

SUBMISSION ON SELWYN DISTRICT COUNCILS DRAFT RURAL RESIDENTIAL STRATEGY

To Selwyn District Council, submissions@selwyn.govt.nz
Attention: Craig Friedel, Strategy and Policy Planner

Full Name of Submitter: Mr and Mrs R & R Barker, Mr and Mrs AC King, Mr and Mrs K Whitford, S Carrara and M Jessep.

This is a submission on the Draft Rural Residential Strategy ('RRS')

1. The specific provisions of the RRS that our submission relates to are:

The whole Draft Rural Residential Strategy (RRS) including Criteria in appendix 1 and Maps in appendix 2.

2. Our submission in SUPPORT IN PART is:

We support the RRS including the criteria proposed to identify appropriate rural residential development, subject to the inclusion of the Site subject to this submission. It has been demonstrated through submissions to PC17, and through this submission that this site meets the criteria set out in the RRS as suitable for rural residential development. An assessment of the proposal against the criteria set out in the RRS, has been included in Appendix C below.

Submitter

Barker and Others own 17.4519ha of land immediately south of the junction of Lincoln-Tai Tapu, Ellesmere and Perryman's Roads, east of and adjoining the Lincoln Township boundary. This is made up of four titles and currently contains four dwellings across the site. The owners of the site have been in the process of planning development of the site rural residential purposes for the last 3 years. 8 rural residential allotments are proposed across the entire site. Smaller sections will be located at the north of the site and contain a total of 6 new dwellings (as well as two containing existing dwellings) and larger sections will be located to the south and contain existing dwellings and springs. Negotiations are underway with Orion for sale of the northern most section (7177m² at the Ellesmere Road/Lincoln Tai Tapu Road intersection), to provide a new substation to provide for Lincoln Township future growth, which would result in only 8 residential lots across the site. The submitters have recognised that the northern part of the site is located on higher ground and outside the Halswell Flood Plain and areas where there have been recorded historical flood events, and is on firmer Waikanui soils than the lower southern part of the site. The ODP and possible subdivision layout are located in Appendix A to this submission.

Background

The submitters made extensive submissions on PC17 seeking the inclusion of their land for rural residential development in accordance with a prepared ODP, and to enable the development of their site into sections with an allotment areas ranging from 0.5 to 1.0 ha in area (please see attached ODP in Appendix A, please note changes as a result of subsequent design have been sketched in for illustration purposes, and section sale to Orion).

The submitters prepared extensive information relating to the site and rural residential development proposal but this was not presented to Council as PC17 was withdrawn prior to the hearing. It included information on the number of springs on the site and how they were currently and proposed to be managed, the high groundwater levels in this area, the historical flooding of the area, and the observed effects of the September 4 2010 earthquakes. Additionally information about proposed native planting which has occurred on the site, and is intended to be provided in the future with advice and support from Lincoln Envirotown Trust was discussed within submissions on PC17. The relevant information prepared is included as Appendix B to this submission, and provides further details of how development of this site can avoid or remedy these potential development constraints.

Landscaping

The site is located along the Lincoln Tai Tapu Road, and it is proposed as part of the development of this site to provide a 10m wide landscaped buffer along this boundary which is to be planted in natives and could include the start of an off road cycleway link between Lincoln and Tai Tapu. The owners of the site propose 2ha of native planting to provide a substantial restored area to support the local ecosystem. This will be located at the southern end of the site (dwellings proposed to the north on the firmer soil type). Additional planting is proposed as part of the restoration and protection of the springs on the site, to provide for enhanced water quality and habitat for bird life.

Orion proposes extensive planting around both road frontages of proposed Lot 1 at the Lincoln Tai Tapu/ Ellesmere Road corner. This will have matured prior to establishment of the substation in ten years' time.

Springs

There are a number of springs located on the southern end of the site where the soils change to a softer soil type (Tai Tapu soils). Rather than being considered a limitation to development, these springs are proposed to be utilised as a positive asset, with riparian planting to protect water quality and the development of wetlands to ensure downstream water qualities are maintained or improved. Spring restoration is considered to be an integral part of the development of this site. Wetland restoration and riparian planting, and protection of the springs is in line with the goals of the Waihora Ellesmere Trust, who are working closely with Ngai Tahu to restore waterways in the Ellesmere catchment.

High Groundwater

The site is identified in the high ground water zone (Map 20 Rural Residential Strategy), which appears to have been created using boundaries such as roads rather than actual topological features. The areas where dwellings are proposed to be located on the site are situation on firmer soils and at elevated levels (see PC17 submission information, Appendix

B to this submission), and specific design features of dwellings on the site (including raised building platforms as necessary) will ensure high groundwater levels do not create a constraint to development. Additionally the site already has drainage paths which enable water from the springs on the site to drain off the site and eventually into Lake Ellesmere.

Lower Plains Flood area

The site is identified in the Lower Plains Flood area (Map 10, Land use layer for Lincoln, RRS), which also appears to have been created using boundaries such as roads rather than actual topological features. The areas where dwellings are proposed to be located on the site are situated on firmer soils and at elevated levels (see PC17 submission information, Appendix B to this submission), and specific design features of dwellings on the site including raising building platforms will ensure any flood event will not impact on the buildings. Additionally historical evidence shows that the northern part of the site has not been subject to flooding in any of the major recorded flood events including 1977, 1986 and 1992 (see attached PC 17 information in Appendix B).

Liquefaction

The site is identified as requiring a liquefaction assessment, for which a detailed assessment will be required to be undertaken at the time of development. 731 Ellesmere Road¹ is Green Zone TC2 classification under the CERA classification system for liquefaction potential. A liquefaction assessment for a proposed garage/sleepout at 737 Ellesmere Road² (Appendix D) indicated that there was no liquefaction present as a result of the 4 September 2010 earthquake and that appropriate building platforms exist on that site. There was no observed liquefaction as a result of the recent earthquakes on the northern portion of the site subject of this submission. It is considered that liquefaction is not a significant constraint to the proposal rural residential development.

