

IN THE MATTER OF the Resource Management
 Act 1991

AND

IN THE MATTER OF a private plan change request
 ('Proposed (Private) Plan
 Change 40: Wallaceville') to
 the Upper Hutt City District
 Plan made by Wallaceville
 Developments Limited.

STATEMENT OF EVIDENCE OF MARK IAN LOWE

1.0 EXECUTIVE SUMMARY

- 1.1 My name is Mark Ian Lowe. I hold a Masters of Science in Conservation Biology and Bachelor of Science from Massey University. I hold the position of Environmental Science Team Leader and Senior Environmental Scientist at Morphem Environmental Ltd. I have been in the position since May 2013. A full copy of my qualifications and experience is available in **Attachment A** to my evidence.
- 1.2 I am familiar with the subject site¹ and I first visited the area on the 3rd of July 2014 to undertake site investigations. These site investigations informed the technical report² prepared by Stu Farrant³ and reviewed by myself. This report informs my evidence.
- 1.3 I provide the following summary of evidence in response to submissions. Individual responses are provided in section 5.0 of my evidence.

¹ Pt Section 619 Hutt District; Pt Section 618 Hutt District; Pt Section 102B Hutt District; Lot 2 DP 471766; Lot 1 DP 80342; Lot 1 DP 29238

² Wallaceville Ecological Assessment, Morphem Environmental Ltd 2014

³ Morphem Environmental Ltd. Wellington Branch Manager, Ecological Engineer. Bachelor of Engineering, Natural Resources (Hons)

ECOLOGY – SOUTHERN SIDE OF ALEXANDER ROAD

1.4 Submitters generally requested that the land on the southern side of Alexander Road should either, not be developed at all, or developed with only limited development in the triangular portion of the land which is currently covered in pasture. The submitters' requests were generally based on landscape and ecological values. In relation to these submissions I set out the following findings and recommendations:

- a) The area of Southern Hills currently includes regenerating indigenous forest with areas of more mature native vegetation and understory, particularly in gullies.
- b) Some wilding pines exist, in particular on the north eastern side of the triangular parcel of land south of Alexander Road which is covered in pasture. I recommended that these pines and other exotic weed species are removed. It is noted that a submission by GWRC⁴ raised concerns with regard to removal of these trees without a bird survey. This submission was based on the potential for the pines to provide roosting habitat for threatened species. I support undertaking a bird survey prior to removing any pines or large trees that are potentially suitable for roosting.
- c) Part of the land south of Alexander Road comprises of a triangular piece of land which currently comprises pasture with little ecological value.
- d) I support the development of the triangular piece of land currently covered in pasture, provided the potential impacts on the ecology of the Southern Hills is appropriately mitigated. I consider appropriate weed control around the perimeter of the bush; fencing the vegetated boundary of the Southern Hills, as well as, restrictions and/or education on cat ownership to be appropriate mitigation for the development of the triangular piece of land currently covered in pasture.

ECOLOGY GRANTS BUSH

1.5 Submitters generally requested that the Grants Bush covenant area is respected. This included opinions that the bush should be fully fenced; should not include any pathways; should include a perimeter buffer; should not be used for general recreation and that cats should be excluded either from the development or within 1,000 m of the covenant area. In relation to these submissions I set out the following findings and recommendations:

- a) The existing Grants Bush covenant includes an area of remnant valley floor forest surrounded by open pasture with distributed indigenous and exotic vegetation.
- b) The remnant forest represents a significant example of valley floor forest which is uncommon within the Hutt Valley with only Bartons Bush providing similar characteristics.

⁴ Greater Wellington Regional Council

- c) I have noted ingress of exotic weed species from the perimeter of the vegetation. Weeds are currently not adequately managed with continued threat to existing ecological values.
- d) Management is required to control existing weed species and revegetate the surrounding areas within covenant footprint. The extent of this works means that proposed changes to the layout of the covenant boundaries will not negatively impact the ecological potential of the site.
- e) Community education plays a role in conservation. Inclusion of an appropriately designed and aligned pathway will increase community exposure to the ecology and biodiversity of the area and provide both environmental and social benefits. This may require a raised boardwalk through any sections of the covenant that currently includes native vegetation.
- f) Fencing of the covenant will only exclude a limited number of unwanted species and will do nothing to stop cats, rats, possums and exotic birds entering the covenanted area. I recommend that the focus should be on pest control and education rather than structural exclusion. However, I recommend the fencing of the wider covenant area, with the possible use of hinged gates, to exclude dogs and cyclists.
- g) I consider the street and landscape layout to be appropriate to negate the risk of weed dumping and will provide equivalent deterrent as the buffer proposed⁵.
- h) I recognise that domestic cats pose an ongoing threat to indigenous biodiversity. This threat is present in the current situation, with cats likely to be predating freely. The exclusion of cats from the development will mitigate concerns and potential ecological impacts from cat predation. If this is considered impractical, I recommend education programs to encourage responsible pet ownership, discourage acquiring new cats and encourage de-sexing existing cats. This could be in the form of informative signage around the covenant sites.
- i) Building heights are considered unlikely to negatively impact on indigenous biodiversity given the inclusion of roads on three sides of the covenant.

