal Points (Condition)						**63**
AMENITY EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
STATURE (m)	3 to 8	9 to 14	15 to 20	21 to 26	27+	9
VISIBILITY (km)	0.5	1.0	2.0	4.0	8.0	3
PROXIMITY	Forest	Parkland	Group 10+	Group 3+	Solitary	27
ROLE	Minor	Moderate	Important	Significant	Major	21
CLIMATE	Minor	Moderate	Important	Significant	Major	9
Subtotal Points (Amenity)						**69**
Subtotal Points (Condition + Amenity)						**132**
NOTABLE EVALUATION						
Recognition	Local	District	Regional	National	International	**Score**
Points	**3**	**9**	**15**	**21**	**27**	
STATURE • Feature						
• Form						
HISTORIC • Age 100+						-
• Association						
• Commemoration						
• Remnant						-
• Relict						-
SCIENTIFIC • Source						-
• Rarity						-
• Endangered						-
Subtotal Points (Notable)						
TOTAL POINTS (Tree Evaluation Points)						

NT 38

STEM EVALUATION FORM						
CONDITION EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
FORM	Poor	Moderate	Good	Very good	Specimen	15
OCCURRENCE	Predominant	Common	Infrequent	Rare	Very Rare	15
VIGOUR & VITALITY	Poor	Some	Good	Very good	Excellent	21
FUNCTION	Minor	Useful	Important	Significant	Major	15
AGE (yr)	10yrs. +	20yrs. +	40yrs. +	80yrs. +	100yrs. +	15
Subtotal Points (Condition)						**81**
AMENITY EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
STATURE (m)	3 to 8	9 to 14	15 to 20	21 to 26	27+	9
VISIBILITY (km)	0.5	1.0	2.0	4.0	8.0	3
PROXIMITY	Forest	Parkland	Group 10+	Group 3+	Solitary	27
ROLE	Minor	Moderate	Important	Significant	Major	21
CLIMATE	Minor	Moderate	Important	Significant	Major	9
Subtotal Points (Amenity)						**69**
Subtotal Points (Condition + Amenity)						**150**
NOTABLE EVALUATION						
Recognition	Local	District	Regional	National	International	**Score**
Points	**3**	**9**	**15**	**21**	**27**	
STATURE • Feature						
• Form						
HISTORIC • Age 100+						-
• Association						
• Commemoration						
• Remnant						-
• Relict						-
SCIENTIFIC • Source						-
• Rarity						-
• Endangered						-
Subtotal Points (Notable)						
TOTAL POINTS (Tree Evaluation Points)						

NT 39

STEM EVALUATION FORM						
CONDITION EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
FORM	Poor	Moderate	Good	Very good	Specimen	9
OCCURRENCE	Predominant	Common	Infrequent	Rare	Very Rare	15
VIGOUR & VITALITY	Poor	Some	Good	Very good	Excellent	15
FUNCTION	Minor	Useful	Important	Significant	Major	15
AGE (yr)	10yrs. +	20yrs. +	40yrs. +	80yrs. +	100yrs. +	15
Subtotal Points (Condition)						**69**
AMENITY EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
STATURE (m)	3 to 8	9 to 14	15 to 20	21 to 26	27+	9
VISIBILITY (km)	0.5	1.0	2.0	4.0	8.0	3
PROXIMITY	Forest	Parkland	Group 10+	Group 3+	Solitary	27
ROLE	Minor	Moderate	Important	Significant	Major	21
CLIMATE	Minor	Moderate	Important	Significant	Major	9
Subtotal Points (Amenity)						**69**
Subtotal Points (Condition + Amenity)						**138**
NOTABLE EVALUATION						
Recognition	Local	District	Regional	National	International	**Score**
Points	**3**	**9**	**15**	**21**	**27**	
STATURE • Feature						
• Form						
HISTORIC • Age 100+						-
• Association						
• Commemoration						
• Remnant						-
• Relict						-
SCIENTIFIC • Source						-
• Rarity						-
• Endangered						-
Subtotal Points (Notable)						
TOTAL POINTS (Tree Evaluation Points)						

NT 40

STEM EVALUATION FORM						
CONDITION EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
FORM	Poor	Moderate	Good	Very good	Specimen	9
OCCURRENCE	Predominant	Common	Infrequent	Rare	Very Rare	15
VIGOUR & VITALITY	Poor	Some	Good	Very good	Excellent	15
FUNCTION	Minor	Useful	Important	Significant	Major	15
AGE (yr)	10yrs. +	20yrs. +	40yrs. +	80yrs. +	100yrs. +	15
Subtotal Points (Condition)						**69**
AMENITY EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
STATURE (m)	3 to 8	9 to 14	15 to 20	21 to 26	27+	9
VISIBILITY (km)	0.5	1.0	2.0	4.0	8.0	3
PROXIMITY	Forest	Parkland	Group 10+	Group 3+	Solitary	27
ROLE	Minor	Moderate	Important	Significant	Major	21
CLIMATE	Minor	Moderate	Important	Significant	Major	9
Subtotal Points (Amenity)						**69**
Subtotal Points (Condition + Amenity)						**138**
NOTABLE EVALUATION						
Recognition	Local	District	Regional	National	International	**Score**
Points	**3**	**9**	**15**	**21**	**27**	
STATURE • Feature						
• Form						
HISTORIC • Age 100+						-
• Association						
• Commemoration						
• Remnant						-
• Relict						-
SCIENTIFIC • Source						-
• Rarity						-
• Endangered						-
Subtotal Points (Notable)						
TOTAL POINTS (Tree Evaluation Points)						

NT 41

STEM EVALUATION FORM						
CONDITION EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
FORM	Poor	Moderate	Good	Very good	Specimen	15
OCCURRENCE	Predominant	Common	Infrequent	Rare	Very Rare	15
VIGOUR & VITALITY	Poor	Some	Good	Very good	Excellent	21
FUNCTION	Minor	Useful	Important	Significant	Major	15
AGE (yr)	10yrs. +	20yrs. +	40yrs. +	80yrs. +	100yrs. +	9
Subtotal Points (Condition)						**75**
AMENITY EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
STATURE (m)	3 to 8	9 to 14	15 to 20	21 to 26	27+	9
VISIBILITY (km)	0.5	1.0	2.0	4.0	8.0	3
PROXIMITY	Forest	Parkland	Group 10+	Group 3+	Solitary	27
ROLE	Minor	Moderate	Important	Significant	Major	21
CLIMATE	Minor	Moderate	Important	Significant	Major	9
Subtotal Points (Amenity)						**69**
Subtotal Points (Condition + Amenity)						**144**
NOTABLE EVALUATION						
Recognition	Local	District	Regional	National	International	**Score**
Points	**3**	**9**	**15**	**21**	**27**	
STATURE • Feature						
• Form						
HISTORIC • Age 100+						-
• Association						
• Commemoration						
• Remnant						-
• Relict						-
SCIENTIFIC • Source						-
• Rarity						-
• Endangered						-
Subtotal Points (Notable)						
TOTAL POINTS (Tree Evaluation Points)						

