

Proposed Plan Change Ecological Assessment for land at 60 Eastern Hutt Road, Wingate, Lower Hutt

Report for Hutt City Council

March 2011

Introduction

1. Arising from their Land Review Project, Hutt City Council (HCC) has proposed a Plan Change in respect of land currently zoned for passive recreation at 60 Eastern Hutt Rd, Wingate.
2. According, HCC asked me (7 December 2010) to carry out an assessment of possible ecological effects of rezoning of this land (the Site) for General Business use, as part of the plan change process.
3. To this end I have examined relevant documents, including:
 - o The Plan Change application documents and section 32 report, including assessment of open space and visual amenity by PAOS Ltd (December 2009) and a geotechnical report by Tonkin and Taylor in June 2010.
 - o Aerial photos and maps of the site and surrounding areas, and various unpublished reports and field notes from parts of Hutt City.
4. I made a site inspection on 21st January 2011, viewing the site from Eastern Hutt Road, walking through all of the site and in particular traversing much of the length of the streams. I made a further visit to the site on 4 February 2011 accompanied by HCC staff.
5. This assessment is made in the context of my general knowledge of the vegetation and natural history of Hutt City, and the nearby Taita Scientific Reserve. I have been reasonably familiar with the vegetation of the area since the late 1980s.

Site description

6. The general features of the site have been fully described in other documentation of the site, and here I will only summarise the features that are relevant to the ecological assessment.
7. The site is part of a fee simple title owned by Council, about 69 ha in area and legally described as Lot 3 DP 83794 (Certificate of Title WN50D/743). The larger area (Lot 3) is a portion of the Eastern Hutt hills covered in regenerating native bush, stretching from Eastern Hutt Road at Wingate towards western Stokes Valley.
8. The site proposed for rezoning is about 1.1ha in area and is situated on the southwestern part of the larger Lot 3. The specific site proposed for rezoning (hereafter the Site) is situated at the base of two gullies and generally slopes from east to west. The land in the same Lot but behind the Site slopes much more steeply up to a ridgeline. Two small streams run down from the ridgeline into the two gullies in the Site.
9. The larger site was acquired from GNS Science in 1998 and is currently all zoned as recreation reserve. As a result of the Land Review Project the proposed Plan Change aims to split off a 1.1 ha block (the subject of this assessment) and rezone it as General Business Activity Area, prior to disposal. It is anticipated that when sold the land would be developed

for commercial purposes, possibly comparable to those currently being undertaken on land zoned as General Business Activity Area on nearby stretches of Eastern Hutt Road.

10. Council has the consent (subject to survey of the site) of the Department of Conservation to revoke the reserve status over the area proposed to be rezoned General Business Activity Area i.e. over the Site.
11. A site of Significant Natural Resources (SNR) is recognised in the Hutt City District Plan over a considerable part of the Eastern Hutt Hills, including some of the larger Lot 3 area (see below for description of this site). The site proposed for rezoning does not however fall within the SNA site, being estimated to be a minimum of 75 metres from the SNA boundary at its northeastern corner.
12. The Taita Scientific Reserve (R27042), administered by the Department of Conservation, lies a short distance northeast from the Site and shares a boundary with the larger Lot from which the Site is proposed to be split. This reserve was formerly the site of the DSIR Soil Bureau and has been the subject of significant scientific description and research¹.
13. The land does not appear to receive any active management. Access to the site from Eastern Hutt Road is made difficult by the dense gorse and blackberry scrub bordering much of the road boundary.

Terrestrial vegetation

14. The land would have originally been covered with hardwood forest with its canopy dominated by kamahi, and hard beech on spurs.
15. This land was cleared sometime prior to 1951 (Fig 1) and used for pasture, probably for several decades in the early to mid twentieth century, but grazing ceased some time around the 1970s. Some parts of the Site have reverted and been cleared more than once. The Site is now in rough grassland and the early stages of native forest re-vegetation, with a considerable extent of gorse and blackberry-dominated scrub on the lower slopes. There are traces of earthworks in the central parts of the Site².
16. In terms of vegetation structure I would describe the vegetation on the Site as a mixture of introduced grassland, regenerating native scrub³, and shrubland. The grassland occupies just under half of the area of the Site and scrub and shrubland vegetation occupies just over half.
17. The grassland is dominated by introduced pasture grasses such as browntop and Yorkshire fog. There are significant areas with impeded drainage dominated by toad rush.
18. The regenerating scrub and shrubland is of two kinds. On some lower slopes and over some of the stream sections the scrub is heavily dominated by gorse and blackberry and is very dense. On the northern and upper slopes, and adjacent to the upper streams the scrub and shrubland is dominated by native species in which kanuka, manuka, mahoe, wineberry, karamu and the treeferns ponga (silver fern) and mamaku are prominent.
19. There are a number of weedy introduced species that are prominent on the Site. The most important woody weed species are blackberry and gorse which dominate the vegetation over

¹ For example, Druce AP 1957 Botanical Survey of An Experimental Catchment, Taita, New Zealand. DSIR . Bulletin 124; and Atkinson IAE 1973. Soils of Taita Experimental Station, NZ Soil Bureau Bulletin 32.