⁵ S10.4 Nick Saville

ECOLOGY GENERAL

1.6 Submitters requested that the habitats of threatened species be identified, protected, and that any impacts on threatened species be assessed. GWRC also requested that the total covenant area should not be reduced. In relation to these submissions I set out the following findings and recommendations:

- a) The assessment⁶ of the existing open channels across the subject site determined that the open channels were highly modified and not representative of the historical ecology of the site. Unrestricted stock access; lack of surface hydraulic connection to downstream ecosystems and intermittent flow is considered to impact on native fish populations. Migration of native fish species is prevented by lack of surface hydraulic connection to downstream ecosystems, with migration only possible during very large flood events when the entire flood plain may be connected to other watercourses nearby. It is possible that closed populations of migratory native fish are present as a result of historic large flood events.
- b) The existing covenant areas are considered fragmented, with the vegetated area of Grants Bush totalling approximately 1.45 ha. As such I consider the covenants to provide limited habitat value for native fauna. Avian species will still access the areas for seasonal feeding etc., with the potential for the areas to act as sinks to wider populations through predation.
- c) It was noted in a submission by GWRC⁷ that the existing large pine trees could provide roosting habitat for NZ Falcon (threatened). I therefore agree that, as per the GWRC submission, a bird survey should be undertaken prior to the removal of any such trees.
- d) I agree that the overall areas of the covenanted land should remain the same⁸. I support changes to the covenant boundaries as the ecological benefits of the areas of pasture within the covenants will only be realised once restoration works is undertaken. However, variation to the area of the covenants could be considered where it can be demonstrated that there will be no loss of ecological outcomes. This may be through the means of offset mitigation.

⁶ Wallaceville Ecological Assessment, Morphem Environmental Ltd 2014

⁷ S14.12 - GWRC

⁸ S14.13 - GWRC

STORMWATER

- 1.7 Some discussion on the suitability of stormwater management elements within the covenant was raised by submitters. I consider it likely that wetland ecosystems would have been an important part of the landform prior to European clearance. I recommend that the integration of well-designed constructed wetlands can provide a range of biodiversity benefits in tandem with water quality improvements.

RECOMENDATIONS

- 1.8 Recommendations I have made pertaining to the existing covenant sites are made with consideration to the existing covenant conditions. Should the existing covenant conditions be altered through agreement between the Minister (acting through the Department of Conservation) and the Land Owner then the recommendations I have made may be revised accordingly. This may apply particularly with respect to the current restricting of general recreational use of the covenant sites.

2. INTRODUCTION

- 2.1 My name is Mark Ian Lowe. I hold a Masters of Science in Conservation Biology and Bachelor of Science from Massey University. I hold the position of Environmental Science Team Leader and Senior Environmental Scientist at Morphum Environmental Ltd. I have been in the position since May 2013. A full copy of my qualifications and experience is available in **Attachment A** to my evidence.
- 2.2 I have 8 years' professional experience as an Environmental Scientist and Ecologist. For the previous two years I have held the position of Science Team Leader and Senior Environmental Scientist at Morphum Environmental. I have seven direct reports and I project manage a wide range of environmental projects, including Stream Ecological Valuations (SEV's), terrestrial ecological assessments and preparing supporting documentation for resource consents. I am currently seconded to the Waterways Planning Team within the Auckland Council Stormwater Unit where I am involved in improving processes and workflows, as well as, prioritising capex works. Previously I held the position of Ecologist at Wetland Solutions for six years. During this time, part of my role involved peer reviewing ecological supporting documents which formed part of Resource Consent applications.
- 2.3 I appear in relation to a private plan change request ('Proposed (Private) Plan Change 40: Wallaceville') to the Upper Hutt City District Plan made by Wallaceville Developments Limited to rezone approximately 63 hectares of the former Wallaceville Ag-Research site and a small part of the Trentham Racecourse property for residential and commercial uses.

2.4 My involvement in the Wallaceville Development Project commenced in June 2014 when Morphem Environmental were engaged by Wallaceville Developments Ltd to undertake an Ecological Assessment of the site.

2.5 I am familiar with the subject site. I first visited the area on the 3rd of July 2014 to undertake site investigations. These site investigations informed the technical report⁹ prepared by Stu Farrant¹⁰ and reviewed by myself. This report informs my evidence outlined in this document. In particular the assessment¹¹ included;

- a) Assessing the current hydrology and ecological condition of the existing modified drains;
- b) Discussion on the pre-development hydrologic conditions;
- c) Discussion on the potential impact of development on hydrology and ecological values;
- d) Assessing the condition of existing areas of covenanted bush;
- e) A High level appraisal of dispersed vegetation across the site; and,
- f) Providing recommendations on balancing development adjacent to regenerating bush.

Lizard and/or bird surveys were not included in the scope. Investigations for potential contaminated ground were not undertaken by Morphem.

2.6 I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note (2014) and agree to comply with the Code. Except where I state that I am relying upon the specified evidence of another person, my evidence in this statement is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions which I express.

3. SCOPE OF EVIDENCE

3.1 In my evidence I will:

- a) Summarise the technical report¹² prepared by Stu Farrant and reviewed by myself. This report informs my evidence outlined in this document. This report was submitted with the Plan Change Request;
- b) Summarise and comment on the submissions received on the Proposed Plan Change that are relevant to my area of expertise;
- c) Provide comments on the recommendation of the Officer's Section 42A Report related to my area of expertise; and,

⁹ Wallaceville Ecological Assessment, Morphem Environmental Ltd 2014

¹⁰ Morphem Environmental Ltd. Wellington Branch Manager, Ecological Engineer. Bachelor of Engineering, Natural Resources (Hons)

¹¹ Wallaceville Ecological Assessment, Morphem Environmental Ltd 2014

¹² Wallaceville Ecological Assessment, Morphem Environmental Ltd 2014

- d) Provide my recommendation on the Plan Change Request.