Rural Residential Strategy

The Draft Rural Residential Strategy identifies five sites which meet the criteria for Rural Residential Development in the Selwyn District. At paragraph 6.2 the following pre-requisites for consideration are set out:

- can be economically serviced with reticulated water and wastewater services
- is able to be integrated with established Townships
- does not significantly undermine the urban consolidation and intensification principles of the LURP, Chapter 6 of the CRPS, SDP or RRS13
- is not affected by any significant constraints
- is owned by parties who have aspirations to rezone the land

The site meets all of the above pre-requisites as follows:-

Reticulated services:

In this case the location of the site adjoins a greenfield priority area for residential development (as determined under the Land Use Recovery Plan (LURP)). Services to

¹ Located at the south east corner of Lincoln Tai Tapu and Ellesmere Roads but extending southwards towards the southern portion of the site with softer soils)

² Located at the north east corner of Lincoln Tai Tapu and Ellesmere Roads

adjoining land across Ellesmere Road will be installed as part of development of this area and so extensions to these services will be able to be made to economically provide the site with reticulated services (also set out in PC17 submissions attached as Appendix B).

Integration with Townships

The location of the site, adjoining the Lincoln residential greenfield area, ensures that the development is able to be integrated with the Township, and will not undermine the urban consolidation principles of the various relevant statutory planning documents. The ODP for Area 2, the adjoining planned residential development to the west on the opposite side of Ellesmere Road, includes an east-west primary road linking to Ellesmere Road, approximately midway along the Ellesmere Road frontage. This provides for good connectivity to between the site and the ODP Area 2.

Lincoln Envirotown Trust are in strong support of the proposal (see Appendix B) and see the proposed 10m buffer of indigenous plantings along the Lincoln-Tai Tapu Road as *"an exciting opportunity to create a unique Eastern gateway to Lincoln, showcasing native plants in line with the Lincoln Envirotown concepts and other developments in the township (Ryelands, Ngai Tahu block, Liffey Springs) and aligning with the branding of Lincoln University."*

Lincoln Envirotown has suggested as additional measure to increase the linkage between the Township and the surrounding 'semi-rural' environment, including a community walk/cycleway with the 10m planted area, providing the first stage of a walk/cycleway loop that could connect the Township with the Rail Trail on River Road. This has been incorporated in the draft ODP.

Constraints

A discussion of the potential significant constraints, and measures to mitigate or remedy these constraints has been discussed in the background section above. It is considered that the site is able to be considered as not affected by significant constraints in light of this discussion.

Landowner Aspirations

The current landowners have been actively working together to achieve development across this site, including making extensive submissions on PC17.

Conclusion

Given the site meets the above noted pre-requisites, and meets the RRS criteria for identifying suitable rural residential sites (see Appendix C), the Submitters consider that this site is appropriate for rural residential development and seek its inclusion in the RRS as such.

Land Use Recovery Plan

The Land Use Recovery Plan sets out (page 25) that limited rural residential development will be provided for to allow a range of choices of housing types for those needing to relocate, but without creating an inefficient use of land or infrastructure, and to protect future urban expansion, and avoid reverse sensitivity effects with rural land. We consider that the use of the Site for rural residential development has been demonstrated through

submissions to PC17, and through this submission to be an efficient use of land and infrastructure which does not limit future urban growth, and does not create adverse effects with surrounding rural land.

Relief Sought

- That SDC adopt the Draft RRS as the Final RRS subject to the inclusion of the Site the subject of this submission as identified in Appendix A attached as a rural residential location.
- That in relation to Action 18 of the LURP, SDC recommend to the Minister of Earthquake Recovery that the land subject of this submission be rezoned Living 3 without any further public process; or a streamlined process be adopted which allows for public consultation on rural residential locations that were not included in the Draft RRS. There is an urgent need for additional rural residential sections to provide for earthquake recovery housing needs which need to cover the full spectrum of housing types.
- Any other consequential changes to give effect to the intent of this submission.

Conclusion

Mr Barker and Others consider that the site the subject of this submission is a suitable area for rural residential development on the edge of Lincoln Township. This site will provide appropriate township consolidation and enable the development to be integrated with the Township. The site can be serviced with reticulated services without putting undue pressure on existing systems, and will provide appropriate sections to meet the market demand. The site meets the criteria of the RRS and is appropriate in the context of the provisions of LURP.

3. **We do wish to be heard in support of our submission.**
4. **If others make a similar submission, we will consider presenting a joint case with them at a hearing.**