NT 42

STEM EVALUATION FORM						
CONDITION EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
FORM	Poor	Moderate	Good	Very good	Specimen	3
OCCURRENCE	Predominant	Common	Infrequent	Rare	Very Rare	15
VIGOUR & VITALITY	Poor	Some	Good	Very good	Excellent	15
FUNCTION	Minor	Useful	Important	Significant	Major	15
AGE (yr)	10yrs. +	20yrs. +	40yrs. +	80yrs. +	100yrs. +	9
Subtotal Points (Condition)						**57**
AMENITY EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
STATURE (m)	3 to 8	9 to 14	15 to 20	21 to 26	27+	9
VISIBILITY (km)	0.5	1.0	2.0	4.0	8.0	3
PROXIMITY	Forest	Parkland	Group 10+	Group 3+	Solitary	27
ROLE	Minor	Moderate	Important	Significant	Major	21
CLIMATE	Minor	Moderate	Important	Significant	Major	9
Subtotal Points (Amenity)						**69**
Subtotal Points (Condition + Amenity)						**126**
NOTABLE EVALUATION						
Recognition	Local	District	Regional	National	International	**Score**
Points	**3**	**9**	**15**	**21**	**27**	
STATURE • Feature						
• Form						
HISTORIC • Age 100+						-
• Association						
• Commemoration						
• Remnant						-
• Relict						-
SCIENTIFIC • Source						-
• Rarity						-
• Endangered						-
Subtotal Points (Notable)						
TOTAL POINTS (Tree Evaluation Points)						

NT 43

STEM EVALUATION FORM						
CONDITION EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
FORM	Poor	Moderate	Good	Very good	Specimen	9
OCCURRENCE	Predominant	Common	Infrequent	Rare	Very Rare	15
VIGOUR & VITALITY	Poor	Some	Good	Very good	Excellent	15
FUNCTION	Minor	Useful	Important	Significant	Major	15
AGE (yr)	10yrs. +	20yrs. +	40yrs. +	80yrs. +	100yrs. +	15
Subtotal Points (Condition)						**69**
AMENITY EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
STATURE (m)	3 to 8	9 to 14	15 to 20	21 to 26	27+	9
VISIBILITY (km)	0.5	1.0	2.0	4.0	8.0	3
PROXIMITY	Forest	Parkland	Group 10+	Group 3+	Solitary	27
ROLE	Minor	Moderate	Important	Significant	Major	21
CLIMATE	Minor	Moderate	Important	Significant	Major	9
Subtotal Points (Amenity)						**69**
Subtotal Points (Condition + Amenity)						**138**
NOTABLE EVALUATION						
Recognition	Local	District	Regional	National	International	**Score**
Points	**3**	**9**	**15**	**21**	**27**	
STATURE • Feature						
• Form						
HISTORIC • Age 100+						-
• Association						
• Commemoration						
• Remnant						-
• Relict						-
SCIENTIFIC • Source						-
• Rarity						-
• Endangered						-
Subtotal Points (Notable)						
TOTAL POINTS (Tree Evaluation Points)						

NT 44

STEM EVALUATION FORM						
CONDITION EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
FORM	Poor	Moderate	Good	Very good	Specimen	15
OCCURRENCE	Predominant	Common	Infrequent	Rare	Very Rare	15
VIGOUR & VITALITY	Poor	Some	Good	Very good	Excellent	21
FUNCTION	Minor	Useful	Important	Significant	Major	15
AGE (yr)	10yrs. +	20yrs. +	40yrs. +	80yrs. +	100yrs. +	9
Subtotal Points (Condition)						**75**
AMENITY EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
STATURE (m)	3 to 8	9 to 14	15 to 20	21 to 26	27+	9
VISIBILITY (km)	0.5	1.0	2.0	4.0	8.0	3
PROXIMITY	Forest	Parkland	Group 10+	Group 3+	Solitary	27
ROLE	Minor	Moderate	Important	Significant	Major	21
CLIMATE	Minor	Moderate	Important	Significant	Major	9
Subtotal Points (Amenity)						**69**
Subtotal Points (Condition + Amenity)						**144**
NOTABLE EVALUATION						
Recognition	Local	District	Regional	National	International	**Score**
Points	**3**	**9**	**15**	**21**	**27**	
STATURE • Feature						
• Form						
HISTORIC • Age 100+						-
• Association						
• Commemoration						
• Remnant						-
• Relict						-
SCIENTIFIC • Source						-
• Rarity						-
• Endangered						-
Subtotal Points (Notable)						
TOTAL POINTS (Tree Evaluation Points)						

NT 46

STEM EVALUATION FORM

CONDITION EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
FORM	Poor	Moderate	Good	Very good	Specimen	3
OCCURRENCE	Predominant	Common	Infrequent	Rare	Very Rare	15
VIGOUR & VITALITY	Poor	Some	Good	Very good	Excellent	9
FUNCTION	Minor	Useful	Important	Significant	Major	9
AGE (yr)	10yrs. +	20yrs. +	40yrs. +	80yrs. +	100yrs. +	9
Subtotal Points (Condition)						**45**
AMENITY EVALUATION						
Points	**3**	**9**	**15**	**21**	**27**	**Score**
STATURE (m)	3 to 8	9 to 14	15 to 20	21 to 26	27+	3
VISIBILITY (km)	0.5	1.0	2.0	4.0	8.0	3
PROXIMITY	Forest	Parkland	Group 10+	Group 3+	Solitary	27
ROLE	Minor	Moderate	Important	Significant	Major	15
CLIMATE	Minor	Moderate	Important	Significant	Major	9
Subtotal Points (Amenity)						**57**
Subtotal Points (Condition + Amenity)						**102**
NOTABLE EVALUATION						
Recognition	Local	District	Regional	National	International	**Score**
Points	**3**	**9**	**15**	**21**	**27**	
STATURE • Feature						
• Form						
HISTORIC • Age 100+						-
• Association						
• Commemoration						
• Remnant						-
• Relict						-
SCIENTIFIC • Source						-
• Rarity						-
• Endangered						-
Subtotal Points (Notable)						
TOTAL POINTS (Tree Evaluation Points)						