4. SUMMARY OF TECHNICAL REPORT

- 4.1 On the 3rd July 2014 I undertook site investigations and assessed the ecological condition of the existing drainage channels across the site and the two areas of covenanted forest. A technical report¹³ was prepared by Stu Farrant¹⁴, who also attended the site visit. The technical report was reviewed by myself. This technical report forms the basis of my evidence except where additional or new recommendations are made based on relevant submissions or recommendations in the Section 42A report.
- 4.2 Based on site interpretation and understanding of the wider Hutt River floodplain context it was concluded that it is likely that the existing tributaries from the southern hills area (to the east of the site) were not historically hydraulically connected with surface features on the immediate floodplain, except in large flood events. It was also concluded that prior to clearance for agriculture, the land in the Wallaceville area would have most likely comprised continuous podocarp forest with occasional distributed surface wetlands (swamp forest) related to localised areas of poorly drained surface soils. These wetlands are not likely to have been hydraulically connected (except in larger scale flood events) with the Hutt River or nearby tributaries (Heretaunga Stream) and rather connect with underlying aquifers.
- 4.3 Since clearance and development of the land for farming, drainage ditches have been excavated. These are considered to be typical agricultural drains intended to reduce saturation of low lying adjacent land. The drains infiltrate to the underlying gravels at two terminal locations. One of these (north drain) is a formalised culvert into an open soakage pit within the Grants Bush remnant, whilst the other (south drain) is a large open pit located on the adjacent land parcel. The drains have not been fenced and have been subjected to long term stock access.
- 4.4 I assessed the open drains to offer poor ecological habitat and biodiversity and considered them to not warrant protection as waterways due to the current ecological condition of the drains; the lack of representativeness to historic ecology of the area and the modifications needed to establish them as functional watercourses as part of the development.
- 4.5 The report recommends that the ultimate stormwater management strategy for the development considers the opportunities to integrate well designed stormwater treatment wetlands into the site layout to enhance local biodiversity and reference the relic hydrology of the site where possible.

¹³ Wallaceville Ecological Assessment, Morphum Environmental Ltd 2014

¹⁴ Morphum Environmental Ltd. Wellington Branch Manager, Ecological Engineer. Bachelor of Engineering, Natural Resources (Hons)

- 4.6 The two existing covenanted areas (referred to herein as Grants Bush and Floodplain Remnant) were assessed based on their current condition and recommendations made relating to future management¹⁵. Each of these two areas differs in character with Grants Bush retaining an area of fenced remnant bush which has not been subject to sustained stock damage, while the Floodplain Remnant is open grazed pasture beneath a scattered stand of mixed native trees.
- 4.7 Both areas displayed ongoing weed management issues. Both covenant areas retain significant areas of open pasture which currently include very few distributed established trees.
- 4.8 Whilst the deed of covenant recognizes the intent to regenerate pasture areas within the covenants over time, it is noted that the pasture areas currently retain little ecological value and will require human intervention to restore them to representative valley floor forest. The option of re-aligning the boundaries of the covenants in consideration of this is proposed along with the potential to co-locate well designed stormwater management elements within the open areas of the covenants. This notion is supported in the special conditions for the covenants.
- 4.9 A number of other site wide recommendations based on the site assessment were also made. These included:
- a) That exotic vegetation on the northeast side of the gully on the south side of Alexander Road should be removed¹⁶;
 - b) That assessment should be made of the dispersed totara across the site. Where practical, these should be protected on titles and incorporated into the urban design; and,
 - c) That assessment should be made of the large deciduous exotic trees across the site. Where practical, these should be protected on titles and incorporated into the urban design.
 - d) The covenant reserves should be managed in accordance with the documented covenant conditions to reduce incidence of predation and disturbance to fauna.
 - e) Development of the urban design should complement the covenant areas and other native biodiversity values. Selection of suitable tree species should consider the ecological template of the remnants and seasonal food sources for a range of birds.

5. RESPONSE TO SUBMISSIONS

ECOLOGY – SOUTHERN SIDE OF ALEXANDER ROAD

¹⁵ Wallaceville Ecological Assessment, Morphem Environmental Ltd 2014

¹⁶ It was noted by GWRC (S14.12) that the existing large pine trees could provide roosting habitat for NZ Falcon (threatened). I therefore agree that, as per the GWRC submission, a bird survey should be undertaken prior to the removal of any such trees.

- 5.1 **S5.6 UHTCA** – Triangle land on south side of Alexander Road not suited to residential development and could be protected (reserve) in place of some of the existing flood remnant covenant area

The triangular piece of land on the southern side of Alexander Road has been formed as a deposition fan at the point where the southern hills join the wide alluvial plain of the Hutt River. These gravel loads are mobilised during significant rainfall events and are likely to have significantly increased during early years of conversion of hillside land for agriculture. These gravel loads will be reduced in the current period of advanced regeneration of the upper catchment. Under frequent flow conditions the tributary which drains this catchment is observed to largely infiltrate into the alluvial gravels on the fan. This is typical of aquifer recharge zones at the interface of steep hillsides with infilled alluvial valleys. As such, any development on this parcel of land would require engineering design to ensure that the conveyance of peak runoff events is managed appropriately. Development of this land for residential purposes would not adversely impact the ecological value of the adjacent hills.