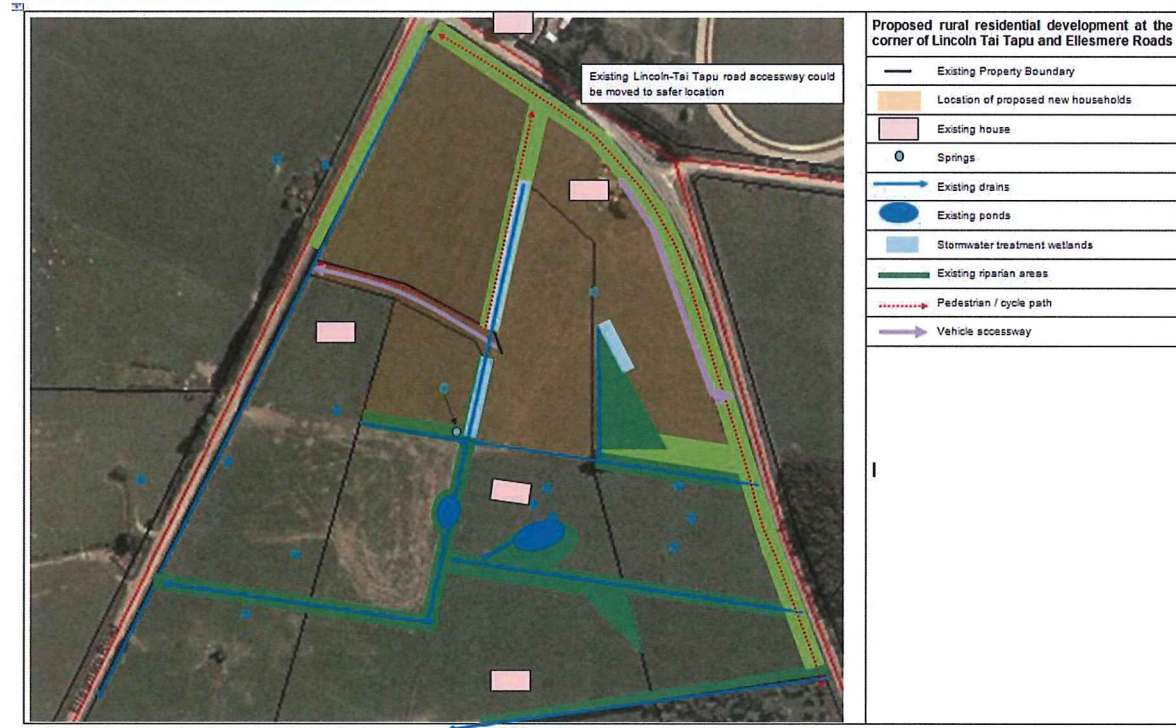
5. Signed:..........3 March 2014

6. Address for service of submitter:

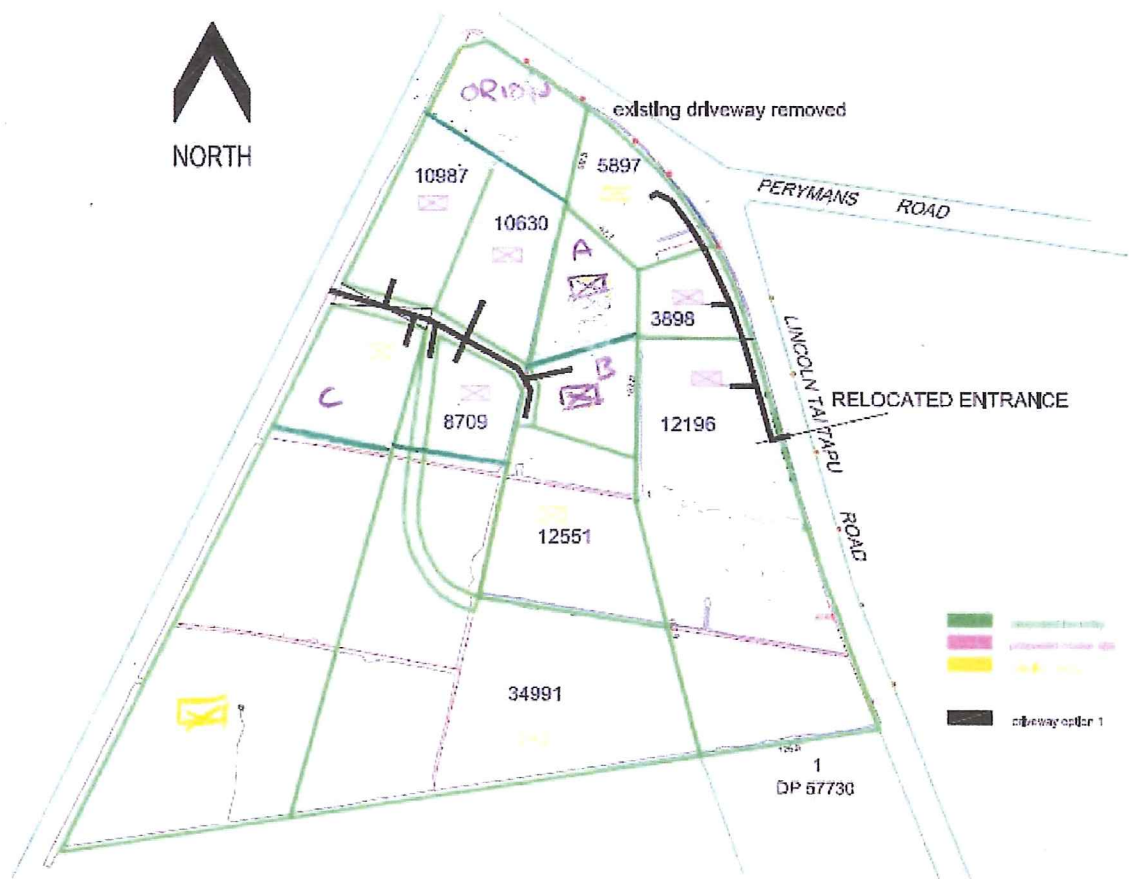
Postal Address: C/- Fiona Aston Consultancy Ltd PO Box 1435 Christchurch
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Appendix A – Potential ODP for Site& Possible Subdivision Plan

Proposed outline development plan (Draft v1)



Appendix 4. Proposed vehicle accessways



Appendix B – PC17 Information



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Supporting Information for Submission by Alistair King, Robert Barker and Sam Carrick

1 Introduction

The submitters have requested that Davie Lovell-Smith Ltd review and present their submission to the Selwyn District Council. Davie Lovell-Smith Ltd is a consultancy with a long involvement with the development of Canterbury and has been involved in all aspects of resource management planning, subdivision development and engineering. A number of specialist staff, including experienced planners and an environmental engineer have reviewed the different aspects of the landowners' submission and concur with these. A site visit was undertaken by Nicola Malloch, of Davie Lovell-Smith, to assess technical and stormwater issues. The landowners' submissions are attached and should be read in conjunction with the following.

One of the landowners, Sam Carrick, has provided evidence about the soils in the area. As a Soil Scientist for Landcare Research, he is qualified and experienced to provide this level of technical evidence.

2 Policy Considerations

The key objective and policy changes providing for rural residential development within PC17 are proposed Objective B3.4.4 and Policy B3.4.3(b). Both of these set criteria for the form and location of future rural residential development. In examining the objective and policy, it is clear that the land owned by Alistair King, Robert Barker and Sam Carrick satisfies the criteria and is therefore deserving of recognition within the District Plan as a zoned area (Living 4) for rural residential development. The following assessment addresses the various criteria in relation to the submitters' site.