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Appendix B- Assessment Report

Appendix C – Field Assessment Criteria

FAF Criteria

Form/Balance	Crown Shape	Guidelines
Excellent	Symmetrical and balanced - exemplary specimen	100% symmetrical
Good	Slight asymmetrical or unbalanced	90% asymmetrical
Average	Minor asymmetrical and/or unbalanced or slight suppressed	89%-60% asymmetrical
Poor	Moderate asymmetrical and/or unbalanced or suppressed	59%-30% asymmetrical
Very Poor	Significant asymmetrical and/or unbalanced or suppressed	-30% asymmetrical
Dead/Hazardous	Compromises tree	
Crown/Health	Leaf/needle/twig shape, colour, size and form. Foliage/bud distribution and density	
Excellent	Outstanding	
Good	Slight irregular	
Average	Minor irregular and/or some tip dieback	
Poor	Moderate irregular and/or tip dieback	
Very Poor	Significant tip dieback and/or sparse foliage density and irregular distribution	
Dead/Hazardous	No sign of life	
Limb Structure	Unions and balance - branch weight distribution and unions	
Excellent	Excellent	
Good	Above average for species	
Average	Typical	
Poor	Poor	
Very Poor	Defective/ Compromised	
Dead/Hazardous	Compromise tree	
Trunk	Flare, tapper and/or growing angle	
Excellent	Excellent flare with no defects	
Good	Slight irregular and/or minor defects	
Average	Minor irregular and/or defects	
Poor	Moderate irregular and/or defects	
Very Poor	Significant irregular and/or defects	
Dead/Hazardous	No Flare, compromised growing angle and/or defects	
Rootzone Health	Rootzone health and safety	
Excellent	Unaltered, open and undisturbed in natural or managed setting	
Good	Minor modified and/or compacted in natural and/or managed setting	
Average	Up to 30% modified and/or compacted or fair management and maintenance	
Poor	In excess of 30% modified and/or compacted or poor management and maintenance	
Very Poor	Compromised by modification and/or compaction	
Dead/Hazardous	Modification/circumstances compromising tree	
Structure (footnote 1)	Potential failure of defective part	Size of canopy effected
Excellent	Uncompromised	None
Good	Improbable	Less than 10%
Average	Unlikely	10%-30%
Poor	Likely	30%-60%
Very Poor	Imminent	60%-90%
Dead/Hazardous	Compromised	90%-complete
Amenity (footnote 2)	Appropriateness in setting or tree group. Value to neighbourhood. Cultural and/or heritage significance.	
Excellent	Integral	
Good	Highly valued	
Average	Valued	
Poor	Some value	
Very Poor	Little value	
Dead/Hazardous	No value	

Function	Use of tree in setting - soil retention/stabilisation, stormwater attenuation, microclimate, amenity.
Excellent	Integral role or crop for purpose
Good	Important role
Average	Contributing role
Poor	Some role. Somewhat compromising adjacent immovable structures
Very Poor	No greater than amenity provided. Unsuitable due to compromising immovable structures
Dead/Hazardous	Impedes the intended purpose of the land
Rootzone Impediments	Root area growth restrictions, paved (impervious) or impediments
Excellent	Not applicable
Good	No impediments/open to minor or less than 10%
Average	10% to 30% of rootzone
Poor	30% to 60% of rootzone
Very Poor	60% or more of rootzone – Compromised rootzone
Dead/Hazardous	Not applicable
Canopy impediments	Actual or potential impediment/s that effect canopy shape; not tree health
Excellent	Not applicable
Good	No impediments/open to minor effect less than 10%
Average	10% - 30% effect on tree
Poor	30% - 60% effect on tree
Very Poor	60% or more effect on tree – Compromised tree
Dead/Hazardous	Not applicable

1 The structure rating requires a combination of two aspects, potential failure and size of part affecting overall canopy. Using only the worst case scenario in accordance with the defective part, select the two appropriate values. Form these two values use 'better' value as the tree's structure rating. For example; if the failure rating of the defective part is assessed to be 'unlikely' (Average) and the size of affected canopy is '60%-80%' (Very Poor) then use the rating 'Average' as the overall rating within the assessment. Or; if the failure of the defective part is assessed to be 'Imminent' (Very Poor) and the size of canopy effected is 'less than 10%' (Good) then use the Good rating within the assessment. This is a structure rating only and does not take into account risk using target evaluation. If the tree contains multiple defects use the worst case scenario only.

2 In a group setting assess the tree's value to the group and the adverse effects to the amenity of the group if the tree were to be removed i.e. the removal of a small, suppressed ^{tree} from a group setting may have a negligible adverse effect on the group's amenity value, therefore it is likely to be assessed as 'Little value' (Very Poor).

* Please be aware that these values may be amended from time to time.

* Default rating on all attributes should be Average (Average = typical or more or less expected).

Last update – 25.8.15 (can be only updated by author Jon Redfern)

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OXFORD STREET
ARBORICULTRUAL ASSESSMENT

For:	Horowhenua District Council
Brief:	Provide an arboricultural assessment of thirty-eight (38) Plane trees (*Platanus × acerifolia*) located in Oxford Street, Levin to determine their suitability for a planned staged crown reduction
Prepared by:	Chris Loughborough | Consultant
Reviewed by:	Leon Saxon | Senior Consultant
Date:	20th May 2020

Table of Contents

INTRODUCTION

1. Arborlab Consultancy Services Limited has been engaged by Horowhenua District Council to undertake an arboriculture assessment of thirty-eight (38) Plane trees (*Platanus × acerifolia*) located in Oxford Street, Levin to determine their suitability for a planned, staged crown retrenchment pruning regime and subsequent crown reduction.

LIMITATIONS

2. The findings and recommendations contained herein are based on a visual ground-based assessment of the trees undertaken on Friday, 15th May 2020.

3. All observations were made from ground level only. Tree heights and canopy spreads were measured using a Nikon Forestry Pro, stem girths were measured with a conventional measuring tape. Where obstructions prevent accurate measurement tree heights were estimated.

