

**Before Environment Canterbury.**

**In the matter of** a review of a Land Use Recovery Plan

and

**In the matter of** Amendment 4 to the Christchurch City Plan (affecting an area located at Marshlands West, Christchurch).

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**Submission of L Pickering**

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## **Introduction**

1. My name is Luke Pickering. I am a property owner and resident of the Marshlands West area that is directly affected by your Land Use Recovery Plan.
2. This area, my environs, and my property, was changed by Minister Brownlee when as part of your 'Land Use Recovery Plan' he introduced Amendment 4 to the Christchurch City Plan ('the Amendment'), as gazetted on 6<sup>th</sup> December 2013.
3. The result of this was to (forcibly) zone our property and the surrounding area 'Living G (Highfield) zone and Business 1 (Local Centre/District Centre Fringe) zone'
4. At that time we had a live appeal to the Environment Court relating to a proposed development of our area, and were party to PC1 to the RPS.
5. We had also made earlier representation to the Christchurch City Council (CCC).
6. Additionally we presented a submission to you on your proposed Land Use Recovery Plan, albeit we were prevented from presenting our submission to you in person as we wished.
7. In essence our view was, and remains, that this area is not suitable for such a development for a number of reasons that we outline(d) below.
8. Since the time of these representations further matters have come to light, accordingly we make further submissions to you on these matters and for your Plan review. Given that this process is not held under the RMA, matters which were previously inadmissible are covered.
9. This evidence is presented by myself, and on behalf of C. Andrew, and children.

## **Matters arising since Gazetting**

10. At the time of the introduction of the Amendment you, and the Christchurch City Council had received representations on behalf of a private firm known as Highfield Park Ltd (HPL), whose directors were Roy Hamilton and Brian Thompson.

11. Amongst other things these representations made a number of claims that would perhaps lead the reader to believe that HPL was in a position to effect the development of the area then known as CN5 and CN6 in the matter of PC1 to the RPS hearing (we note, for your information, that neither HPL, nor messrs Hamilton and Thompson actually owned any property in this area).
12. The original information was outlined in HPL's application to the CCC in a Resource Consent application. We opposed this application in the subsequent hearing (known as Proposed Private Plan Change 67 or PPPC67), and on appeal to the Environment Court on a number of grounds, because we had concerns over a number of things that had come to light during the hearing process.
13. We also had significant reservations over the ability of HPL to carry out their proposal. This was a project that was likely to cost more than \$100m, yet there was no indication of suitable backing by and/or of HPL. Neither did they have control over all of the individual properties involved.
14. Along with this there were other financial and cost implications around geotechnical and earthworks issues (amongst other things) that affected both HPL, other land owners, and us, and which I believe had not been completely considered, particularly given the proposed cost structure for HPL's product. However the nature of the CCC hearing under the RMA was such that these matters could not be adequately discussed.
15. Additionally, and as stated to various parties, we did not believe that there was any lack of resource at the time with regard to other (more) suitable land for development.
16. Subsequent to the Amendment HPL have been placed in Liquidation, and there has been no visible works carried out in the area either by HPL or by the CCC.
17. There has been no indication from any other credible party that HPL's proposal would (or could) be carried out by others.

#### **Effect on current landowners**

18. From our observation current landowners within the area have found it difficult to sell their properties, as evidenced by the number that have either not sold, or taken a very long time to sell.

19. It is our view that this is due to the HPL proposal, as later effected in the Amendment, being unduly prescriptive and restrictive, and expensive in terms of resource required to implement it.
20. In addition to this we, along with others in this area, have been financially penalised through increased rates costs imposed on us due to the effect of Amendment 4 and, should we ever decide to move, it looks likely that it would not be easy to sell our property as a result of this and the matters in (19).
21. In short the entire process has been particularly stressful, it has damaged us and others financially and it continues to do so. The Amendment and all that preceded it has been a failure.