The inclusion of this area within the Living 4 zone at Lincoln will provide for a choice in rural-residential housing options within the Lincoln area. Lincoln is one of the two main townships to accommodate future growth within the Selwyn District's portion of the Greater Christchurch Area. As such it is considered important that choice and variety is offered to future residents of Lincoln in terms of rural-residential living options. Having a choice also generally ensures that at least some land is available for development, as not all landowners are in a position, or are willing, to undertake development. The submitters are willing developers, having already undertaken significant investigation into their land resource and have developed an integrated rural residential design concept for their land.

The submitters' site is well located to avoid incremental changes to the rural environment. The site is comprised of 4 allotments and the willingness of these landowners to work together on the development enables intensification of this land without further compromising the rural area. As intensification is appropriate within urban areas, it is also considered appropriate within rural areas. Where smaller rural lots are able to be developed for rural-residential living options, this is considered to be a more sustainable option than the development of larger rural sites, which inherently involve a loss of currently productive land.



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The character of the submitters' site will alter as a result of their proposed development, however it is considered that this would not give rise to any significant adverse effects on rural character and amenity. The development proposal of the submitters (as detailed in their submission) will have positive landscape and visual amenity effects, especially through the upgrading of the planting along the Lincoln-Tai Tapu Road frontage.

The submitters' site is located immediately adjacent to the expanded urban area of Lincoln as set out under Proposed Plan Change 7, in particular Area 2. The Outline Development Plans for Area 2 show a road and walkway/cycleway link onto Ellesmere Road opposite the submitters' site. (See attached) These links help to integrate the submitters' site into the township to facilitate access to community, educational and commercial services.

The road link through Area 2 also provides the most logical path for the reticulation of services, such as wastewater, to the submitters' site. This link ensures that the Council's infrastructure does not need to be extended far beyond the boundary of the urban area. On this basis the submitters' proposal provides for the ability to effectively and efficiently service the site. This close proximity to reticulated services accords with many of the amendments contained within Plan Change 17 on infrastructural aspects of rural-residential development.

The design concept of the submitters involves enhancement of the natural features of the site through planting, wetland restoration and enhancement of natural springs. This approach of developing natural features will ensure the distinctiveness of this area as "rural" as well as having positive effects on the landscape, amenity and ecological values of the area.

Overall it is considered that there is strong policy support within proposed Plan Change 17 as notified for the inclusion of the submitters' site within the Living 4 zone. We are unable to assess whether the detail of their proposal is in accordance with the Rural Residential Design Guide as required by the proposed plan change, as this document is not yet available from Council. However, we consider that the proposal as set out by the submitters will be in keeping with outcomes sought for Living 4 zones.

3 Technical Issues

3.1 Lower Plains Flood Area

The Lower Plains Flood Area appears to have been defined by arbitrarily following roads and does not take into account the actual flood contours of the land nor the historical flooding in the area. If specific selection of land suitable for development is to be made then accurate flood plain information needs to be used. Flood plain areas should be defined by the actual land contours that identify areas likely to flood. In the case of the submitters land the lie of the land is such that only a portion of the area could possibly be subject to flooding, based on levels above mean sea level. The submitters have detailed topographical information for their site which shows that the proposed new lots and house sites will not be subject to any risk of flooding.



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The Lower Plains Flood Area is such an arbitrary area that it completely misses a large area on the western side of Ellesmere Road that is low and has a history of flooding. It is noted that a central part of the preferred site identified in PC17 falls within this low area and was flooded in the 1986 floods, although not included in the Lower Flood Plain Area.

A plan showing the 5.0 and 6.0m amsl contours and the proposed house locations show that the submitters site can be developed with no flood risk to the new lots

Excluding an area as a preferred development site because it is within the arbitrarily defined Lower Flood Plains Area as opposed to being subject to a real flood risk is not valid or appropriate.

3.2 *Liquefaction Risk*

Once again the use of an arbitrary area has unfairly disadvantaged the submitters site. The use of road boundaries to define the liquefaction area has included the submitters site, however site-specific investigations have shown that the site had not suffered any liquefaction damage in the September 2010 earthquake.

In addition the arbitrary liquefaction risk area applies to the preferred site chosen for Prebbleton and this was not identified as a limitation. It is submitted that only genuine constraints should be applied when choosing sites suitable for the new zoning, and that if these constraints are shown to be present then they should be applied fairly to all sites.

3.3 *Springs*

The presence of springs on the submitters' site is identified as a limitation, however we strongly believe that the ability to enhance and protect springs through the proposed Living 4 zone provides many more environmental and cultural benefits than leaving the land zoning as it is. The landowners have a very strong interest in protecting and enhancing the springs on the site and have done significant work at their own expense to remediate the springs, which have previously been unprotected from stock. When protected and enhanced appropriately, the springs limit the use of the site for economic farming. The landowners have a vision that includes enhancement and protection of the springs using native planting and excluding farm uses adjacent to the springs. It is anticipated that some form of covenanting will be used to protect these valuable resources in perpetuity.

3.4 *Stormwater Management*

Stormwater management can easily be achieved on the site in such a way to ensure appropriate treatment and attenuation, with improvements to existing ecological and cultural values. Stormwater disposal is not a limitation at this site. New house sites are proposed to be located in the northern half of the site with natural drainage in a southerly direction towards the existing drain network. This area increases in elevation from 5.0 to 6.5m, which is above the historical flooding areas. Treatment of stormwater is proposed through wetlands. Both the Ellesmere Road drain and existing drains on the properties have sufficient capacity for any additional stormwater generated by



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the new houses. The development plan also has provision for substantial wetland restoration and ponds, which will further increase the onsite storage capacity. Although the site is not within the Lincoln Integrated Stormwater Management Plan boundary, the proposal is consistent with the objectives of this plan.

Julie Comfort and Nicola Malloch
Davie Lovell-Smith Ltd
April 2011.