4. A nylon percussion hammer was also used to take soundings on the stems of the trees assessed. Unexpected tonal changes from hammer sounding on the subject tree's stems can indicate that wood decay may be present.

5. No other decay detecting equipment was used as part of the inspection process. All comments and recommendations that have been discussed and provided are based on the visual observations and hammer soundings recorded during the site visit.

VISUAL REFERENCES

6. Figure 1 below, shows the site location

Figure 1 – Site location, Oxford Street, Levin, Horowhenua

CONTEXT AND PROTECTION STATUS

7. The 38 London Plane trees (*Platanus x acerfolia*) on Oxford Street in Levin are the remnants of an avenue of 65 trees that were planted along the Levin Main Street (Oxford Street) to commemorate Queen Victoria's Diamond Jubilee in 1897.

8. The trees that form the current avenue are believed to be replacements for the original 1897 planting. There is little evidence to indicate any of the current trees are older than 80 years (*Management Plan for Oxford Street, Historic London Plane Avenue, 2019)*.

9. The avenue trees had been historically managed as pollards. The pollard management regime was discontinued in 1992. The new management regime aimed to retain the trees at a maximum height of 11 metres and with a maximum crown spread of 8 metres. The new pruning plan was inconsistently applied between 1992 and 2002 allowing the trees to exceed the desired dimensions *(Management Plan for Oxford Street, Historic London Plane Avenue, 2019).*

10. Horowhenua District Council identified the Oxford Street avenue trees as 'notable trees' under *Plan Change 7* to the *Horowhenua District Plan* which became operational in 2000. The trees are identified in *Horowhenua Operative District Plan 2015, Part F, Schedule 3* and planning maps. Notable tree reference numbers NT23 to NT61.

11. The area of Oxford Street where the trees are located is designated as Commercial Zone in the Horowhenua District Plan, and the District Plan Rules *17.6.23 Notable Trees* apply.

12. *Horowhenua Operative District Plan 2015, Rule 17.6.23 Notable Trees*

    (a) Any removal or partial removal of a tree listed in Schedule 3 - Notable Trees shall comply with the following conditions:

    (i) Council has confirmed the tree is dead; or

    (ii) Removal or partial removal is required as an emergency work to safeguard life or habitable buildings from immediate danger (as confirmed by a qualified arborist).

    (b) Within the drip line of any tree listed in Schedule 3 - Notable Trees, any activities shall not involve the following works:

    (i) The construction of any building or structure.

    (ii) The laying of overhead or underground services.

    (iii) Any sealing, paving, soil compaction, or any other impervious surfaces.

    (iv) The alteration of existing ground levels by excavation or deposition of soil including thrust boring and directional drilling.

    (v) The discharge of any toxic hazardous substance.

    (c) Any trimming and maintenance of a tree listed in Schedule 3 - Notable Trees shall be limited to:

    (i) Minor trimming necessary to maintain the health of the tree where the work is carried out by, or under the supervision of, a qualified arborist who has advised the Council in advance of the work to be carried out.

    (ii) The removal of branches interfering with buildings, structures, overhead wires or utility networks, but only to the extent that they are touching those buildings, or structures, or likely to compromise the effective operation of those overhead wires or utility networks and only where the work is carried out by, or under the supervision of a qualified arborist who has advised the Council in advance of the work to be carried out.

    (iii) The removal of broken branches, dead wood or diseased vegetation (as confirmed by a qualified arborist).

    (iv) Required as an emergency work

13. Horowhenua District Council now proposes a staged crown retrenchment over a 15-year period to reduce the height and spread of the trees' crowns. The proposal is detailed in the *Management Plan for Oxford Street, Historic London Plane Avenue - January 2019 - December 2034.*

COMMENT AND DISCUSSION

14. Pollarding is a tree management technique which limits the size of a trees crown by pruning branches back to a desired growth point within the trees crown then cyclically pruning the regrowth back to those points. The technique is appropriate for large growing, deciduous trees that respond well to pruning.

15. Pollarding must be started when the tree is young and a regular pruning cycle maintained for the technique to work effectively. Regrowth must be cut back to the original pruning points during each maintenance operation, cyclic pruning is usually undertaken annually or biennially. The pruning regime will result in the formation of bulbous pollard knuckles, where the regrowth continues to originate from after each pruning cycle. Below the knuckles the permeant structural limbs of the tree may form normally and above the knuckle small diameter regrowth emerges and is removed each pruning cycle.

16. The key to successful pollard management is maintaining a regular cycle so that the regrowth above the knuckle is removed before it attains a large diameter. This results in smaller diameter pruning wounds when pruning is undertaken, which occlude well, reduce the likelihood of the ingress of decay causing organisms and promote vigorous regrowth.

17. If the pollarding cycle is not maintained a tree will revert to a more natural crown form, this is normally referred to as a lapsed pollard. A lapsed pollard may, if the trees crown structure is suitable, be re-pollarded at a higher point above the original pollard knuckles. This has occurred to several of the trees within the Oxford Street Avenue.

18. Pollarding and re-pollarding must be distinguished from “topping” or severe crown reduction. Topping is the operation where the crown of a mature maiden tree or lapsed pollard is truncated back to structural limbs leaving large pruning wounds. This technique is harmful to tree health in number of ways.

19. The regrowth of both pollarded and topped trees is weakly attached in comparison to maiden branches, and are subsequently more vulnerable to failure. Regular cyclic pollard pruning mitigates this by ensuring the regrowth remains small, in both diameter and length. However, if cyclic pollard pruning is not maintained regrowth from pollard points will tend to have a higher incidence of failure.

20. The size, age and crown structure of the Oxford Avenue Plane trees make them unsuitable for re-pollarding.

21. The proposed management prescription to reduce the crown size of the Oxford Street Plane trees is of a staged crown retrenchment including crown thinning followed by staged crown reduction.

22. Crown retrenchment is a natural process of some species and generally occurs in response to aging, wounding or environmental stresses. The tree forms a lower secondary canopy via epicormic growth, as this lower crown forms the original upper crown dies back, resulting in the eventual retrenchment of the trees crown at the lower level/smaller size.

23. This natural process can also be initiated or mimicked through the application of appropriate pruning techniques. The function of retrenchment pruning is to initiate or promote the development of a lower crown. This is achieved by selectively pruning small sections of canopy tip growth. This pruning, combined with light crown thinning, should stimulate the growth of dominant buds within the trees lower crown. This is caused through a combination of altered hormone distributions within the canopy, and additional sunlight reaching the lower branches. Resulting in the eventual formation of a lower crown.

