

**BEFORE THE WHANGAREI DISTRICT AND NORTHLAND REGIONAL COUNCILS**

**IN THE MATTER** Of the Resource Management Act  
1991

**AND**

**IN THE MATTER** Of applications by TRADING  
CORPORATE LTD (Whangarei  
Heights Ltd) for an application for  
Resource Consents for a proposed  
260-lot residential development at  
Raumanga Heights Drive,  
Whangarei

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**Statement of Evidence by Amy Louise Bazeley**

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**INTRODUCTION**

1. My name is Amy Louise Bazeley. I have the qualifications of Bachelor of Environmental Biology with Honours from Manchester University, England. I graduated in 1998 and immediately after I relocated to New Zealand. Since that time I have worked almost exclusively in the field of applied ecology and resource management, specialising in freshwater and terrestrial ecosystems in the Auckland and Northland regions. I am a Director of AB Ecology Limited, an environmental consultancy previously based in Auckland and now based in Whangarei. Prior to establishing this business in 2002, I worked as an ecological consultant with the consultancy firm Boffa Miskell Limited.
2. I am presenting evidence on the terrestrial and freshwater ecology of Lot 1 DP177316 and Lot 2 DP 352547 at Raumanga Heights Drive, Whangarei. Trading Corporate Limited proposes to subdivide the subject site into a high density residential subdivision. The ecological study investigates the terrestrial and

## WORK UNDERTAKEN

8. My involvement with the project began in December 2006. My assessment of values and effects covers:
- The significance values of the vegetation of the eastern and western catchments of the property;
  - The wildlife values of the property, specifically avifauna and herpetofauna;
  - The freshwater aquatic values of representative sections of the two main, first order tributaries of the eastern catchment and the Waiponamu stream in the western catchment;
  - The ecological threats on the property; and
  - The potential effects of the subdivision and avoidance, remedial or mitigatory measures to offset adverse ecological effects.

## BOTANICAL SURVEY

9. Each area of vegetation was assessed against the Significance criteria of Schedule 17a of the Whangarei District Plan and within the context of the Ecological District.
10. Area 1 in the western catchment comprises continuous regenerating indigenous vegetation with pockets of emergent climax species, namely totara and kahikatea. The more mature parts of Area 1 have been delineated and these have Moderate significance value. The balance of Area 1 is dominated by natives but is younger in age and has Potential significance for the future.
11. Area 2 in the western catchment, and Areas 3, 4 and 5 in the eastern catchment, are gully vegetation comprising broadleaf-podocarp forest with pockets of towai and regenerating treefern and kanuka shrubland. They are representative vegetation areas and have Moderate significance values.
12. Area 6 supports a wetland area with a manuka-kahikatea-nikau overstorey and sedgeland understorey. This area has Moderate-High Significance values as wetlands are a vegetation type that is rare in the Ecological District.

requirements of geckos and skinks known to be in the Whangarei Ecological District.

17. There are three species of gecko and two species of skink that the site could provide good habitat for. Of note are the Auckland green forest gecko, the Pacific gecko and the ornate skink, which are all species with a 'gradual decline' threat status in the New Zealand threat Classification System List 2007.

## **FRESHWATER AQUATIC VALUES**

### Eastern Catchment

18. The northern tributary has a short section of perennial stream channel with marginal physical habitat, reasonable water quality, limited macroinvertebrate fauna and no native fish. Upstream of the survey site the stream was dry at the time of inspection in January 2007. Downstream, it flows intermittently and through a degraded wetland. The downstream receiving environment of the northern tributary is dominated by piped sections and overgrown weedfield and wetland with limited habitat.
19. The central tributaries were dry at the time of inspection but are likely to support stable pools and will flow intermittently.
20. The southern tributary is perennial. Site 2 on this tributary has good physical habitat, good water quality, a moderately sensitive community of macroinvertebrates but recorded no fish. Fish passage is blocked to excellent physical habitat in the upper catchment of the southern tributary. The downstream receiving environment of the southern and central tributaries is a moderately disturbed urban creek but has some habitat values and no obvious sedimentation or organic pollution issues.

### Western Catchment

21. The Waiponamu Stream is perennial. It has low dissolved oxygen levels but has moderate quality physical habitat and macroinvertebrate fauna and supports long finned eels. No other fish species were recorded. Raumanga Falls downstream is a blockage to non-climbing fish species.

Vegetation Clearance to date

28. Vegetation clearance on the ridgelines and in the northern gully has already occurred. In the case of the ridgeline vegetation, we understand that it was dominated by exotic species and the botanical values of this area were low. The vegetation in the northern gully was similar and reported as such by our original ecological study. Although we were not party to this clearance, we understand that given the exotic nature of this vegetation, the rules of the Notable Landscape overlay do not apply to these areas.

Proposed Vegetation Clearance and Protection Mechanisms

29. Proposed vegetation clearance on the subject site can not meet the requirements of the Notable Landscape rules. However, the proposed reserve areas within the property will protect a large part of the significant native vegetation in both the eastern and western catchments.

30. Further to this, conservation of significant native vegetation within the residential lots is also proposed. These protection mechanisms falls into three main scenarios.

A) Lots where significant vegetation is legally protected by way of a bush covenant but which also leaves some 'unprotected' significant vegetation on the lot (e.g. Lot 237 and 238).

B) Lots where all significant vegetation is legally protected by way of a bush covenant which also provides a 'buffer function' to a neighbouring reserve (e.g. 159-163).