² Further details of site history and modification are in the geotechnical report.

³ I define scrub as “Woody vegetation in which the cover of shrubs and trees in the canopy is > 80% and in which shrub cover exceeds that of trees”. Shrubland is defined as “vegetation in which the cover of shrubs or treeferns in the canopy is 25-75% and exceeds that of any other growth form or bare ground”. Shrubs are woody plants less than 10 cm in diameter.

the streams and on some of the lower portions of the Site. Himalayan honeysuckle is also prominent.

20. I did not examine vegetation succession in detail, but examined aerial photos from the 1960s to 1980s attached to the geotechnical assessment. From my observations and the aerial photographs in the geotechnical report, it is likely that most of the native vegetation on the site is not much more than 30-40 years old. It appears as though regeneration is just beginning on most of the Site in the 1972 aerial photo.
21. Significant Natural Resource Area No 12, Eastern Hills Bush, is described as “lowland forest on hill country. Contains a fire-induced regionally representative regenerating vegetation mosaic, including areas of pre-European podocarps and hard beech. Nearly two-thirds of the forest is 90-110 years old.”
22. I confirm that none of the vegetation on the Site has values of the vegetation described in the SNR description, although the vegetation in the catchments above the Site does conform to that described in the SNR. The vegetation of the Site, particularly the upper slopes, would over time regenerate to have similar values to that in the SNR (see para 37 below).
23. The Eastern Hutt hills generally provide habitat for a range of bird species. The SNR description notes the presence of many bird species including New Zealand pigeon. Although I did not personally observe a large number or diversity of birds during my inspections I would expect typical bird species of the Hutt Valley to be present at this site.

Streams

24. There are two short ‘natural’ stream sections, and two occasionally-flowing former stream channel/drainage channels within the Site.
25. A northern stream flows southwest for about 90 m from close to the northeast corner of the Site towards the western boundary, while a southern stream flows for 55-60 m from east to west through the middle part of the Site. The sections drain adjacent small west-facing catchments as described in para 8 above. Both streams are deeply incised into the colluvial lower hillslopes forming the Site. The width of the incision varies from about 80cm at the top of the Site to about 2 m at the bottom, and the streambed itself at normal flows is about 30-50 cm wide
26. The streams are not fully culverted within the Site, as stated in Part 3 of the proposed Plan Change, but flow into wingwall stormwater inlets within the Site. The stormwater inlet on the northern stream section is about 8 m from the western boundary of the Site, while that on the southern stream is about 40 m from the western boundary. Below the southern stormwater inlet the former stream channel remains as a mainly dry channel which would occasionally receive overflow from the stormwater inlet.
27. Overflow from both streams and stormwater inlets flows into a cutoff drain flowing down most of the length of the western boundary of the Site, from the vicinity of the northern stream inlet, past the southern boundary of the Site, into a large stormwater inlet about 40 m south of the Site. From this inlet stormwater passes under Eastern Hutt Road, and through the stormwater network into the Hutt River.
28. The northern stream has been channelised prior to 1951 (see Fig. 2 of the geotechnical report). Since its modification the stream has incised significantly (more than 2 m near the bottom of the Site) and has adjusted to a more natural flow path containing small pools, riffles etc.
29. There is a total length of 275 m of watercourses on the Site, of which about 25 m is very good quality unmodified habitat (the southern stream above the stormwater inlet), about 80 is of moderate quality in an incised rechannelled habitat (the northern stream) and about 170 is of low quality in shallow recently channeled habitat (western boundary) or former stream channel (southern stream below the stormwater inlet).