24. The retrenchment pruning and associated thinning should not result in a reduction in tree height, and care should be taken to keep pruning cuts small. Larger pruning cuts are likely to result in the regrowth close to the pruning point, instead of in the lower crown. The operation may need to be repeated several times

before the desired result is achieved. The frequency of the operation should be guided by the trees' response to the pruning.

25. Once retrenchment has occurred and an adequate lower crown has formed,the upper crown can be gradually reduced until the desired crown dimensions are achieved.

26. The previous and now lapsed pollard management pruning of the Oxford Street Plane trees has left the majority of the avenue trees with the poor crown structure typical of lapsed pollards. One aspect of this poor structure is the lack of a developed lower order branch structure or live growth points inside the existing canopy, from which a new lower crown may form. The lack of an existent base for a lower crown will delay the retrenchment process.

27. The factors that determine a trees suitability for retrenchment and reduction pruning are species, tree health and its structural condition.

28. As a species *Platanus × acerifolia* are very resilient to pruning and respond well to retrenchment and reduction pruning techniques, as they readily produce new growth after pruning operations from dormant buds and compartmentalise decay well.

29. The Oxford Street plane tree avenue was assessed during autumnal change with the trees in various stages of leaf drop. The health assessment was based on site observations of the trees remaining foliage and extension growth. The trees previous years extension growth was in line with the assessor's expectation for trees of this species, growing location and age. The extension growth and remaining foliage would indicate the Oxford Street Avenue trees health can generally be characterised as fair.

30. The majority of the trees in the avenue have impermeable hard surfaces covering the entirety of their root plates. This highly modified growing environment is likely to result in reduced gaseous and moisture exchange. Tree's roots require water and oxygen to survive. The presence of the hard surfaces will be negatively affecting the trees root function, and therefore their overall vitality and their ability to put on growth and respond to any changes in its environment or pruning operations.

31. The health of the trees may be improved by decreasing the area of the hard surfacing and making improvements to the trees rooting environment.

32. Decay or cavities were noted in association with the lapsed pollarding points on 25 of the trees assessed. However, with the exception of trees 7 and 24 the presence and extent of the decay does not appear sufficiently advanced to prevent the proposed retrenchment and reduction pruning.

33. Prior to any future pruning operations an aerial inspection of the cavities in each trees crown should be undertaken to confirm the observations made from ground level are accurate.

34. The almost ubiquitous presence of cavities within the avenue trees and the avenues high traffic location warrants regular arboricultural safety inspection.

35. Tree 7 has a large cavity in its stem and decay at the base of its crown. Retrenchment and reduction pruning are not recommended given the severity of the decay. Removal and succession planting should be considered.

36. Tree 24 has extensive decay at the base of its crown. Retrenchment and reduction pruning are not recommended given the severity of the decay. Removal and succession planting should be considered.

37. Table 1 provides an inventory of the trees assessed.

Table 1. Tree inventory

Tree #	Species	Height (m)	Girth (mm)	CSR (m)	Crown structure	Tree Health	Age Class	Ownership	Suitable for retrenchment & reduction prune	Comments
1	Platanus x acerfolia	10.8	1480	6	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface
2	Platanus x acerfolia	13	1680	7.8	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface Minor decay/cavities evident at pollard points
3	Platanus x acerfolia	10.9	1640	4.6	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface
4	Platanus x acerfolia	10.2	1880	5.2	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface Decay/cavities evident at lower pollard points
5	Platanus x acerfolia	10.2	1880	5.2	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface Decay/cavities evident at lower pollard points Metal bar partially occluded above lower pollard points Distortion/reaction growth evident on lower stem Hammer soundings do not indicate internal stem decay
6	Platanus x acerfolia	11.4	1460	5.9	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface
7	Platanus x acerfolia	9.7	1650	6.1	Lapsed Pollard	Fair	Mature	HDC	No	Tree root zone 100% hard surface Large swelling on NW base of stem, with cavity on its N side Large open cavity at 2m spreading from old pollard wound Hammer soundings indicate internal stem decay on NW side from ground level to open cavity below pollard cut Tree should be considered for proactive removal and replacement planting
8	Platanus x acerfolia	12	1310	7	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface Small cavity evident at lower pollard points Tree has regrown full crown
9	Platanus x acerfolia	12.5	1670	6.4	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface Small cavities evident at lower pollard points

Tree #	Species	Height (m)	Girth (mm)	CSR (m)	Crown structure	Tree Health	Age Class	Ownership	Suitable for retrenchment & reduction prune	Comments
10	Platanus x acerfolia	12.7	1900	8	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface Metal bar partially occluded above lower pollard point Small cavities evident at lower pollard points
11	Platanus x acerfolia	12.7	1510	4	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface Small cavities evident at lower pollard points
12	Platanus x acerfolia	13	1800	7.5	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface Seam on upper side of NW structural limb between upper and middle pollard points, possibly indicative of internal decay
13	Platanus x acerfolia	12.5	1910	8	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface Metal attachment on W side of stem
14	Platanus x acerfolia	9.5	1610	5.8	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 80% hard surface. Small garden bed has been installed around tree base Cavity evident at lower pollard point Pronounced swelling at base of stem Hammer soundings indicate decay on N aspect of stem
15	Platanus x acerfolia	9.6	1640	4.8	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 90%hard surface. Small garden bed has been installed around tree Large cavities evident at lower pollard point Hammer soundings below pollard point indicate decay
16	Platanus x acerfolia	11	1510	5.5	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 80% hard surface. Small raised garden bed has been installed around tree Height estimated due to obstructions at base

Tree #	Species	Height (m)	Girth (mm)	CSR (m)	Crown structure	Tree Health	Age Class	Ownership	Suitable for retrenchment & reduction prune	Comments
17	Platanus x acerfolia	11	1840	6	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 80% hard surface. Small raised garden bed has been installed around tree Large cavities present at both pollard levels Stem swelling evident Hammer soundings indicate decay on W side Height estimated due to obstructions at base Metal bracket attached to stem at base of crown
18	Platanus x acerfolia	10.3	1740	5	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 80% hard surface. Small raised garden bed has been installed around tree Cavities present at both pollard point levels
19	Platanus x acerfolia	9	3520	7	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 80% hard surface. Small garden bed has been installed around tree Cavities present at lower pollard levels Hammer soundings indicate decay on E side Well-formed reaction wood on stem to support structural limbs. Cavity at base of crown and lower pollard points
20	Platanus x acerfolia	9.3	1630	5.8	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 80% hard surface. Small raised garden bed has been installed around tree Cavities present at upper pollard levels
21	Platanus x acerfolia	10.5	1550	5.8	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 80% hard surface. Small raised garden bed has been installed around tree Height estimated due to obstructions
22	Platanus x acerfolia	10.5	2200	5.8	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 70% hard surface. Raised garden bed has been installed around tree Pronounced stem swelling Hammer soundings on stem indicate decay Height estimated due to obstructions