### **Relief**

22. Due to these matters the development has not gone ahead, there has been no furthering of the outcomes required or desired by your Land Use Plan and it looks unlikely that there ever will be in any meaningful time frame, at least with the zoning in its current form.
23. Moreover it would appear to use that there is currently no shortage of available land, your document ('Land Use Recovery Plan, Review Consultation Pamphlet') states there has been 'rezoning for 16,800 new residential houses', and that in Christchurch alone there is already 5000 *additional* housing stock.
24. Accordingly it our request that:
  - The Amendment be rescinded
  - That the area previously defined by the Amendment be returned to a zoning known as 'Rural 3 Marshlands West'
  - Our properties be re-valued for rating purposes as Rural properties as at the time of the previous valuation
  - That this zoning be as for the previously operating Rural 3 zone but allow for lot sizes (with dwellings) down to 0.4ha

25. We consider this would have the effect of:

- making more land feasibly and immediately available for use (the very significant initial geotechnical and earthworks requirements of the HPL proposal would no longer be required)
- partly addressing the injustice, restrictions and costs that have been imposed on unwilling and unwitting property owners
- maintaining the current environment and resource as much as possible
- mitigating any costs to the CCC (over time we anticipate the effect would be cost positive to the CCC, and there would be no need for the CCC to install or maintain additional water or waste services)

26. If (22) is for some reason not tenable then we simply ask that:

- The Amendment be rescinded and the land returned to its previous Rural 3 Zoning.
- Our properties be re-valued for rating purposes as Rural properties as at the time of the previous valuation

27. I would like to speak to this submission.

28. In support of other substantive reasons behind our submission I offer the following additional detail, part of which formed our original submission to the CCC

**Detail on matters prior to Gazetting, substantive issues regarding residential housing in the area defined by the Amendment**

**History**

29. Our property comprises a smallholding of more than 20,000m<sup>3</sup>, we currently use it for horticulture (established fruit trees and vegetables), agriculture including livestock; sheep, poultry and pigs.

30. Our property, and the wider site encompassed in the PPC7 application, was predominantly owned by the Rhodes and Reece families and originally used by immigrant farmers for produce and dairy purposes in the mid to late 19<sup>th</sup> century. At that time the soil was recognised as being good for agriculture but area was swampy and required draining along with removal of many decayed stumps embedded in the swampy areas (Morrison, 1948). In

addition the native raupo flax and other flora also needed extensive clearing in order to be able to use the land for the intended purpose.

31. This clearing and draining caused some slumping to the land over time (Morrison, 1948) but also made it more usable for the growing, grazing and dairying purposes to which it has been put over the past 140 years.
32. Later division of the Rhodes and Reece land has allowed more people to enjoy the good productivity of the soils, the open and natural aspect of the area, and to pursue their own individual rural activities. Our property, for instance, was used extensively for potato growing (H. Wilkinson, personal communication, 2007) prior to the current use of grazing and fruit growing. Other parcels of land are used for similar activities in the locality, also with a substantial number of horses being grazed and ridden locally.
33. There has been some intrusion of non-consented industrial activity occurring more recently but to the best of our knowledge there has been no other use of the land in the area that would preclude or significantly modify it to the point that it was no longer capable of good productive use.

#### **Flooding and other natural hazards**

34. The site is traditionally wet and low-lying, as it has been for more than a century of European occupation. Recorded storm events stretching back over the past 60 years have indicated substantial flooding to the site, with surface water lying around for weeks afterwards.
35. Evidence has been presented by ourselves, and by the Christchurch City Council that supports this appraisal, showing a number of flood events that have occurred in the latter half of the 20<sup>th</sup> century and in the 2000's.
36. The Christchurch City Council have previously said (M. Theelen, 1999) *"In the Marshlands West area, for example, there are significant constraints for the Christchurch City Council in providing and maintaining wastewater infrastructure... the associated high water table will result in the wastewater system being particularly prone to infiltration during wet weather. Allowances would have to be made to accommodate the potential infiltration adding an additional infrastructure requirement, decreasing efficiencies and increasing maintenance costs overall"*. They also go on to discuss the need to pile services and the relative high cost to provide infrastructure here compared to other areas.