30. At the time of inspection (mid-summer) both stream sections above the inlets were flowing slowly but constantly. I would regard them both as permanently flowing first-order streams.
31. The physical stream habitat is good, with a variety of substrate ranging from silt to coarse cobbles. There was no periphyton cover observed. The immediate stream environment appeared to be undisturbed, with an abundance of shrub, broadleaved tree and treefern seedlings and leaf litter (except in the portions totally dominated by gorse and blackberry in the canopy).
32. In the riparian zone the vegetation canopy is largely mainly gorse and blackberry, especially in the lower part of the Site, but with several large mamaku. In the upper part the vegetation is more varied. There is a varied understorey of ground ferns, with some herbs and seedlings. In the upper part of the northern stream riparian zone I also observed some young plants of kiekie, a native vine which I consider to be a marker species of relatively undisturbed old forest such as tawa forest. The riparian vegetation provides excellent riparian shading for the entire length of the stream portions (including grass, gorse and blackberry over the western channel).
33. I did not systematically survey native fish or invertebrates. I saw very few macroinvertebrates except for a few water boatmen.
34. The physical characteristics of the stream habitat, and the relatively short separation from the main stem of the Hutt River, are such that I consider it reasonably likely that the stream provides habitat for native fish that can swim through culvert sections (especially banded kokopu) and a wider range of native invertebrates than I observed.

Values of the Vegetation

35. My observations did not record any distinctive or threatened plant species present on the site. I confirm that the site is not part of any Significant Natural Resource Areas identified in the District Plan although it is physically close to SNR Area 12.
36. The Site represents very early regenerating vegetation on the Eastern Hutt Hills. It is currently heavily influenced by introduced grass species, which are persistent on the low fertility clay-rich soils.
37. The dominant weed species of gorse and blackberry will enable eventual succession to native scrub and forest. Therefore, if left to regenerate the site would revert to dominant gorse and blackberry cover over most of the site, and eventually into native scrub and later forest, over a period of many decades. Regeneration would be more rapid in the gully areas and the northeast corner of the site. Eventually it is possible that typical gully/semi-swamp species such as pukatea could become established on the Site.
38. The Site has same value as habitat for birds (and to a lesser extent, insects). This is currently relatively minor because of the dominance of gorse and blackberry scrub. In fact the main value of the vegetation as insect and bird habitat is probably from the grassland vegetation as this type of rough ungrazed grassland is now relatively rare on central part of the Eastern Hutt hills. This habitat value will decrease over time as the grassland regenerates in scrub.
39. Because of the very small area of the Site and the fact that it lies largely surrounded by native bush, its connectivity value in providing ecological connectivity (linkages between separated larger sites) is low.
40. I consider that currently the Site has very low vegetation values, with the exception of the riparian vegetation associated with both stream sections (see below).
41. Even when more advanced the vegetation would be typical of much other regeneration on both sides of the Hutt hills, and the area (apart from the two stream sections) is less than 1 ha.

42. Therefore the loss of this potential vegetation even if the entire site is deforested (apart from the two stream sections) would be of very minor significance.
43. The assessment undertaken to date for the proposed plan change concludes that even after native forest regeneration, due to the small size of the Site, its contribution to the wider eastern hills area and to the reserves network is limited. I agree with this assessment, but I do not agree that this is the extent of the ecological values associated with the site, because of ecological values associated with the stream sections (see below).

Values associated with the stream sections

44. In contrast to the vegetation, I consider that the stream sections are probably ecologically significant, for the following reasons:
- Although short they provide good habitat quality, have been undisturbed for at least several decades, and are well shaded by vegetation.
 - They are separated by culverts no more than 1.5 km from the Hutt River, a distance that now appears to be relatively easy for some native fish species such as banded kokopu to span.
 - They drain good quality natural habitats with intact native forest vegetation.
 - There is no reason that they would not provide habitat for native fish and macroinvertebrates.
45. These stream values have not previously been recognised. It is not easy to access most parts of the streams because of the dense gorse and blackberry cover over most of their length. The assessments made of landscape and geotechnical aspects did not appear to include direct observations of the stream. Also there was an incorrect assumption that the streams were culverted in their lower sections and flowed underground directly under Eastern Hutt Rd, when in fact they both go into a stormwater inlets within the site. In fact nearly all of the northern stream is unculverted. The shallow cutoff drain and former stream channel below the southern stream inlet structure provides a further 175 m of occasionally flowing open stream habitat.

Assessment of effects of re-zoning the land as General Business

46. The principal adverse ecological effect of re-zoning this land would be the likely loss of stream habitat resulting from the culverting of the two stream sections and the clearance of vegetation on the riparian margins of the current streams. In my opinion this would represent a significant adverse ecological effect.
47. These stream sections are short, and relatively unmodified streams are not particularly rare in the Hutt catchment. However, they are now much more restricted in extent than previously, because of continued modification and loss through development. The catchments that these streams drain are in the central part of the Hutt River catchment, which appears from aerial photos to have relatively few undeveloped footslopes.
48. Research internationally, nationally and in the Wellington region is increasingly indicating the value of small ephemeral streams, including headwater streams, to overall freshwater biodiversity values⁴, both locally and at the regional or landscape level.