Tree #	Species	Height (m)	Girth (mm)	CSR (m)	Crown structure	Tree Health	Age Class	Ownership	Suitable for retrenchment & reduction prune	Comments
23	Platanus x acerfolia	9.5	2350	5.5	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 90% hard surface. Garden bed has been installed around tree Cavities at lower two pollard levels Pronounced stem distortion and swelling Hammer soundings on stem do not indicate decay Western structural limb bark necrosis Metal bracket at base of crown
24	Platanus x acerfolia	9	1380	4.8	Lapsed Pollard	Fair	Mature	HDC	No	Tree root zone 90% hard surface. Garden bed has been installed around tree Two southern structural limbs dead with narrow strips of live cambium One limb is heavily decayed and should be removed Structural issue at base of crown may make reduction problematic Consider pro-active removal and replacement
25	Platanus x acerfolia	11	1610	7.5	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 90% hard surface. Raised garden bed has been installed around tree
26	Platanus x acerfolia	11.2	1260	5.4	Fair	Fair	Mature	HDC	Yes	Tree root zone 90% hard surface. Garden bed has been installed around tree Maiden tree – unpollarded
27	Platanus x acerfolia	12.3	3210	7.5	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 90% hard surface. Garden bed has been installed around tree Cavities evident at lower pollard point Pronounced stem swelling and distortion Hammer soundings on stem do not indicate decay Wire and metal bracket partially occluded at base of crown
28	Platanus x acerfolia	14.6	1760	7	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface. Dead structural limb on S side

Tree #	Species	Height (m)	Girth (mm)	CSR (m)	Crown structure	Tree Health	Age Class	Ownership	Suitable for retrenchment & reduction prune	Comments
29	Platanus x acerfolia	12	1650	7.3	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface.
30	Platanus x acerfolia	11.6	1800	7	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface.
31	Platanus x acerfolia	14.2	2110	8	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface. Cavities evident at lower pollard points
32	Platanus x acerfolia	10.5	1400	5	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface. Stem swelling at 2m Bark canker on stem and lower crown Hammer soundings on stem do not indicate decay
33	Platanus x acerfolia	10.7	1280	6	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface.
34	Platanus x acerfolia	11.5	2200	8	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface
35	Platanus x acerfolia	9.4	1540	5	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface. Cavities present on lower pollard points
36	Platanus x acerfolia	12	1830	8.2	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface. Cavities present on lower pruning points
37	Platanus x acerfolia	12.4	2070	7.9	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface. Cavities present on lower pruning points
38	Platanus x acerfolia	12.2	1900	6	Lapsed Pollard	Fair	Mature	HDC	Yes	Tree root zone 100% hard surface. Cavities present on lower pruning points

CSR – Crown Spread Radius. The greatest distance from the edge of the main stem, to the furthest distal branch tip.

CONCLUSIONS

38. The majority of the Oxford Street Avenue trees are in a suitable condition for the proposed retrenchment and reduction pruning, with the exception of trees 7 and 24.

39. Trees 7 and 24 should be considered for proactive removal and replacement at part of management of the tree avenue.

40. While the general health of the avenue trees can be characterised as fair, the trees growing environment is highly modified and a large percentage of their root zone is covered by impermeable surfaces. This poor rooting environment is not conducive to good tree health. An improvement in the tree rooting environment is likely to result in an increase in tree health. An improvement in tree health would increase the likelihood of a successful outcome from the proposed pruning operations.

41. Although, the majority of the trees are assessed as suitable for the proposed retrenchment and reduction pruning, structurally they are not ideal. The lack of an existing developed lower crown will delay the retrenchment process and subsequent crown reduction. A viable lower crown should be allowed to begin to form prior to the crown reduction.

42. Given the presence of decay within many of the avenue trees a thorough climbing inspection should be undertaken at the start pruning operations, and a regular tree risk inspection cycle should be initiated.

RECOMMENDATIONS

43. An aerial inspection of the tree's crowns should be undertaken with an emphasis on cavities from the historic pollarding operations.

44. The possibility of installing a mulch or garden bed around the base of all the avenue trees currently without one should be explored. As much of the trees' root zone as possible should be converted from impermeable surface to a mulched area. The mulch used should be properly aged and free of seed from weed species. The greater the area of the mulch bed the more likely it is to improve tree health.

45. The feasibility of replacing the impermeable surfaces below the trees crown with a permeable analogue should be also investigated. For example, permeable pavers or no fines concrete.

46. The timing of the crown reduction operation for any individual tree should be based on that tree's response to the retrenchment pruning. A viable lower crown should begin to form prior to the crown reduction operation.

47. Given the trees location on a high use site the trees should be inspected every three years by a suitably trained and qualified arborist. This inspection should include details of any change to the trees' vitality, dynamics and look for signs of failures, defects or land use changes and provide a risk analysis.

48. Any arboricultural work shall be undertaken by suitably trained and experienced individuals. We recommend the use of a New Zealand Arboricultural Association Approved Contractor;