- 5.2 **S6.1 Mark Walkington** – Oppose development Triangle land on south side of Alexander Road on landscape grounds

The ecological assessment¹⁷ has not considered landscape amenity. The triangular piece of land is currently covered by pasture with weed ingress on the perimeter. The technical report has recommended works to improve weed management in these areas.

- 5.3 **S9.3 Ian Stewart** – Protect forested areas on south side of Alexander Road as Green Belt

The ecological assessment¹⁸ has recognised the value of this area of regenerating bush which includes some mature specimens. The technical report has made recommendations relating to control of exotic vegetation to further enhance the habitat value and biodiversity of this area. I note agreement with the GWRC submission¹⁹ and the recommendation to undertake bird survey prior to removal of large, potential roosting, trees. Development of the land dominated in pasture grass to the south of Alexander Road for residential purposes would not adversely impact the ecological value of the adjacent hills providing the potential impacts on the ecology of the Southern Hills is appropriately mitigated. I consider appropriate weed control around the perimeter of the bush; fencing the vegetated boundary of the Southern Hills, as well as, restrictions and/or education on cat ownership to be appropriate mitigation for the development of the triangular piece of land currently covered in pasture. It should also be noted that existing provisions of the operative

¹⁷ Wallaceville Ecological Assessment, Morphum Environmental Ltd 2014

¹⁸ Wallaceville Ecological Assessment, Morphum Environmental Ltd 2014

¹⁹ S14.12 - GWRC

Southern Hills Overlay provides appropriate management of the hillside, and in addition, the current proposal does not seek to alter the existing zoning of the hillside.

5.4 **S10.9 Nick Saville** – Area should be made a reserve

Refer to comments in 5.3

5.5 **S15.1 Mears** – Retain existing zoning of the area south of Alexander Road

Refer to comments in 5.3

5.6 **S16.3 Mary Beth Taylor** – Make the hills on the land south of Alexander Road a reserve

Refer to comments in 5.3

5.7 **S16.4 Mary Beth Taylor** – Support for low density development on triangle land on south side of Alexander Road

This land is currently entirely pasture grass with perimeter of regenerating native bush subject to weed encroachment. Development of this land will not significantly adversely impact on the ecological health of the regenerating bush within the southern hills area, providing the potential impacts on the ecology of the Southern Hills is appropriately mitigated. I consider appropriate weed control around the perimeter of the bush; fencing the vegetated boundary of the Southern Hills, as well as, restrictions and/or education on cat ownership to be appropriate mitigation for the development of the triangular piece of land currently covered in pasture.

5.8 **S17.2 Tony Chad** – Hilly areas should not be rezoned from Rural Hill, flat area might be rezoned Rural Lifestyle.

Refer to comments in 5.7. In addition, it should also be noted that existing provisions of the operative Southern Hills Overlay provides appropriate management of the hillside, and in addition, the current proposal does not seek to alter the existing zoning of the hillside.

5.9 **S20.4 Forest and Bird** – All land south of Alexander Road should be provided as reserve

Landscape and visual considerations are outside of the scope of my assessment and evidence. From an ecological perspective, my site inspection concluded that the hills exhibit regenerating bush interspersed with some mature trees in the gullies. Recommendations are made for the improvement of this area through management of weed species on the lower slopes. The triangle of land which is currently pasture is supported for development. It should also be noted that

existing provisions of the operative Southern Hills Overlay provides appropriate management of the hillside, and in addition, the current proposal does not seek to alter the existing zoning of the hillside.

- 5.10 **S20.5 Forest and Bird** – Triangle of land on South of Alexander Road is a wetland formed by gravel outwash and is unsuitable for any land development

Whilst pockets of the existing triangle of land covered in pasture could support a wetland there is generally grade away from the hillside with historical areas of forest wetland considered more likely to have existed on the other side of Alexander Road. These historical wetlands are more likely to have comprised seasonal features and dried up during periods of low or no rainfall.

ECOLOGY – GRANTS BUSH

- 5.11 **S10.2 Nick Saville** – Grants Bush should not be used for general recreation purposes

Improved urban ecology and biodiversity can provide a range of benefits including environmental and social benefits. The current covenant area of grants bush includes both the main portion of semi mature regenerating bush as well as the perimeter areas of pasture with scattered trees and shrubs. Extensive restoration works will be required to manage weeds in these perimeter areas and to support the regeneration of a robust indigenous plant community which reflects the site context.

Community engagement has the potential to increase stewardship and to foster ongoing involvement in management of the covenant area. The inclusion of well-designed community recreation spaces within the overall covenant footprint has the potential to foster this engagement whilst remaining sympathetic to the overall conservation intent of the covenant. This can increase community interaction with the remnant.

This approach is reflected throughout the New Zealand conservation estate where targeted public access and recreation is encouraged in National Parks, Forest Parks and Scenic Reserves. Only wilderness areas and some key species habitats are maintained with very restricted access.

However, in order to uphold the current consent conditions²⁰ I recommend fencing of the wider covenant area, with the possible use of hinged gates, to exclude dogs and cyclists, and the use of information signs to support education and nature appreciation.

- 5.12 **S10.3 Nick Saville** – Opposed to including cycleway/path through Grants Bush

²⁰ "The Owner may, with the prior agreement of the Minister, permit members of the public pedestrian access to, and entry on, the Grants Bush part of the Land (Area "A") for purposes consistent with the objectives of this covenant. Such activities are nature appreciation, photography or botanical/fauna survey work only. As opposed to general recreational purposes"

My site inspection identified Grants Bush as an example of valley floor forest which originally covered the Hutt River valley. The remnant is however considered fragmented, with the area of native vegetation totalling approximately 1.45 ha, and isolated from larger areas of forest (southern hills).