⁴ For example: Meyer JL, Paul ML and Taulbee WK 2005. Stream ecosystem function in urbanising landscapes. *J North Amer Bent Soc* 24: 602-12.; Parkyn S, Wilding TK, Croker G 2006, Small headwater streams of the Auckland region Vol 4 Natural Values. ARC Technical Publication 10; and Storey R 2010, Aquatic biodiversity values of headwater streams in the wellington region. NIWA Client Report HAM2010-095 for Greater Wellington Regional Council.

49. There has been a pervasive loss of freshwater habitat and headwaters streams in particular, throughout much of the Wellington region since European settlement began and continuing up to the present.
50. Figures supplied to me from Greater Wellington Regional Council⁵ indicate in the Wellington region during the five years 2003-2008, a total of 12,790 m of stream length was consented to be lost in the region. Of this total, 1419.5 m (11.1% of the total) was in Hutt City, and a further 2219.5 m (17.3% of the total) in Upper Hutt City. A very large proportion of this total of 3939 m would be from the catchment of the Hutt River.
51. The further amount consented to be lost between 2008 and now is unknown. However even if only the 105 m of the northern and unmodified southern stream sections (i.e. excluding the western channel) is counted as contributing to loss this would represent 1% of total lost in the region between 2003-8. If the full 275 m of watercourse loss likely to result from this proposed plan change was regarded as stream loss, this would add nearly another 2% to the total amount lost in the region between 2003-8.
52. Of the total loss of 3939 m in Hutt City and Upper Hutt, 772 m was lost through piping (the remainder was "reclaimed" land). The loss of a further 105 m of stream through piping would therefore add 14% to the amount of loss of stream within the Hutt catchment during 2003-8, even if all the 2003-8 losses were from the catchment of the Hutt River.
53. Therefore, the loss of these stream sections likely to result from the proposed rezoning would add to this pervasive loss, and represent a cumulative adverse effect, even if the stream sections were of low quality. As at least the southern stream section appears to be relatively undisturbed and of high quality, I consider that this cumulative loss would be significant.
54. I am aware that Council has the consent of the Department of Conservation to revoke the reserve status over the area proposed to be rezoned General Business Activity Area. In my opinion the judgement of the Department of Conservation that lead to this consent was based on insufficient ecological information to make an informed decision.
55. I am advised that the Department's consent was granted based on the site assessment provided by Hutt City Council and that DOC staff did not visit the site⁶.
56. My assessment is based on limited field inspection and I did not have the opportunity to fully document the specific fish and macroinvertebrate values of the stream. Therefore I recommend that more detailed investigation of these values should take place before HCC makes a decision on the proposed plan change. This investigation could be undertaken in conjunction with the Department of Conservation.
57. Pending further information on the ecological values of the stream sections, I recommend that HCC explore alternative development options for the Site that do not involve channelisation of the two stream sections.
58. All other ecological effects would be very minor. As discussed above, I do not consider that the vegetation on the Site is significant, nor does it offer significant habitat or connectivity values, with the exception of vegetation in the immediate vicinity of the stream section. I consider that the proposed rezoning would have no significant effect on the integrity of the Eastern Hutt SNR area or the Taita Scientific Reserve.

Measures of avoid, remedy or mitigate adverse effects

59. It would not be possible to avoid or minimise the principal adverse effect if the stream sections were all culverted and all vegetation cleared.

⁵ Email from Summer Waugh GWRC to Paul Blaschke, 31 January 2011.

⁶ Email of Emily Greenberg, Department of Conservation, to Paul Blaschke, 27 January 2011.