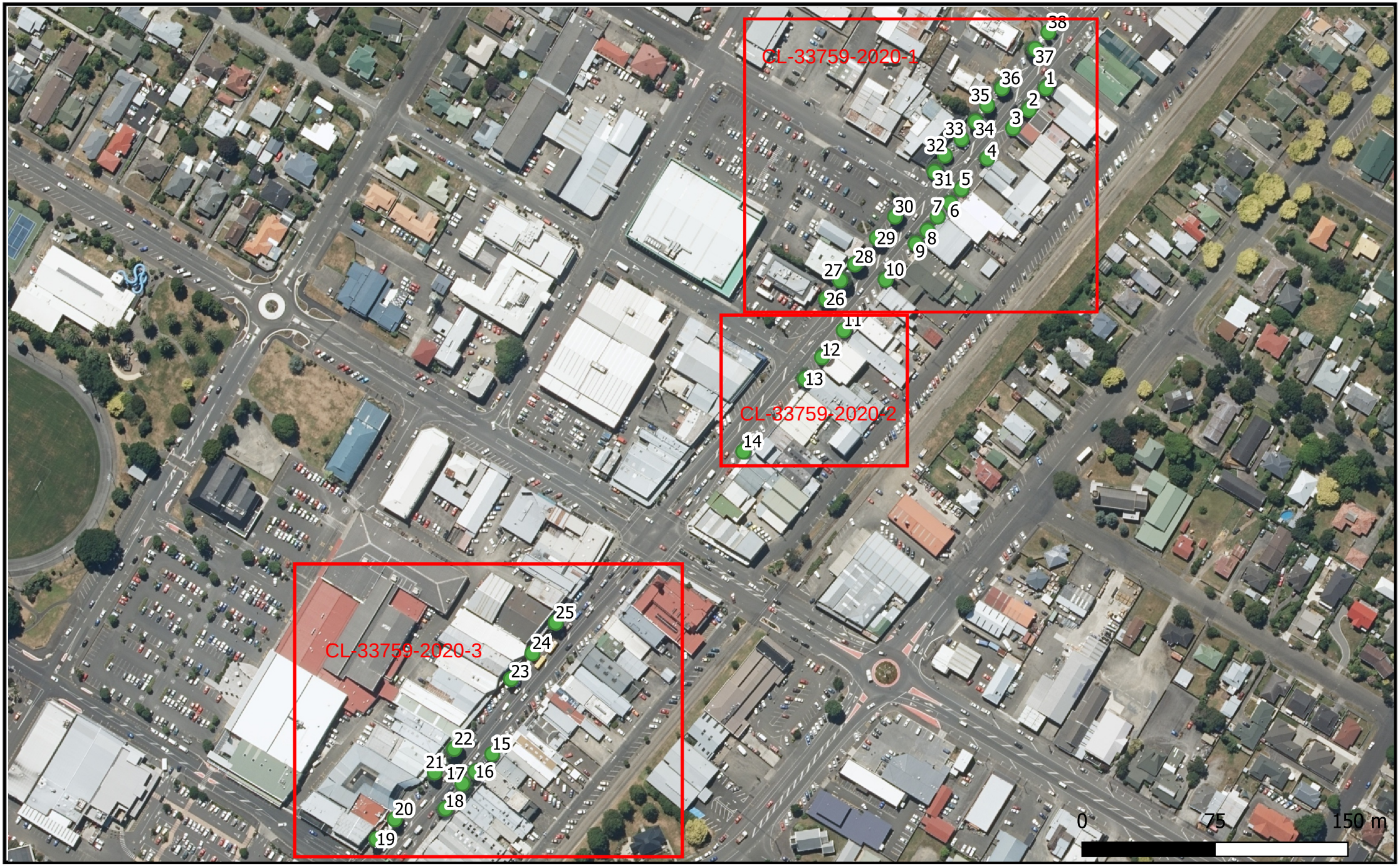
www.nzarb.org.nz/NZ+Arb/Members/ACS.html

PHOTOGRAPH SET

Photograph 1 – Tree 7

Photograph 2 – Tree 24

DIAGRAMS



Aerial images may not accurately reflect the actual vegetation cover. Vegetation is plotted as accurately as possible. Unless otherwise stated, project specific vegetation only has been plotted and captured.

Vegetation alteration/removal may be subject to resource consent requirements/conditions. It shall be the client's responsibility to determine whether or not this is the case.

Works within the root zone of trees should be supervised by an appointed works arborist.

Trees

Crown Spread Radius

Horowhenua District Council

Arborlab

Oxford Street Arboricultural Assessment

Oxford Street, Levin, Horowhenua

		Date
Requested by	Arthur Nelson	May 20
Surveyed by	Chris Loughborough	May 20
Plotted by	Chris Loughborough	May 20
Checked by	Leon Saxon	May 20
Drawing number	CL-33759-2020-Overview	Rev A

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Crown Spread Radius

Tree

Horowhenua District Council

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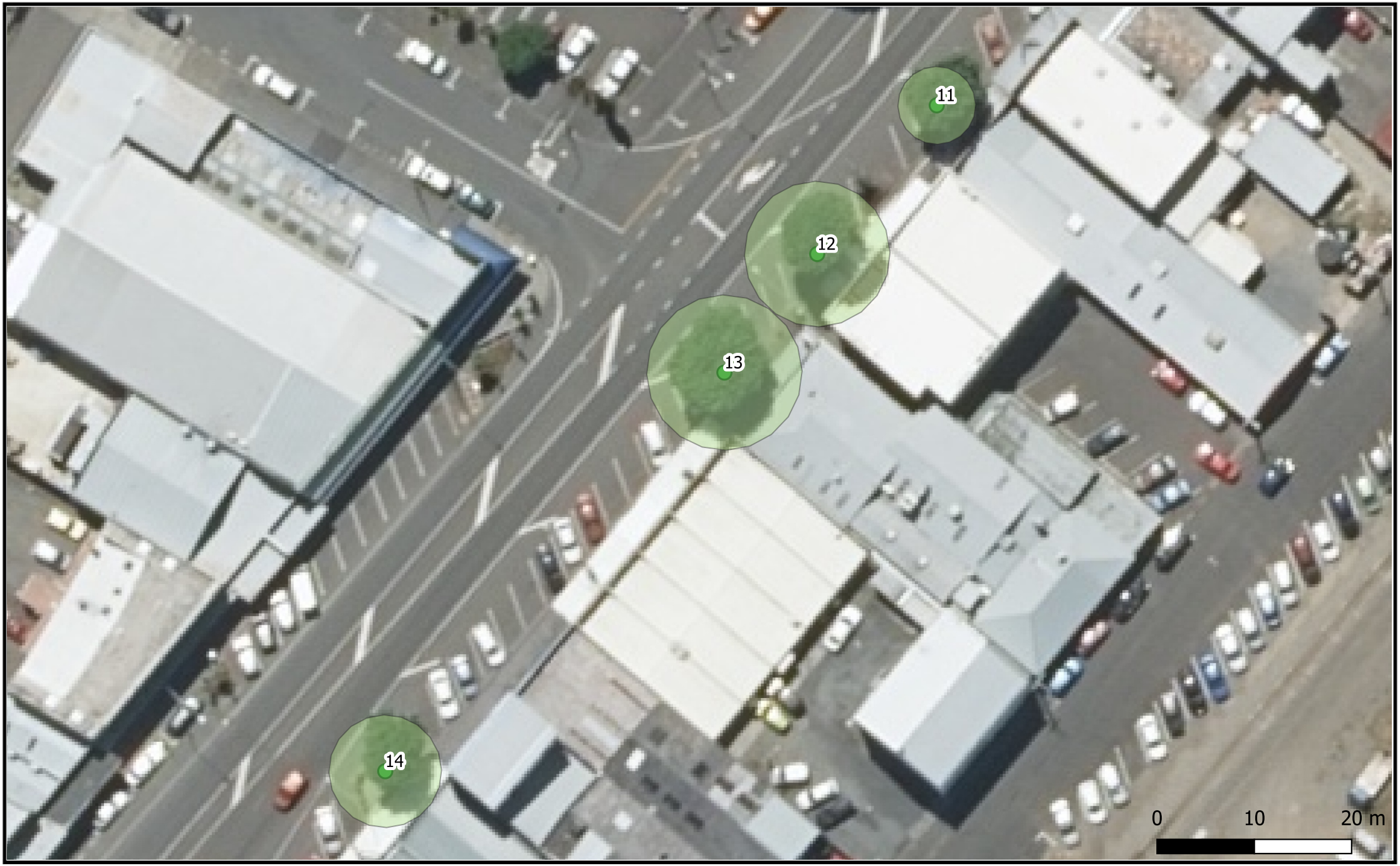
		Date
Requested by	Arthur Nelson	May 20
Surveyed by	Chris Loughborough	May 20
Plotted by	Chris Loughborough	May 20
Checked by	Leon Saxon	May 20
Drawing number	CL-33759-2020-1	Rev A