Providing controlled pedestrian access (via a path) could support community 'buy-in' to the conservation efforts in these protected covenants. The route of such a path and the design will need to consider minimising the impact on any existing vegetation and can be co-ordinated with some targeted removal of existing weed tree species. Alignment of any path should also prevent the opening of the canopy. The inclusion of a formal path will also reduce the likelihood of informal paths which could lead to further damage through trampling of vegetation and ground compaction. Signage should encourage users to remain on such paths. I recommend the fencing of the wider covenant areas, with the possible use of hinged gates, to exclude dogs and cyclists. Interpretative signage can also be used to support education and nature appreciation.

- 5.13 **S10.4 Nick Saville** – Should include a buffer around Grants Bush to limit likelihood of dumping of weeds

The issue of weed dumping can be an issue from properties adjacent to reserves but is considered worse in more remote settings rather than within greenfield developments. This issue is best managed through education as any buffer will in theory still be vulnerable to such activity. The landscape design of the road verges (which define 3 sides of the Grants Bush covenant) will include swales and plantings which will reduce the likelihood of dumping. Weed ingress is more likely an issue from the existing weeds within the remnant; wind dispersal and bird dispersal of seeds. These issues can only be addressed with ongoing weed management within the conservation covenants.

- 5.14 **S10.5 Nick Saville** – Building heights adjacent to Grants Bush should not exceed bush height

Private properties will only directly interface with the covenant area along 1 side with the other 3 being roads (2 local and 1 boulevard). The west side of the covenant area (which adjoins private properties) is currently lightly vegetated and will require extensive re-planting activities. It is presumed that boundary setbacks will mean that dwellings do not immediately abut vegetation. From an ecological perspective I considered that the proposed heights will not negatively impact on the biodiversity of the forest remnant. Avian species will still access the area for seasonal feeding etc.

- 5.15 **S10.6 Nick Saville** – Grants Bush should be fenced

Fencing can be effective at restricting access by unrestrained dogs and livestock. Fencing will also limit human access but will not restrict it where it can be climbed. Fencing will not restrict access

from other predatory species (in particular cats, rats and possums) which will either climb or move through the wire fence. I therefore concluded that better protection is therefore achieved through community education and pest control activities. However, I still support the fencing of the wider covenant area, with the possible use of hinged gates, to exclude dogs and cyclists.

5.16 **S10.7 Nick Saville** – Adjacent roads should be planted appropriately

It is agreed that the use of appropriate indigenous or exotic species as street trees and verge plantings will be beneficial. These trees can provide seasonal food sources for a range of avian species and to some extent provide linkages with other habitat remnants (i.e. Southern Hills). Consideration needs to be given to the suitability of particular species in the road context to achieve other landscape, public safety and shading benefits in addition to ecological benefits. As such, I do not consider the use of exotic trees within the street scape to be inappropriate, providing the species selected are not considered invasive, nor do they pose an ecological risk to the covenant sites.

5.17 **S10.8 Nick Saville** – Development should be cat free

Predation by domestic and feral cats is a genuine concern in addition to other pest species such as rats, possums and exotic birds (lorikeets). Without management, there is a risk of remnant bush areas being sinks for indigenous fauna whereby species move into the area from distant habitats for feeding where they are subject to predation. Cats do however maintain an expansive territory and it is likely that domestic cats from surrounding residential areas are already hunting within the existing covenants. I noted a large (presumed feral) cat was disturbed during my site inspection.

Whilst I support the ecological benefits of the exclusion of cats from the surrounding development, I recognise that this may be impractical to implement. Community education should be included as a minimum to highlight the importance of keeping cats indoors overnight and de-sexing cats. This could be in the form of educational signage around the covenant sites.

5.18 **S10.1 Nick Saville** – The bush remnants must be preserved, protected and respected. Grants bush contains healthy populations of swamp mahoe

I note that the Grants Bush remnant is ecologically significant as an example of valley floor forest. This needs to be reflected in ongoing management to control existing ingress of weed species and to revegetate the perimeter areas of the covenant which are currently in pasture.

The presence of the *Melicytus micranthus* (swamp mahoe) was not noted in my assessment and I agree that the presence of this is significant. Further management planning should include the propagation from seeds of the existing specimens (if viable) and inclusion of these within

replanting areas.

5.19 **S16.6 Mary Beth Taylor** - Eliminate invasive weeds and exotics from Grants Bush

I note that the remnant is currently subject to weed ingress. I recommend that the future management should include targeted weed management. This will be important to protect the existing biodiversity values. The majority of invasive weed species within the remnant are not considered to be 'garden plants' and it is considered unlikely that surrounding residential development will provide a long term source of invasive weeds into the Grants Bush area. Community education should include awareness on what exotic species should be avoided, in particular tree species which provide bird distributed seeds.

5.20 **S17.4 Tony Chad** – Eliminate invasive weeds and exotics from Grants Bush

Refer response in 5.19

5.21 **S16.7 Mary Beth Taylor** – Oppose pathway through Grants Bush

Refer response in 5.12

5.22 **S16.15 Mary Beth Taylor** – Incorporate Grants Bush into a reserve to maintain existing biodiversity.

I note that the existing Grants Bush covenant is comprised of areas of open pasture around the perimeter with weed ingress. Management of the Grants Bush covenant area can increase (rather than maintain) the biodiversity and ecological values. In addition, the structure plan proposes to incorporate Grants Bush into a reserve.