60. It would be desirable to retain natural stream channels and riparian vegetation to a width of 10 m either side of the northern and southern stream sections.
61. The geotechnical assessment recommends creating and maintaining a 6 to 8m wide “no build” zones through the site for the overland flow paths of the two stream sections. This recommendation envisages that the streams would be culverted but still recommends a no-build zone. I consider that to retain ecological values the no-build zone would need to be 20 metres wide and retain a natural stream channel within this zone.
62. I am aware that a modification of this nature would significantly change the development potential of the Site as a whole. Preliminary discussions with council staff and consultant engineers suggest that it would probably not be feasible to develop the land on one level as originally envisaged, but development on more than one level, possibly involving more than one access point, may still be feasible.
63. One option which would reduce but not avoid the loss of stream would be a compromise to retain natural stream on one section but not the other. If this option was chosen, retaining the southern section above the stormwater inlet would be preferable, because it is less modified and appears to drain a slightly larger and less modified catchment. This option would still entail the loss of some significant ecological values on the Site.
64. I recommend (subject to further investigation confirming the ecological values of the stream sections) that if HCC wishes to continue planning to develop this land, it should investigate the feasibility of modifying the site design in order to avoid the adverse effects associated with loss of these stream sections.
65. I note that there are grassed hillslope areas adjacent to the Site (and within the larger HCC Lot) that appear to be suitable for development from an ecological perspective, for example the grassed spur going up alongside southern stream section. I note that the geotechnical investigation included an assessment of this area⁷. However, these further areas are outside the scope of the proposed Plan Change and my specific assessment.
66. It would potentially be possible to mitigate some effects of the currently proposed option, by restoring a comparable section of degraded stream section elsewhere in the catchment, or legally protecting a stream section that was threatened, but I have not investigated this option.

Summary and conclusions

67. I have undertaken an assessment of possible ecological effects of rezoning a portion of land at 60 Eastern Hutt Road, Wingate for General Business use, as part of a proposed plan change process.
68. The site proposed for rezoning is about 1.1ha in area and is situated on the southwestern part of a larger (69ha) area which will remain zoned for passive recreation.
69. The Site is situated at the base of two gullies and generally slopes from east to west. It is currently in rough grassland and the early stages of native forest re-vegetation, with a considerable extent of gorse and blackberry-dominated scrub on the lower slopes.
70. Two small streams run down from the ridgeline into the two gullies. The streams flow into wing-wall stormwater inlets within the Site and then into the stormwater system. There is a total length of about 275 m of watercourses on the Site, of which about 105 m are “natural” (although modified) stream sections.
71. I consider that currently the Site has very low vegetation values, with the exception of the riparian vegetation associated with both stream sections. Therefore the loss of this potential

⁷ Fig 5 of the geotechnical report

vegetation even if the entire site is deforested (apart from the two stream sections) would be of very minor significance.

72. In contrast to the vegetation, I consider that the two stream sections are probably ecologically significant, for the following reasons:
- Although short they provide good habitat quality, have been undisturbed for at least several decades, and are well shaded by vegetation.
 - They are separated by culverts no more than 1.5 km from the Hutt River.
 - They drain good quality natural habitats with intact native forest vegetation.
 - There is no reason that they would not provide good habitat for native fish and macroinvertebrates.
73. The principal adverse ecological effect of re-zoning this land would be the likely loss of about 105 metres of stream habitat resulting from the culverting of the two stream sections and the clearance of vegetation on the riparian margins of the current streams. In my opinion this would represent a significant adverse ecological effect.
74. There has been a pervasive loss of freshwater habitat and headwaters streams in particular, throughout much of the Wellington region since European settlement began and continuing up to the present.
75. It would not be possible to avoid or minimise the principal adverse effect if the streams were all culverted and all vegetation cleared.
76. I recommend that more detailed investigation of the ecological values of the stream sections should take place before HCC makes a final decision on the proposed plan change.
77. I also recommend (subject to further investigation confirming the ecological values of the stream sections) that if HCC wishes to continue planning to develop this land, it should investigate the feasibility of modifying the site design in order to avoid the adverse effects associated with loss of these stream sections.

Dr Paul Blaschke
16 March 2011.

Appendix: Scientific names of species in text

Black beech	<i>Nothofagus solandri</i>
Blackberry*	<i>Rubus fruticosus</i>
Browntop*	<i>Agrostis capillaris</i>
Gorse*	<i>Ulex europaeus</i>
Hard beech	<i>Nothofagus truncata</i>
Himalayan honeysuckle*	<i>Leycesteria formosa</i>
Kamahi	<i>Weinmannia racemosa</i>
Kanuka	<i>Kunzea erocoides</i>
Karamu	<i>Coprosma robusta</i>
Kiekie	<i>Freycinetia banksii</i>
Mahoe	<i>Meliccytus ramiflorus</i>
Mamaku	<i>Cyathea medullaris</i>
Manuka	<i>Leptospermum scoparium</i>
Ponga	<i>Cyathea dealbata</i>
Toad rush	<i>Juncus bufonius</i>
Yorkshire fog*	<i>Holcus lanatus</i>
Wineberry	<i>Aristotelia serrata</i>

* Introduced species to New Zealand

Fig 1. Extent of maximum documented vegetation clearance, 1965
(Fig 3 from geotech report)