Submission to the proposed PC17, in regard to the allocation of rural residential land at Lincoln Township.

This submission identifies two main problems with PC17 in its current form:

1. Inequitable allocation in the number of rural residential households to Lincoln township, in relation to other townships.

We request that PC17 is revised to increase the number of rural residential households to Lincoln township.

2. The non-selection of the proposed site adjacent to Lincoln, located east of Ellesmere Road, and south of Lincoln to Tai Tapu Road.

We request that PC17 is revised to identify this proposed site (see attached outline development plan) as a preferred location for rural residential development

The reasons and evidence for the appeal on each of these two areas are presented in the following document:

Problem 1: Inequitable allocation in the number of rural residential households to Lincoln Township, in relation to other townships

The proposed PC17 does not provide a fair allocation of rural residential households to Lincoln township, with only 22 households allocated. Table 1 shows the allocation of households in PC17, with Lincoln allocated the least number of households. PC17 (s4.121) states that the number of rural residential households should follow criteria prescribed in the Rural Residential Background Report (RRBR), to ensure households are located and distributed in the most appropriate areas throughout the eastern portion of the district. PC17 is not consistent with the RRBR, where it is clearly identified that rural residential allocation should be concentrated at Lincoln and Rolleston townships, reflecting Policy 5 of PC1 which identifies these townships as the Key Activity Centres for Selwyn district (RRBR, s5.61). PC1 incorporates provisions that seek to ensure that the vitality and functionality of these areas are not compromised by intensive growth occurring in alternative locations.

Table 1 Allocation of rural residential households in the proposed PC17, up to 2016

	PC17 household allocation
Rolleston	81
Prebbleton	44
West Melton	23
Lincoln	22

The market demand assessment also concludes that the majority of the rural residential households being provided under PC1 should be made to Rolleston and Lincoln (Table

2). This is based on the townships projected population growth, infrastructure provision, affordability and proximity to Christchurch.

Table 2 Allocation of rural residential households recommended in s4.107 of the RRBR

	Lot/year
Rolleston	60
Lincoln	35
Prebbleton	10
West Melton, Tai Tapu and Springston	15

It is clear that PC17 provides an inequitable allocation of rural residential households to Lincoln, and is not consistent with the recommendations in the RRBR, with PC17 providing an over allocation to Prebbleton. To be consistent with the RRBR, and thus Policy 5 of PC1, the allocation of the 170 rural residential households under PC17 should be more similar to that proposed in Table 3.

Table 3 Recommended allocation of rural residential households in the proposed PC17, up to 2016, adjusted to reflect the proportional allocation between townships recommended in the RRBR, as shown in Table2

	Household allocation
Rolleston	85
Lincoln	49
Prebbleton	14
West Melton	21

Comparison of Tables 3 and 1 shows that PC17 provides a substantial overallocation of rural residential households to Prebbleton, at the expense of Lincoln. The substantial over allocation to Prebbleton conflicts with s3.52 of the RRBR, which states that it is essential for PC17 to ensure the village character of Prebbleton, Tai Tapu, West Melton and Springston is not undermined by a large increase in the population on the rural periphery of these small towns. The equitable allocation that is recommended in Table 3 is also consistent with the significantly different growth patterns that are allocated for the two townships under PC1. For Prebbleton, PC1 provides 1295 new residential households up to 2041, whilst providing Lincoln with 3900 new residential households. This township growth indicates that PC17 allocation of rural residential households should be three times greater in Lincoln, compared to Prebbleton, which is consistent with the recommended allocation in Table 3 and the RRBR (Table 2).

Problem 2: The non-selection of the proposed site adjacent to Lincoln, located east of Ellesmere Road, and south of Lincoln to Tai Tapu Road.

PC17 claims that this site has a number of constraints that preclude their inclusion within the first development phase of PC17 when compared to other sites. These are:

1. Located within the Lower Plains Flood Area
2. Have fine soils and high watertable that makes the area potentially susceptible to liquefaction during large earthquake events
3. Timing of development for the residential 'Greenfield' land within the C1 urban Limit undermines the sites ability to connect to reticulated services
4. Ellesmere road severs these areas from the future urban form of Lincoln, which will preclude the ability to establish safe and efficient connections east of this strategically important road
5. Rural residential densities could undermine the visual amenity contrast between the urban form of Lincoln and the surrounding rural area, while contributing to the coalescence of Lincoln with Tai Tapu.
6. This area contains a large number of springs, which presents challenges in terms of developing the land for rural residential purposes, both in regards to stormwater management and avoiding any conflict this intensification may have with the cultural values attributed to these springs.

The following sections explain how the proposed development plan avoids or mitigates each of these issues:

Issue 2.1

We contend that the proposed development plan ensures a low risk of flooding at the house sites, and this low risk can be easily mitigated.

The development plan shows that the new house sites are located in the northeast area of the site. Appendix 1 shows this area does not have a history of flooding in the 1977, 1986, and 1992 floods, whereas the current preferred location in PC17 was flooded in 1986 (Fig. 4.7, ISMP 2008). The absence of historical flooding at our sites reflects that it is located at northwestern boundary of the Lower Plains Flood area, with a rapid increase in elevation from 5.0 to 6.5m. The Lower Plains Flood area is designated to encompass the Halswell River floodplain (s4.4.3, ISMP 2008). The area of the new house sites is not part of the Halswell River Plain. This area is mapped as Wakanui soils (refer Appendix 2) in this area show it is the lower extent of the older geomorphic surface which Lincoln township is located on (Cox 1978; Webb 2008; Brown and Weeber 1992; Ecan 2011).

In accordance with the District Plan all house sites will be located in areas 5.0 m above sea level, and all dwellings will have finished floor level of 6.0 m above sea level. This requirement mitigates the flood risk to 2% AEP.

Issue 2.2

We contend that the area of new houses within the proposed development plan should not have been included in the potential liquefaction zone.