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Trees

Crown Spread Radius

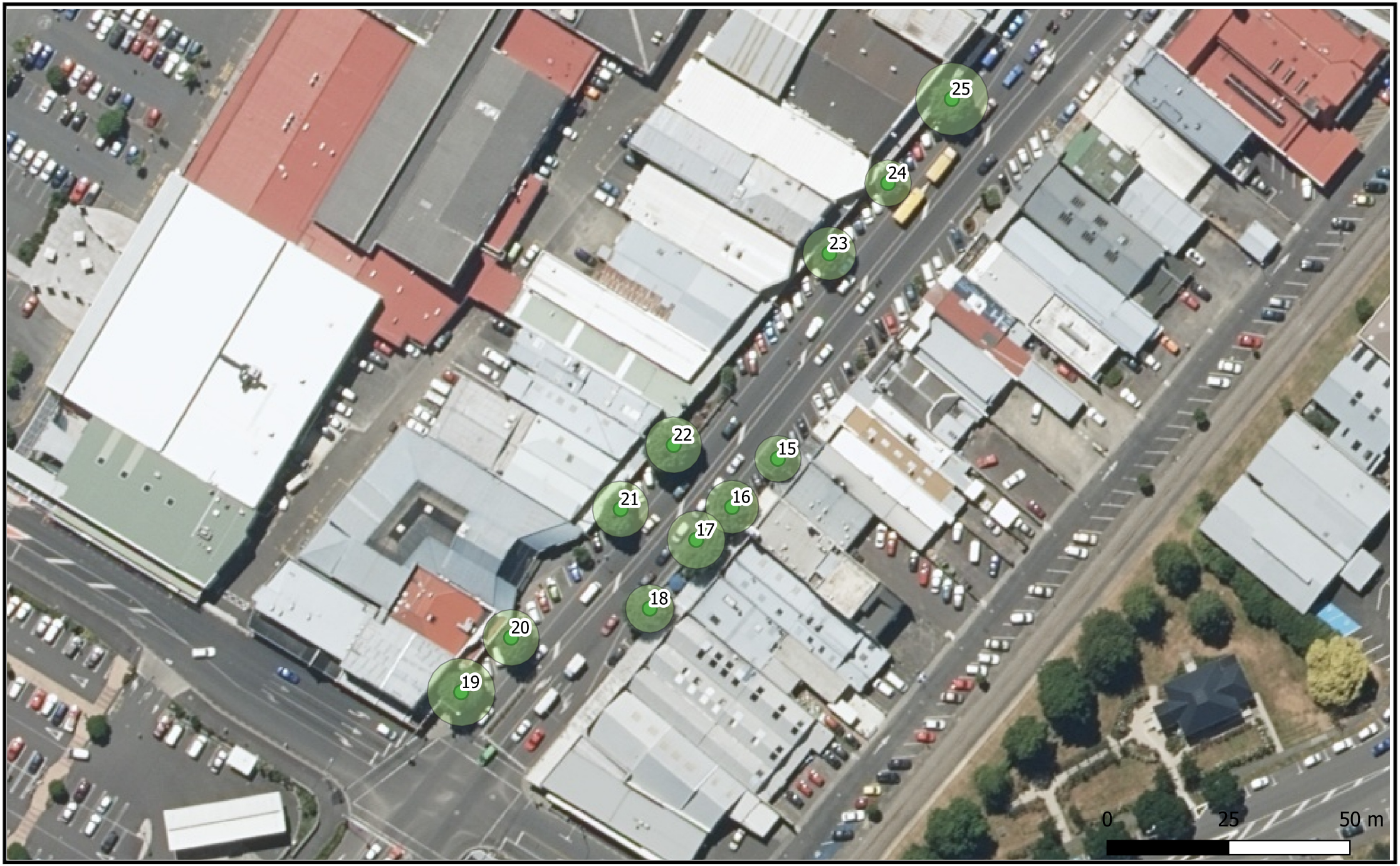
Horowhenua DISTRICT COUNCIL

Arborlab

Oxford Street Arboricultural Assessment

Oxford Street, Levin, Horowhenua

		Date
Requested by	Arthur Nelson	May 20
Surveyed by	Chris Loughborough	May 20
Plotted by	Chris Loughborough	May 20
Checked by	Leon Saxon	May 20
Drawing number	CL-33759-2020-2	Rev A



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Trees

Crown Spread Radius

Horowhenua DISTRICT COUNCIL

Arborlab

Oxford Street Arboricultural Assessment

Oxford Street, Levin, Horowhenua

		Date
Requested by	Arthur Nelson	May 20
Surveyed by	Chris Loughborough	May 20
Plotted by	Chris Loughborough	May 20
Checked by	Leon Saxon	May 20
Drawing number	CL-33759-2020-3	Rev A