5.23 **S17.12 Tony Chad** – Incorporate Grants Bush into a reserve to maintain existing biodiversity.

Refer response in 5.22

5.24 **S20.9 Forest and Bird** – Oppose pathway through Grants Bush

Refer response in 5.12

5.25 **S20.10 Forest and Bird** – Exclude cats from within 1000 m of Grants Bush

Refer response in 5.17

ECOLOGY GENERAL

5.26 **S14.11 GWRC** – Habitats of threatened species are identified and protected

The Wallaceville site includes the two protected covenant areas and other dispersed indigenous trees (mostly individual regenerating totara). The majority of the site has been farmed for a considerable time and is considered to offer little indigenous habitat outside of the covenant areas. My site inspection identified that the covenant areas are subject to weed ingress and include surrounding areas of pasture which at the time of inspection had not been planted. It is considered that any habitat value within the covenant areas will be improved through concerted management of the weed issue and ongoing pest control.

The existing open channels were assessed to be highly modified and extensively impacted through uncontrolled stock access. In addition, the long term lack of any hydraulic connection with downstream waterways restricts access for migratory species to large flood events which may connect the flood plain to other watercourses in the area.

5.27 **S14.12 GWRC** – Need to assess impact on potential habitats of threatened species.

As part of the assessment undertaken by Stu Farrant and myself, no quantitative fish survey or formal bird count was undertaken. Existing drains were visually inspected with consideration to the broader hydrological context, adjacent landuse and current condition. This determined that they were highly modified and extensively impacted and were not consistent with the natural ecological template for the site. In pre-European times it is considered likely that the Wallaceville site would have been extensively forested with dispersed intermittent forest wetlands which were formed during seasonal and heavy rainfall. Whilst these may have previously supported mudfish (with ability to withstand drying) it is considered that the conversion to open agricultural drains, unrestricted stock access and lack of in stream emergent macrophytes would be unlikely to provide suitable habitat. A targeted survey may assist in confirming this. I am not aware of any recent records of brown mudfish in the Wellington Harbour and/or Hutt River catchments. There are existing populations in wetlands in the Ruamahanga River catchment (Wairarapa). There are historical records in the Kapiti area but no recent verified observations²¹.

As noted, a single falcon was spotted beyond the site boundary exiting an open industrial building. We understand that there are populations of this threatened species in the area. As noted by GWRC these birds tend to roost and breed in tall trees which provide vantage. This could include pine

²¹ Department of Conservation 2003: New Zealand mudfish (*Neochanna* spp.) recovery plan 2003–13. Threatened Species Recovery Plan 51. Wellington, 25 p.

trees on the south side of Alexander Road and could feasibly include mature trees within the Grants Bush covenant area. It is considered that the distributed indigenous trees across the remainder of the site would not be suited due to low stature and risk of predation of nests. It is agreed that prior to the removal of any large mature exotics (in particular pines) a survey should be undertaken to assess whether these are indeed nesting sites. It is noted that numerous other suitable trees exist throughout the southern hills in close proximity.

5.28 **S14.13 GWRC** – Maintain existing covenant areas

Based on our assessment the existing covenant areas include defined areas of high quality regenerating indigenous vegetation as well as large areas of open pasture with some scattered semi mature indigenous trees. It is agreed that these remnants of valley floor forest should remain protected in accordance with covenant conditions. The surrounding pasture areas were assessed to provide limited ecological value in existing condition and will require extensive managed restoration works. It is considered that where appropriate, some changes to the covenant boundaries could be made without adversely impacting on the existing ecological and biodiversity values. It is agreed that the overall area should remain at least equivalent to the total area currently contained within the covenants. However, variation to the area of the covenants could be considered where it can be demonstrated that there will be no loss of ecological outcomes. This may be through the means of offset mitigation.

5.29 **S16.5 Mary Beth Taylor** – Follow recommendations in Ecological report

I am in agreement with this submission. However, recommendations I have made are made with consideration to the existing covenant conditions. Should the existing covenant conditions be altered through agreement between the Minister (acting through the Department of Conservation) and the Land Owner then recommendation I have made may also be altered. This may apply particularly with respect to the current restricting of general recreational use of the covenant sites.

5.30 **S16.22 Mary Beth Taylor** – Large pine trees should be removed

I agree with this submission point. In addition, as per S14.12 consideration should be given to presence of threatened bird species prior to any removal.

5.31 **S17.5 Tony Chad** - Large pine trees should be removed

Refer response in 5.30

STORMWATER

- 5.32 **S16.23 Mary Beth Taylor** – Further hydrological investigations required, parts of the site would have been wetlands and should be protected

Whilst it is noted in our report that the pre-European landform would have most likely included dispersed valley floor forest wetlands, this is unable to be confirmed due to the extensive modifications during conversion for agricultural use. The existing open channels have been excavated to form drains and significant earthmoving is thought to have occurred to provide more constant grades and free draining pasture. It would not be feasible to accurately identify the pre-European landform and identify specific location of any wetlands which may have existed (or not).

The proposed use of portions of the covenant areas to locate stormwater treatment wetlands is encouraged due to the potential to re-introduce an element of wetland ecology into the site and to enhance the overall biodiversity through the use of locally indigenous emergent macrophytes and riparian species. These can support populations of macro invertebrates, migratory bird species and some fish species. Wetlands should be designed to provide both the stormwater quality/quantity functions as well as integrate with the adjacent terrestrial re-vegetation areas.