37. Evidence was presented by HPL, and by the Christchurch City Council, that suggested mitigation of the effect of such events to the site would take place in the form of drains, and by fill to land in the south .
38. However there appeared to be little detail associated with this assertion:
- There was no specific drainage design offered
  - The proposed area of fill had not been defined, other than to say that 600,000m<sup>3</sup> of soil would be removed from one area of the site and placed in another.
39. In providing what little information they did it would seem that some of HPL's experts, and possibly some Christchurch City Council personnel, were not aware that this was and is not a contiguous site. That is to say there were and are significant parcels of land contained within the site that did not and do not form part of that which the HPL have previously claimed to own.
40. Drainage requirements differ according to different land use and it was apparent that little or no consideration had been given to the diverse requirements of Rural and Residential operation within the area, to the particular detriment of existing rural properties.
41. In not providing specific information on this and proposed filling to the site, HPL and the Christchurch City Council failed to provide any assurance that ill would not befall adjoining land as a result of this proposal, nor did they provide evidence on the economic issues surrounding these works.
42. It should be clear now that the work required to mitigate the land issues here, and the cost implications of the work are very considerable, and that there is land readily available that does not require such works.

### **Geotechnical.**

43. We presented a report that discussed the geology of the site, which broadly concurred with that of Golder & Associates on behalf of HPL, in that the site appears to contain variable soils and is susceptible to liquefaction.
44. In our report we documented instances of actual liquefaction in at least two of the recent discrete events within the Canterbury earthquake series.

45. However Golder's had not adequately identified the potential issues involved with the interface between modified and natural land, possibly because they had not been apprised that the site is not all owned or controlled by the applicant.
46. In addition the later Golder report, although stating they have completed two 20m deep boreholes and eight shallow boreholes, had not at the time presented any data from these tests, disallowing any reasonable review. Note that it is important to correlate CPT interpretations to actual soil samples, particularly where clays have been interpreted in areas of known organics such as peat (Robertson & Cabal, 2010).
47. Despite stating they had 'reanalysed the original CPT's' Golder's at the time did not actually produce any results of predicted settlement or lateral spread values for the site.
48. Other issues were that in the analysis a groundwater level of 1m was assumed. We provided evidence that this would be too low a value for the site, and that 200mm to 300mm would be more reasonable. This would be likely to have a greater than linear relationship to the severity of predicted liquefaction.
49. To the south of the site Golder's appeared to identify a layer of liquefiable material at near surface, yet they also stated there was "an existing 6m to 8m thick... non-liquefiable crust". It is unclear exactly what this meant, just how thick the assessed layer of liquefiable material is, nor its extent.
50. In the northern section of the site Golder's assessed some areas of liquefiable material to extend more than 10m below ground level (bgl). As per the then DBH guidelines for liquefiable layers 10m or greater bgl deep soil treatment would be required to mitigate.
51. Golder's also went on to state that compaction would be a treatment of choice for silty sand and clean sand soils in this area.
52. However compaction is not a suitable methodology for treatment of soils containing peat. Peat was and is readily identified to this area of the site from bore logs reproduced in our report at the time. For example M35/1619 to the northeast of the site (and where post-February liquefaction was observed) shows a layer of blue clay and peat beginning at 3.7m bgl down to 8.5m bgl, this is confirmed by a later bore, M35/6568, showing a slightly extended range of this material from 4m bgl to 10m bgl. Areas of the site where peat is present would most likely be best mitigated in foundation design through the use of piles.