Following both the September 2010 and February 2011 earthquakes no liquefaction occurred in this area, or on any adjacent properties (Fig X; Yetton et al. 2011). Only minor superficial damage was sustained to houses, and there was no damage to wells. The land owners have had three geotech investigations conducted at the existing house sites, each by different geotech engineers. Two of these investigations were conducted after the September 2010 earthquake, and one of these was by Geotech Consulting (Appendix 3), who prepared the report of Yetton et al. (2011). Geotech consulting concluded that site investigation showed the 'site had not suffered any ground damage or liquefaction during the Darfield earthquake of 4 September. It is my professional opinion that the supporting ground is suitable for the foundations of the proposed building.'

The site is located on the west boundary of potential liquefaction zone of Yetton et al. 2011. It is recognised that this boundary is arbitrary, following road boundaries. The boundary was drawn to approximate: between well-drained Templeton soil types and poorly drained Temuka and Tai Tapu soil types; the margin of lowlands and swamp soils of the Waimakariri fan; and follow the change in ground gradient off the alluvial fans of the plains to the much flatter land around the Port Hills (Yetton et al. 2011, pp20). The area of house sites in the proposed development are on the geomorphic surface that was intended to be excluded from the potential liquefaction zone. This area is the base of the Waimakariri fan, evident by the sharply rising ground gradient and Wakanui soil types, which are Templeton age soils (Cox 1978; Webb 2008; Brown and Weeber 1992; Ecan 2011). This geomorphic surface is an extension of that to the west of Ellesmere Road, which extends to Lincoln Township and the Greenfield developments of Lincoln Springs and Rosemerryn.

The current preferred location in PC17 has the land features encompassed in the potential liquefaction zone of Yetton et al. 2011. The site is not on the Waimakariri fan, but has low ground gradient and poorly drained Tai Tapu soils, which are included in the potential liquefaction zone on the opposite side of Ellesmere Road. The current preferred location for Prebbleton Township is actually mapped in the liquefaction zone by Yetton et al. 2011, but it is not recognized as a potential limitation in PC17 (in contrast to our site). The Prebbleton is also adjacent to sites of actual liquefaction occurrence during the earthquake of September 2011 (Yetton et al. 2011).

Issue 2.3

We contend that the timing of Greenfield development within the Lincoln urban limit does not need to preclude the availability of reticulated services.

The proposed site is adjacent to the Lincoln township urban limit. PC17 recognises the efficiencies and benefits of adjoining the urban limit, which will support the coordinated and cost effective provision of infrastructure (PC17 attachment 2, pp 16). This is apparently not a limitation for the current preferred site, which is XX km further down Ellesmere Road than our site. PC17 identifies that services will need to be extended down Ellesmere to the current preferred site (PC17 attachment 2, pp 16). These services will run past the gate of our proposed development. Therefore there should be no limitation in providing reticulated services to our site, and the inclusion of our development will significantly increase the cost effectiveness and efficiency.

Issue 2.4

We contend that options exist to mitigate the effects of our site being located to the east of Ellesmere Road.

The site currently has a vehicle / cycle accessway onto Ellesmere Road for three existing households, as well as an accessway onto Lincoln-Tai Tapu Road for one household. Our development plan proposes a further six households which would be serviced by these existing accessways. In the proposed development plan we suggest vehicle access for the majority of households is from Ellesmere Road. This is consistent with PC17, where the current preferred location has its accessway onto Ellesmere Road (22 households). Three households could have vehicle access from Lincoln-Tai Tapu Road, using the existing accessway, but moved to a safer location (Appendix 4).

In Appendix 5 we also suggest other options for our vehicle access.

Our development plan has a number of features which provide for a strong linkage to the future urban form of Lincoln. The Lincoln Structure Plan shows a proposed road / cycle / pedestrian network exiting onto Ellesmere Road, opposite the current accessway from our site. The structure plan also shows a road / cycle / pedestrian network along Lincoln Tai Tapu Road. Our development plan provides pedestrian / cycle connections to both of these entranceways into Lincoln Township (Appendix 6).

The development plan also shows that land will be provided for a future community walk/cycleway along the boundary with Lincoln-Tai Tapu roads, providing the first stage of a walk/cycleway loop that could connect the township with the rail trail on River Road. We have discussed this with the adjoining landowner (Bruce Tweedy, DP57730), who is also willing to provide the remaining land adjacent to Lincoln-Tai Tapu Road, to allow completion of the connection between the Lincoln urban boundary and River Road. The Lincoln EnviroTown Trust also strongly supports this proposal (see Appendix 7).

The final location of the bypass is not clear, the Lincoln Structure Plan shows the bypass diverting to the west of Ellesmere Road before the accessway to our site. If this happens then road separation would not be an issue for our location. However, PC17 shows the bypass along the existing route of Ellesmere Road. Both Ellesmere and Lincoln-Tai Tapu Roads are used increasingly by recreational cyclists and existing resident cyclists, and

their use will need to be accommodated if the bypass is developed. Recognising this fact shows that the bypass should not act to separate existing and future cycle access.

Connectivity is also provided by school buses to Lincoln Primary and High Schools, and Greenpark Primary which presently travel along Ellesmere Road past the existing accessway from the site.

Issue 2.5

We contend that the proposed development plan will positively enhance the boundary between the urban area and the surrounding rural environment.

The location of the existing houses shows that development site already has features of rural residential densities. This is partly recognized in PC17, where the site is described as already demonstrating a higher density form of semi-rural landuse (PC17 attachment 2, pp18). Development of rural residential will not undermine the rural amenity contrast, when compared to other options available around Lincoln. The area is currently zoned inner plains, with all the surrounding land in 4 ha blocks (some yet to have houses). In PC17 it is identified that for the current preferred location in Lincoln, that the rural residential activities provide an appropriate interface between the urban form of the township and the rural periphery (PC17 attachment 2, pp16).

There are only limited rural landuse activities in this area, in comparison to the productive rural and research landuse to the north and south of Lincoln Township (as recognised in PC17, attachment 2). Development at this site will also not lead to reverse sensitivity effects with rural landuse, which is distinct concern elsewhere.