- 5.33 **S17.19 Tony Chad** – *As above*

Refer response to S16.23

6. SECTION 42A REPORT

- 6.1 Comments on the recommendation of the Officer's Section 42A Report related to my area of expertise are outlined below

STORMWATER

- 6.2 I agree with Ms Felicity Boyd²² that the conditions of the covenant (which covers both Grants Bush and the Floodplain Remnant) explicitly provide for stormwater storage and detention ponds and associated attenuation areas within the grassed/open spaces of both covenanted areas. Furthermore, as noted in the ecological assessment, appropriate design of such stormwater devices could improve the biodiversity of the site.
- 6.3 I also agree with Ms Felicity Boyd that the drains on the site do not warrant protection or conversion into functional streams. This is based on the current ecological condition of the drains,

²² Upper Hutt City Council, Proposed (Private) Plan Change 40: Wallaceville, Council Hearing Report, 17 June 2015, Para 4.2.12

the lack of representativeness to historic ecology of the area and the modifications needed to establish (and maintain) them as functional watercourses as part of the development.

- 6.4 Although I support the integration and use of the 'soakage pit' within the Grants Bush covenant into the design of the stormwater system, any design should not alter the current hydrology of the area in such a way to alter on the composition of the existing native vegetation.
- 6.5 It should also be noted that, as per the current covenant conditions, written agreement from the minister (acting through the Department of conservation) is required to undertake works that may be associated with the instillation of any stormwater systems, such as, earth works and fencing.

ECOLOGY

- 6.6 Ms Felicity Boyd requested²³ that the Precinct Intention and Outcomes be amended to include reference to the preservation of ecological values within the area. Through discussions with Mrs Stephanie Blick²⁴ I understand that such an amendment has been made to the Wallaceville Structure Plan Precinct Descriptions Intentions and Outcomes.
- 6.7 I agree with the GWRC submission to undertake bird survey prior to removal of any large exotic trees which may potentially be used for roosting.
- 6.8 There is potential, albeit unlikely, for brown mudfish to inhabit the drains on the site. I am not aware of any recent records of brown mudfish in the Wellington Harbour and/or Hutt River catchments. If deemed necessary, a survey will determine the presence or absence of brown mudfish. However, should brown mudfish be found to be present on the site, I consider that this could be mitigated through appropriate relocation, in accordance with an approved relocation plan.
- 6.9 I acknowledge that regulatory implementation of enforcing a cat free development may be impractical. If this is deemed to be the case I recommend education to encourage responsible pet ownership. This may be in the form of information signage placed at the edges of covenant areas.

GRANTS BUSH

- 6.10 Ms Felicity Boyd requested²⁵ that the Precinct Intention and Outcomes be amended to include reference to the preservation of ecological values within the area. Through discussions with Mrs

²³ Upper Hutt City Council, Proposed (Private) Plan Change 40: Wallaceville, Council Hearing Report, 17 June 2015, Para 5.4.5

²⁴ Senior Planner at Harrison Grierson

²⁵ Upper Hutt City Council, Proposed (Private) Plan Change 40: Wallaceville, Council Hearing Report, 17 June 2015, Para 5.6.8

Stephanie Blick²⁶ I understand that such an amendment has been made to the Wallaceville Structure Plan Precinct Descriptions Intentions and Outcomes.

- 6.11 Ms Felicity Boyd recommends²⁷ the fencing of Grants Bush. I concur with this recommendation, providing the fencing is placed around the perimeter of the covenant area and not through the existing bush area. This is in line with the intent of the existing covenant conditions²⁸. Furthermore, in order to meet the current consent conditions²⁹ of the covenant I recommend that the proposed perimeter fencing excludes cyclists and signs are erected to exclude dogs. Additionally, it should be noted that, prior agreement from the minister is required to permit pedestrian access to the covenant.
- 6.12 I concur with Ms Felicity Boyd³⁰ that planting of roads in the vicinity of Grants Bush should complement indigenous vegetation and minimise the risk of invasive weeds. However, I do not consider the use of exotic trees within the street scape to be inappropriate, providing the species selected are not considered invasive, nor do they pose an ecological risk to the covenant sites.
- 6.13 I agree with Ms Felicity Boyd³¹ that the design of any proposed path through any part of Grants Bush must be appropriate and the typologies updated to reflect this. I consider appropriate in this context to incorporate appropriate design to minimise the impact on the existing indigenous vegetation, including raised boardwalks where required, and alignment to minimise removal of native vegetation and prevent the opening of the canopy. I recommend that dogs and cyclists are excluded from the covenant area. Providing dogs are excluded from the wider covenant area and signs are erected to encourage pedestrians to remain on formed paths, I do not consider it necessary to fence any proposed path through Grants Bush.