53. As the available borelogs showed, and as Golder's confirmed, the soils are quite variable in this area, and so any treatment would not necessarily be universal throughout the site.
54. As there were no specifics presented it was difficult to determine exactly what was proposed but it did appear at the time that HPL indicated a contiguous treatment, albeit of possibly varying methodology, would be the intended outcome.
55. It will be clear that such a proposal to modify land on this scale is very significant, and we consider that the local environmental impact (to existing owners) of such modification did not appear to have been addressed in any documentation offered to date.
56. There were no design specifics that would allow an evaluation of such an impact, nor an acknowledgement of the potential of affect to others surrounded by such widespread ground modification.
57. This effect included not just the geotechnical issues, raised in our report, but the direct affect to residents of the area and their properties through the use of heavy machinery used in implementing any ground remediation. In addition to the truck and excavator movements later discussed it is obvious that there could be significant noise and vibration from any compaction equipment that may be in use.
58. There was no costing associated with the proposal, probably because there was no design, and so it is impossible to reasonably evaluate the mitigation requirements. It is clear, however, that the cost was likely to be high, both in terms of economics and effect on the environment.

**Amenity.**

59. The site was designated as 'Rural 3' in the City Plan. This permitted certain activities, and in return certain responsibilities were expected in terms of management of the resource.
60. Activities to the site include(d) rearing of livestock, growing of fruit, animal husbandry, equine education and recreation, making of hay and the like, all typically rural in nature.
61. These activities not only maintained the rural environment that one might expect but they also protected the versatile nature of the soils, the openness and form that is natural from such life, and the elements of nature that are present.

62. Nature in this instance includes the native birds (predominantly Pukeko's and Bellbirds), grasslands, trees and landform. Adjacent properties shared this amenity, giving rise to a truly widespread rural environment for as far as one may see.
63. The local population, by necessity, is limited in the area and this adds to the amenity value in that the peaceful nature of the rural vista is not only enhanced by the general lack of man-made noise and buildings, but by the more natural rural sounds that do predominate.
64. The Amendment seeks to completely and irreparably change the use of the site such that it would not just erode the rural resource, it would destroy it completely and it would never again be available.
65. Resource such as is offered by this area is important not just for its present amenity but that of the future. Such good and versatile soil close to Christchurch is an important resource that will become only more valuable to the city as transport costs inevitably rise in years to come (as the current availability and cost of oil must certainly become an issue).
66. The current use of the land protects it for the future needs that will arise from this.
67. The Amendment, (had the works been carried out), would:
- Destroy the rural environment and production capacity of the site
  - Increase noise levels and the nature of noise that would intrude on to remaining rural use land
  - Completely change the vista from the natural landform to hard man-made residential buildings
  - Potentially lead to conflict between typical rural use of the land and neighbouring properties who would have their own expectations concomitant with a residential lifestyle
  - Possibly lead to the destruction either immediately or over time of existing trees, an important source of shelter from wind and from people.
  - Has already increased costs to rural users directly through rates changes, and may further do so through possible imposition of water and waste charges and possible requirements for the installation of such services (that are not needed, wanted, nor sought), along with other such costs.

68. Other peripheral issues exist including restrictions on fires, livestock and machinery that would increase costs and reduce the value of land for rural purposes.
69. At the time Mr Smith, an agricultural consultant commenting on urban matters for HPL, was unaware that parcels of land existed within the proposal that HPL did not own and did not have any control over (and in fact had never discussed such a proposal with the owners). He predicated his consideration of the proposal, amongst other things, upon the assumption that there was well defined boundary to it. In this he was unheeding of the issues faced by owners not part of this proposal yet who were effectively in the middle of it and would be severely affected by it. Unfortunately the reverse sensitivity effects on anyone building near those owners, given the rural operation of these properties, was also missed by him.
70. Thus no reasonable or practical acknowledgement of these issues was made by HPL at the time, either in their plan, nor by some of their experts.
71. Moreover it appears HPL persisted in showing residential cadastral titles to significant areas of land that they did not own nor had control of. We consider this was misleading to the CCC, Ecan, Minister Brownlee and others involved in assessing this proposal.
72. Finally on this matter, HPL, through its witnesses, had sought to suggest that amenities for residents of the area would be improved by this proposal (Mr Baines, Ms Clay). To avoid doubt, and to ensure that this you are aware, no additional amenities were ever sought by ourselves, nor by any other property owners in the area that we were aware of, and we find that in fact there would be major loss of amenity should the Amendment ever be implemented.