The density of housing in the development plan fits within the criteria of PC17, with an average of 1 household per 1.4 ha (PC17, ppXX). 2 ha will be dedicated to native plantings (refer Appendix 8).

The development proposal shows that it will not lead to coalescence of Lincoln with Tai Tapu townships. The proposal does not demonstrate ribbon development; instead the rural residential households are located in a block at the northern end of the site, adjacent to Lincoln townships. Lincoln-Tai Tapu Road provides a natural boundary to the east of the site. Further development is precluded at the southern half of the site because the land is lower than 5.0 m above sea level, and therefore is precluded from being built on in the Selwyn District Plan.

The development plan provides for establishment of a 10m wide buffer of indigenous plantings adjacent to Lincoln-Tai Tapu Road (see Appendix 8 for the concept plan). This is an exciting opportunity to create a unique entranceway to Lincoln Township, in line with Lincoln Envirotown, other developments in the township (Rylands, Ngai Tahu block, Lincoln Springs), and align with branding of Lincoln University. This would also provide land for development of a future community walk/cycleway loop to connect the township with the Rail Trail on river road, and significantly enhance from the linkage of

Lincoln township with the surrounding semi-rural environment. Letters of strong support have been provided by Lincoln Envirotown (Appendix 7), and Waihora Ellesmere Trust (Appendix 9).

These plantings would also act to mitigate any visual amenity contrast arising from rural residential densities, as the development would not be visible from Lincoln Tai Tapu Road, Lincoln township or surrounding land holdings.

The development plan also includes significant wetland restoration and riparian planting. The existing landowners already have a track record in riparian restoration at this site, with approximately 0.5 ha fenced and beginning to be planted. Two of the landowners have been awarded Environmental Enhancement Fund grants by Environment Canterbury. In the rural residential development these plantings would be expanded to 2 ha, encompassing all of the waterways and springs. Covenants would be placed to ensure protection of this biodiversity restoration. These restoration plantings would further improve the visual amenity contrast from the existing situation, and mitigate any contrast that may arise from rural residential developments.

This development is a positive implementation of the Selwyn District Council's stated support for the Biodiversity for the Canterbury Region (Fielding-Cotterall 2010, pp10), in particular the council's desire to have 'indigenous plantings carried out in locations that are appropriate and of sufficient size to function effectively as an ecosystem or part of a corridor to other such areas'.

Issue 2.6

We contend that the proposed development plan is structured to mitigate issues arising from the zone of springs, and will positively enhance the cultural and ecological health of the springs.

The development plan shows that the new house sites are located in the northeast area of the site, on the lower extent of the older geomorphic surface which Lincoln township is also located on. This area has a rapid increase in elevation from 5.0 to 6.5m. The springs occur mostly as a zone to the south of the house sites, at the base of the older geomorphic surface.

This allows for establishment of a stormwater treatment ponds and wetlands upstream of the springs. This is consistent with the treatment of stormwater in PC17, where the same method is identified for the current preferred locations at Lincoln and Prebbleton. We note that both of these locations are also identified as having springs. This treatment method follows the Lincoln Stormwater Management Plan (Maunsell 2008).

Our development plan shows significant wetland restoration and riparian planting, to encompass all waterways and the zone of springs. This is a significant improvement over the historical treatment of these springs under rural land use, where cattle have been free to graze (refer Appendix 8). Any minor effect from the mixing of the treated stormwater and spring water will be more than offset by the removal of this spring area from rural

landuse, with a clear positive enhancement once the area is restored to a wetland. This is in line with the goals of the Waihora Ellesmere Trust, who are working closely with Ngai Tahu to restore waterways in the Te Waihora catchment (refer to Appendix 9).

All plantings will follow the guidelines of the Waihora Ellesmere Trust, as well as the Waterways and Wetlands guidelines of Ecan (Ecan 2011a). Plantings will also be in accordance with Part C2 of the Selwyn District Plan relating to tree planting near waterbodies.

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Appendix 1. Historical flooding (Maunsell 2008)