LAND SOUTH OF ALEXANDER ROAD

- 6.14 Ms Felicity Boyd³² considers that residential development of the triangular land south of Alexander Road is appropriate. I agree with this statement providing that stormwater design for the area is

²⁶ Senior Planner at Harrison Grierson

²⁷ Upper Hutt City Council, Proposed (Private) Plan Change 40: Wallaceville, Council Hearing Report, 17 June 2015, Para 5.6.8

²⁸ 3.1.4 of the consent conditions

²⁹ "The Owner may, with the prior agreement of the Minister, permit members of the public pedestrian access to, and entry on, the Grants Bush part of the Land (Area "A") for purposes consistent with the objectives of this covenant. Such activities are nature appreciation, photography or botanical/fauna survey work only. As opposed to general recreational purposes"

³⁰ Upper Hutt City Council, Proposed (Private) Plan Change 40: Wallaceville, Council Hearing Report, 17 June 2015, Para 5.6.8

³¹ Upper Hutt City Council, Proposed (Private) Plan Change 40: Wallaceville, Council Hearing Report, 17 June 2015, Para 5.6.8

³² Upper Hutt City Council, Proposed (Private) Plan Change 40: Wallaceville, Council Hearing Report, 17 June 2015, Para 5.9.10

appropriately designed and that any impacts on the adjoining native vegetation is adequately mitigated. I consider appropriate weed control around the perimeter of the bush; fencing the vegetated boundary of the Southern Hills, as well as, restrictions and/or education on cat ownership to be appropriate mitigation for the development of the triangular piece of land currently covered in pasture.

- 6.15 Ms Felicity Boyd³³ rejects the requirements to remove exotic trees within the rural lifestyle zone of the Southern Hills as no zoning changes are proposed in the zone within which these pines are located. I acknowledge this, however, removal of the pines, and other weed species on the perimeter of the triangular piece of land, may improve the ecological value of the area. As such, may offset some of the concerns of submissions relating to the development of the triangular piece of land and any associated effects on the adjoining native vegetation.

7. CONCLUSION AND RECOMMENDATIONS

- 7.1 In conclusion it is my opinion that, providing adequate mitigation for potential impacts, the Proposed Plan Change will not adversely impact on the existing and potential ecological attributes of the Wallaceville Development site.

- 7.2 I am of this opinion for the following reasons:

- a) Existing open channels across the site are highly modified and degraded through unrestricted stock access and loss of natural hydrological function.
- b) The existing covenant sites contain areas of regenerating indigenous vegetation but are compromised by ingress of exotic weed species. Weed management and revegetation efforts will improve the ecological value of these areas.
- c) Areas within the covenants, but outside of main continuous remnants, are currently pasture grass, distributed with semi-mature indigenous trees and a mix of exotic weeds. As such, amending the covenant boundaries, without reducing the total area, will not adversely impact on the ecological value of the covenants.
- d) The Covenant sites will always remain as isolated fragments. These sites are likely to provide seasonal food sources for avian species, however, due to their area provide limited habitat value. Ecological impacts from surrounding urban development can be mitigated through restricting access of dogs, as well as, restriction and/or education on cat ownership.
- e) Community engagement with conservation efforts can provide additional wider benefits through education. Access to covenant areas can provide this.

³³ Upper Hutt City Council, Proposed (Private) Plan Change 40: Wallaceville, Council Hearing Report, 17 June 2015, Appendix 2, S16.5

7.3 Recommendations I have made include:

- a) That the wilding pines on the north eastern side of the triangular parcel of land south of Alexander Road are removed.
- b) The fencing of the wider Grants Bush covenant, with the possible use of hinged gates, to exclude dogs and cyclists.
- c) Appropriate weed control around the perimeter of the vegetated boundary of the Southern Hills; fencing the vegetated boundary of the Southern Hills, as well as, restrictions and/or education on cat ownership in order to appropriately mitigate the development of the triangular piece of land currently covered in pasture.
- d) If excluding cat ownership from the development site is considered impractical, I recommend education programs to encourage responsible pet ownership, discourage acquiring new cats and encourage de-sexing existing cats. This could be in the form of informative signage around the covenant sites.
- e) That any paths through Grants Bush are appropriately designed to minimise impact on the existing indigenous vegetation, including raised boardwalks where required, and alignment to minimise removal of native vegetation and prevent the opening of the canopy.

7.4 Furthermore, in the unlikely event of brown mudfish being present on the site, I suggest that relocation in line with an appropriate relocation plan approved by GWRC will provide adequate mitigation.

7.5 Recommendations I have made pertaining to the existing covenant sites are made with consideration to the existing covenant conditions. Should the existing covenant conditions be altered through agreement between the Minister (acting through the Department of Conservation) and the Land Owner then recommendation I have made may also be altered. This may apply particularly with respect to the current restricting of general recreational use of the covenant sites.

DATE 30/06/2015

NAME Mark Ian Lowe

POSITION Senior Environmental Scientist

SIGNED



8. APPENDIX A

QUALIFICATIONS

I hold a Masters of Science in Conservation Biology and Bachelor of Science from the Massey University. I have 8 years' professional experience as an Environmental Scientist and Ecologist. Full details of my qualifications and relevant past experience are set out below.

MSc – Conservation Biology (Honours); 2011 – Massey University, Albany

BSc – Ecology; 2007 – Massey University, Palmerston North

EXPERIENCE

Morphum Environmental 2013-2015

For the previous two years I have held the position of Science Team Leader and Senior Environmental Scientist at Morphum Environmental.

- Morphum Environmental's core business focuses on stormwater, wastewater (including trade waste), and ecological (freshwater, marine, and terrestrial) solutions. I have seven direct reports and I project manage a wide range of environmental projects, including surveying over 210 km of watercourses in the previous two years.
- I am also currently seconded to the Waterways Planning Team within the Auckland Council Stormwater Unit.

Wetland Solutions 2007-2013

I held the position of Ecologist at Wetland Solutions for six years.

- Wetland Solutions is an environmental consultancy and physical works company that specialises in ecological restoration projects and wetland treatment systems (stormwater, wastewater, sediment control). During this time I was involved in peer reviewing ecological supporting documents which formed part of Resource Consent applications.