### **Design.**

73. The imposition of the Amendment and thus "Living G" requirements severely changes the land use permissions.
74. The very prescriptive nature of the proposal does not allow for variations that may be needed to cope with future issues that may arise, and imposes significant constraints and requirements upon landowners within the site.
75. The Living G restriction does not allow for individual development by property owners of larger parcels of land, nor allow certain types of building works currently permitted on these sites.

76. At the time HPL did not adequately acknowledge that there were parcels of land contained within their proposed boundaries that they did not own, nor had any form of agreement with.

77. As a result any development has effectively been stymied by HPL's utter lack of faith and resource, and the inability of individual owners to reasonably develop their land.

#### **Further issues – motorway road noise**

78. The New Zealand Transport Authority (NZTA) are in the process of designing and implementing an extension to the northern arterial route that would border the western boundary of the site. We inform that we have had discussion with NZTA on noise mitigation to the east of their road. Regretably, NZTA appeared to be intractable on this matter and have told us that there will be no mitigation implemented to the east of the road, but that there will be to the west.

79. Although we have asked for details of NZTA's acoustic plan, and indeed were promised it, none have been forthcoming. Thus we are not certain if whatever is planned to the west would in fact exalt traffic noise to the east of the road but it is possible. Most certainly an acoustically unmitigated major road such as this would generate significant traffic noise to any residents unfortunate to be close to it. It is quite likely that such noise would well exceed that currently permitted or advised for both rural and residential sites, although it may fall within the current standard NZS 6806:2010 – Road traffic noise – New and Altered Roads.

80. Moreover, and particularly during certain meteorological conditions this noise could travel a significant distance affecting more than those directly adjacent to the road. At the time of the hearing we included detail from a previous analysis we made regarding road noise to this area.

81. As such, should the proposal have gone ahead, it is likely that a significant number of people would have been exposed to, and affected by, road traffic noise to some degree.

#### **Further issues – probable costs**

82. The proposal that the Amendment arose from was very light on the specifics of any design on the drainage and geotechnical remedial works required to achieve its end, particularly given the intensive nature of the proposed housing. Much needed geotechnical data did not appear in the applicant's report and insufficient site testing had been carried out.

83. From this it was difficult to make a reasonable assessment of the benefits and costs of the proposal.

84. Notwithstanding this it is clear the cost would have been significant, both in economic and direct environmental terms, for example:

- HPL informed that 600,000m<sup>3</sup> of soil was to be removed during just one stage of the development and transported to another area of the site. Depending upon the size of trucks used this could equate to more than 80,000 truck movements (assuming say 40,000 full loads at 15m<sup>3</sup>/load).
- Excavators would be required to remove the soil, and further machinery required to disperse it at the receiving end.
- Significant works would have been required to mitigate the hazard associated with the high liquefaction potential at the site. Without specific design this is speculation but it is possible that further fill would have been required, and specific compaction machinery needed to operate over much of the site along with installation of remedial measures that may be required such as stone columns, soil mixing or the like.
- These are requirements that are over and above that which would be required were the site not so challenging from an engineering perspective, and which do not appear to have been adequately factored into any assessment on costs.

85. Another site (say further to the west) would be unlikely to need such extensive geotechnical mitigation work, given that the susceptibility to liquefy is much reduced to more gravel-based ground. Also the bearing capacity would be expected to be much improved over ground with peat and other soft deposits.

86. Associated with this drainage requirements may be reduced elsewhere, in contrast to the higher costs of the drainage due to the conditions at the site.

87. In considering costs with regard to alternative use of this site, it may be for example that a much lower density rural-residential development would be more suitable.

88. Such a development would not require the all-encompassing major ground remedial works that this proposal does. Any works would be discrete and site-specific. Additionally such a use would more readily protect and integrate the current rural environment and allow this to be enjoyed by a wider group of people.

89. The information presented by HPL was, quite simply, insubstantial when it came to the comprehensive testing and design requirements for mitigation to the land, and for drainage requirements. Neither did any of the expert material cover the adverse effects on the environment, nor on adjoining natural land parcels, of such a major geotechnical operation as was proposed.