C) Lots containing significant vegetation which is not protected by any proposed covenants (e.g. 141 and 142).

31. For Lots with unprotected significant vegetation (i.e. Scenarios A and C) the vegetation should be identified and physically marked as an element of the proposed Landscape and Ecological Construction Mitigation Plan (LECMP). Wherever possible the building site should be identified, cleared and fixed outside of these marked areas. Any variation to this must be sought and

### Riparian Protection

36. The southern three tributary streams in the eastern catchment and the Waiponamu stream in the western catchment will all be protected by conserved riparian vegetation. These riparian strips encompass good quality vegetation, they protect and contribute to the aquatic values of the streams and, in the case of the western catchment, they provide an important vegetative link between natural areas to the north and south of the property.
37. The exception to this, is a band of vegetation that will be cleared in the riparian management zone to accommodate the proposed Waiponamu stream crossing. The loss of this riparian vegetation represents approximately 4% of the wider riparian reserve area in the western catchment.

### **EARTHWORKS**

38. Given the sloping topography of the site and the amount of earthworks required, there is a potential risk of sediment discharges from land disturbance. This applies to both the Waiponamu Stream and the tributaries in the eastern catchment. The risk is greater for the Waiponamu stream because of more vegetation clearance in this area and a closer proximity of works to the stream. The eastern catchment tributaries are well buffered by proposed reserves as works are concentrated on the ridgelines.
39. My observations of these streams indicate that they will be sensitive to sediment discharges. They have moderately low existing suspended sediment levels and relatively low flow rates that limit the ability to flush sediment through the system.
40. A detailed Earthworks and Sediment Control Plan (ESCP) will be provided and approved prior to works commencement, and then enforced to the required standard. This should ensure adequate sediment and erosion control and provide suitable protection for the watercourses in the development phase of the subdivision. Consequently the effects on the streams should be minor.
41. Earthworks in the Riparian Management Zone of the watercourses are limited to the installation of a crossing of the Waiponamu Stream. Compliance with the required ESCP, monitoring and appropriate stabilisation at the crossing, should ensure effects are minimal.

fish passage. The downstream receiving environment of this tributary is also low quality or piped.

#### **ECOLOGICAL ENHANCEMENT/MITIGATION PLAN**

47. The following enhancement and mitigation is proposed in addition to the ecological considerations integrated into the subdivision design:

- All indigenous enhancement planting will comprise vegetation associations that are representative of similar habitat and landform within the Ecological District. Plant species that provide food resources for native fauna will be included.
- A Landscape and Ecological Construction Mitigation Plan (LECMP) will be prepared to protect vegetation during the construction phase within:
  - a) Lots with significant vegetation present inside proposed covenant areas; and
  - b) Lots with significant vegetation present outside of proposed covenant areas.
- The LECMP will also detail the responsibilities of future lot owners containing covenanted bush. It will outline prohibited activities and weed management requirements. It will also include a notice advising on the values of the bush and the need to keep pets under control at night time.
- Vegetation clearance will be staged and will be temporarily left stacked against the remnant bush edge to allow retreat opportunities for herpetofauna.
- An integrated weed and pest management plan will be provided and implemented for the reserves on the property for a period of five years.
- Fish passage to the excellent quality habitat within the southern tributary catchment is currently blocked by a crossing on the neighbouring property. Were it possible that fish passage could be restored, this would be a significant element of mitigation. Notwithstanding this, I understand that this relies on agreement with the neighbour, therefore I outline it here only as a possibility.

- Protection of riparian vegetation;
- Retention or planting of buffering vegetation on lots adjacent to reserves; and
- Improvement of habitat quality and sustainability through weed and pest animal control.

53. Therefore I believe that on this basis it does not conflict with Section 7 of the Resource Management Act and it does meet the objectives and policies of the Whangarei District Plan.

### **SUBMISSIONS**

54. The main ecological issues raised by submitters relate to:

- Increasing reserve / protected bush areas;
- Increased runoff and erosion from vegetation removal; and
- Effects on birds, especially kiwi.

55. I have dealt with the issues raised in the submissions and given the proposed changes and recommendations these issues can be allayed.

### **CONCLUSIONS**

56. I have assessed the terrestrial and freshwater values of the site and the potential for effects on these values associated with the proposed subdivision.

57. The abundance of vegetation, watercourses and habitat opportunities on this largely vegetated property means that ecological considerations play an important role in constraining the subdivision design.

58. Recent changes to the subdivision design recognise the intrinsic ecological values of the site. The proposed enhancement and mitigation strategies also help to conserve the significant ecological values inside and outside of the formally protected areas.

Vegetation protection schedule for lots with significant vegetation within them. Referred to in paragraph 32 of this statement and in proposed Condition xxxx:

<b>Protection Scenario A</b>	<b>Protection Scenario B</b>	<b>Protection Scenario C</b>
Lots 16-17	Lots 5-8	Lots 19
28	10-11	40
44	13	41
46	20-21	122
60-61	26-27	125
67	31-32	136
69	39	138
72-73	47-49	141-142
127	52-53	145
132-135	55-59	147
139-140	63-64	156-158
143-144	70-71	215
158	74	244-246
164-170	77-78	
178-181	81-82	
188	107-108	
201-203	111-112	
206	115-121	
211-214	123-124	
215	159-163	
218-219	171-177	
195	190-194	
211-214	196-200	
218-219	204	
233-234	207	
23-238	209	
240	228-229	