### **Risks of the Amendment**

90. Thus risks that are clear, despite, or because of, the lack of detail, include:

- Siting a subdivision in an area of natural hazard.
- The probable economic and environmental cost of required mitigation to improve the soil sufficiently to build.
- Insufficient detail on hydrologic and geotechnical issues, particularly with regard to effect of any mitigation to adjacent natural ground.
- Probable noise pollution issues to residents, particularly to the west of the site

### **Summary.**

91. The Amendment intends the installation of high-density housing within an area of currently rural use land.

92. Areas of the land settled and liquefied during the Canterbury earthquake series.

93. The land is low-lying, subject to flooding and has significant geotechnical and drainage issues.

94. Much geotechnical detail is not present, investigations were sparse and did not meet criteria at the time of proposal.

95. Data shows that calculations on predicted liquefaction by Golder's used a groundwater level that was not actually the case at the site, and which would understate the severity of such prediction.

96. Widespread and major remedial works would be required to permit the land to be used for such a design.

97. Little assessment of the effects of these works appears to have been conducted.
98. Only minor mitigation has been proposed to reduce the impact and adverse affects of the proposal upon those currently living within the area.
99. Significant economic costs are being faced by owners of land within the Amendment 4 area.
100. Current rural amenity values of the area would be completely destroyed.
101. On evidence from Ecan itself capacity well exceeds demand for property in Christchurch.
102. Noise from a major road would be a significant environmental impact to the west of the site, and noise from the proposal would significantly change the current environment.
103. HPL have failed, the development proposal has not proceeded, improvements proposed by the CCC have not proceeded, there is little prospect of either of these happening.
104. No benefit to the wider community has occurred as a result of the Amendment, and in fact there has been a detrimental effect to the current local community.
- 105.** Options to remediate these issues have been presented.

L. Pickering, 29<sup>th</sup> May 2015.

## **References:**

Cutler, A.G. (2012). *Evidence of Alan George Cutler on behalf of Highfield Park Ltd.* Before the Christchurch City Council, Christchurch, New Zealand.

Golder Associates NZ Ltd (2011). *Preliminary Geotechnical Assessment for Highfield Park Ltd.* Christchurch, New Zealand. Golder Associates.

Golder Associates NZ Ltd (2012). *Evidence of Clive Kenneth Anderson on behalf of Highfield Park Ltd.* Christchurch, New Zealand. Golder Associates.

Greater Christchurch Urban Development Strategy Implementation Committee, (2012). *Greater Christchurch Urban Development Strategy Implementation Committee Agenda, Attachment A.* Christchurch, New Zealand: Greater Christchurch Urban Development Strategy Implementation Committee

Morrison, J.P. (1948). *Evolution of a city: the story of the growth of the city and suburbs of Christchurch, the capital of Canterbury, in the years 1850 – 1903.* Christchurch: Christchurch City Council.

Robertson, P.K., Cabal, K. L. (2010). *Guide to Cone Penetration Testing for Geotechnical Engineering.* Signal Hill, California: Gregg Drilling & Testing, Inc.

Statistics New Zealand (2012).

Statistics New Zealand. (n.d.). *Demographic Trends:2009 Subnational demographic projections.* Retrieved from <http://www.stats.govt.nz/>

Statistics New Zealand. (2012). *Subnational Population Estimates: At 30 June 2012.* Retrieved from <http://www.stats.govt.nz/>

Statistics New Zealand. (n.d.). *Christchurch's population decrease after earthquake:* in Subnational Population Estimates: At 30 June 2011. Retrieved from <http://www.stats.govt.nz/>

Theelen, M. (2008). *Statement of evidence of Michael Renier Antonious Theelen on behalf of Christchurch City Council.* Before the Environment Court, Christchurch New Zealand

Wilson, J (1989). *Christchurch swamp to city a short history of the Christchurch Drainage Board 1875 – 1989.* Lincoln, New Zealand: Te Waihora Press.