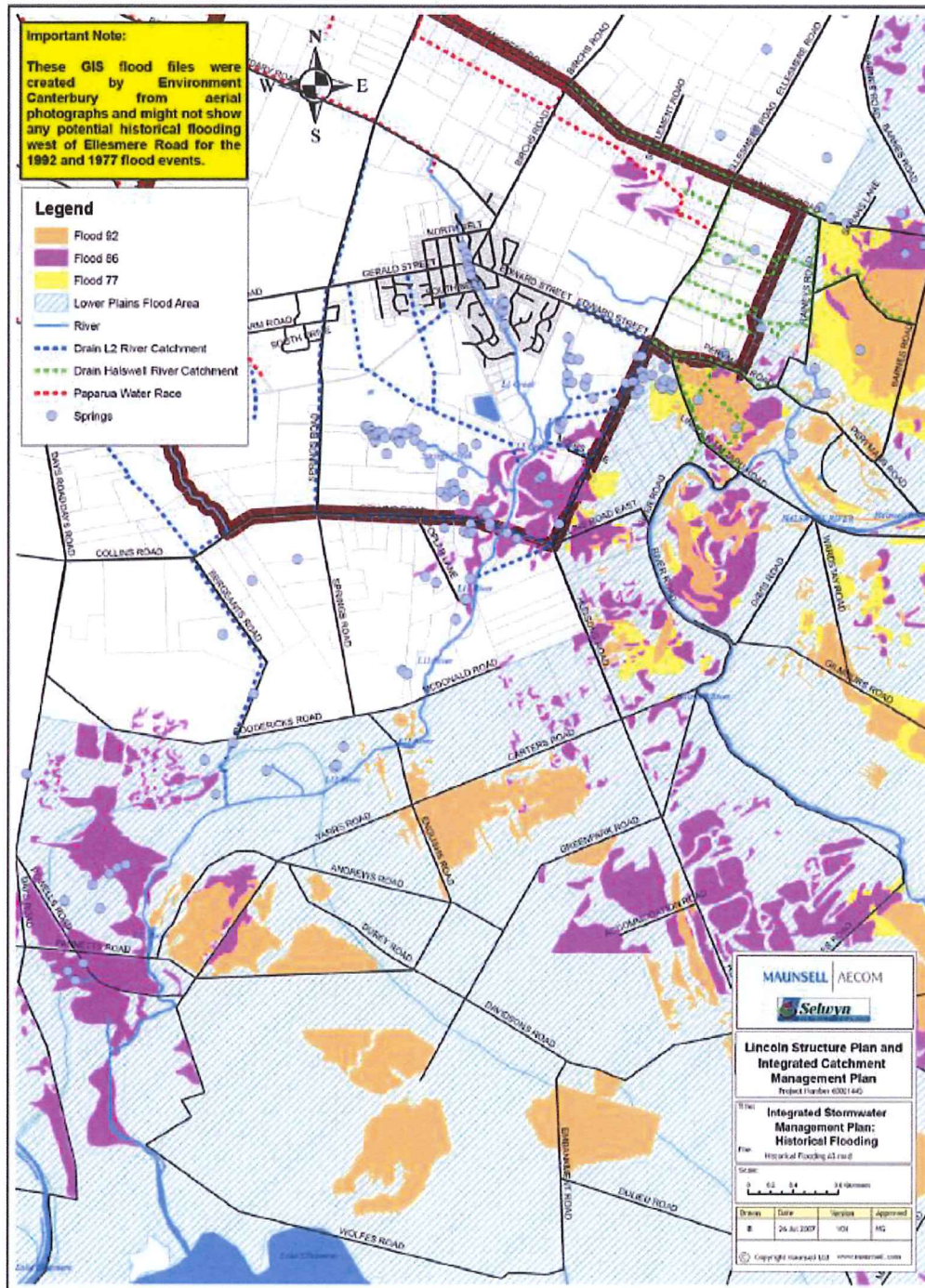


Figure 4-7: Historical Flooding

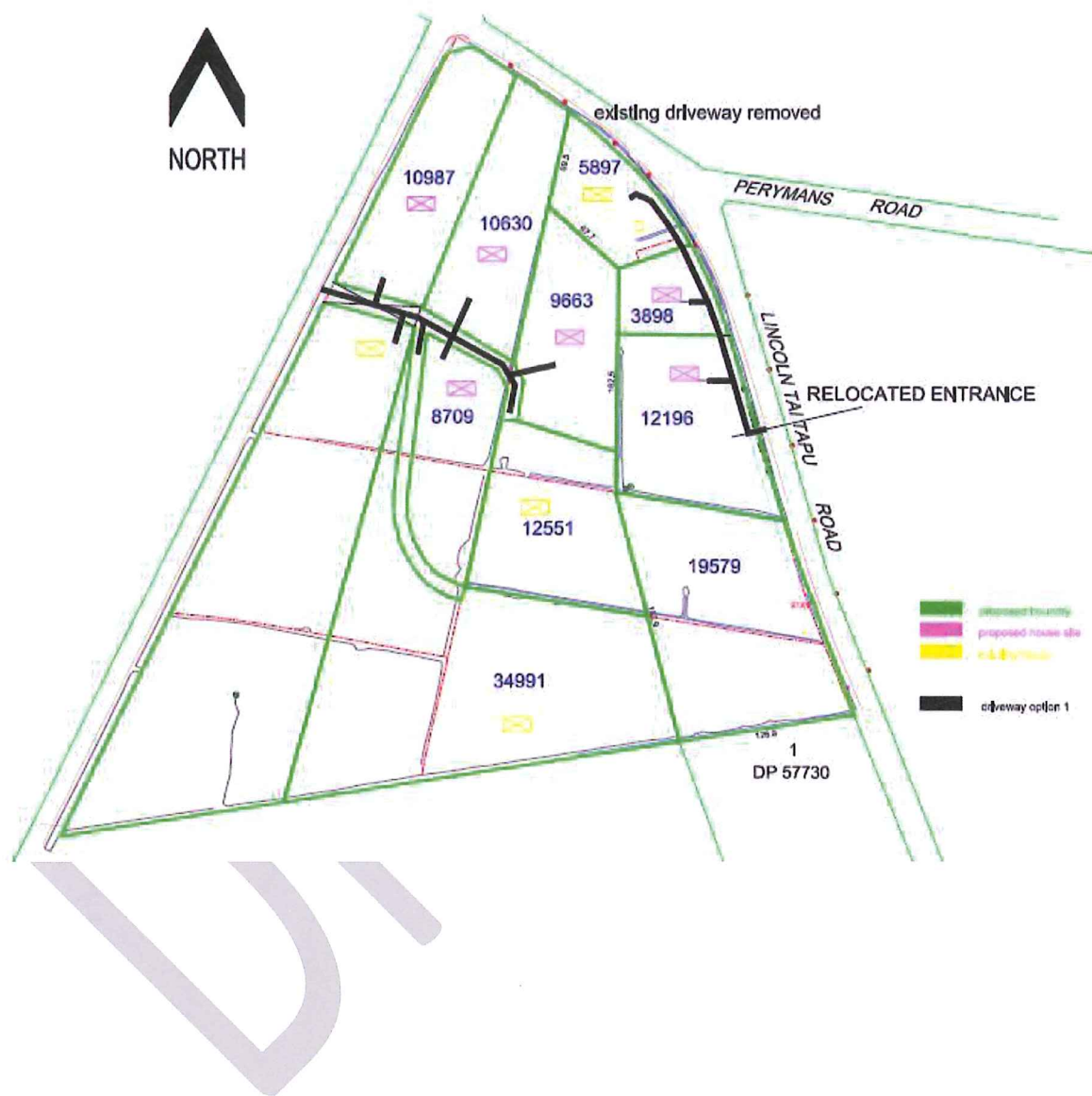
Appendix 2 Soil map of the site and surrounding area (Ecan 2011)



Appendix 3. Report by Geotech of an existing house site after September earthquake

DRAFT

Appendix 4. Proposed vehicle accessways

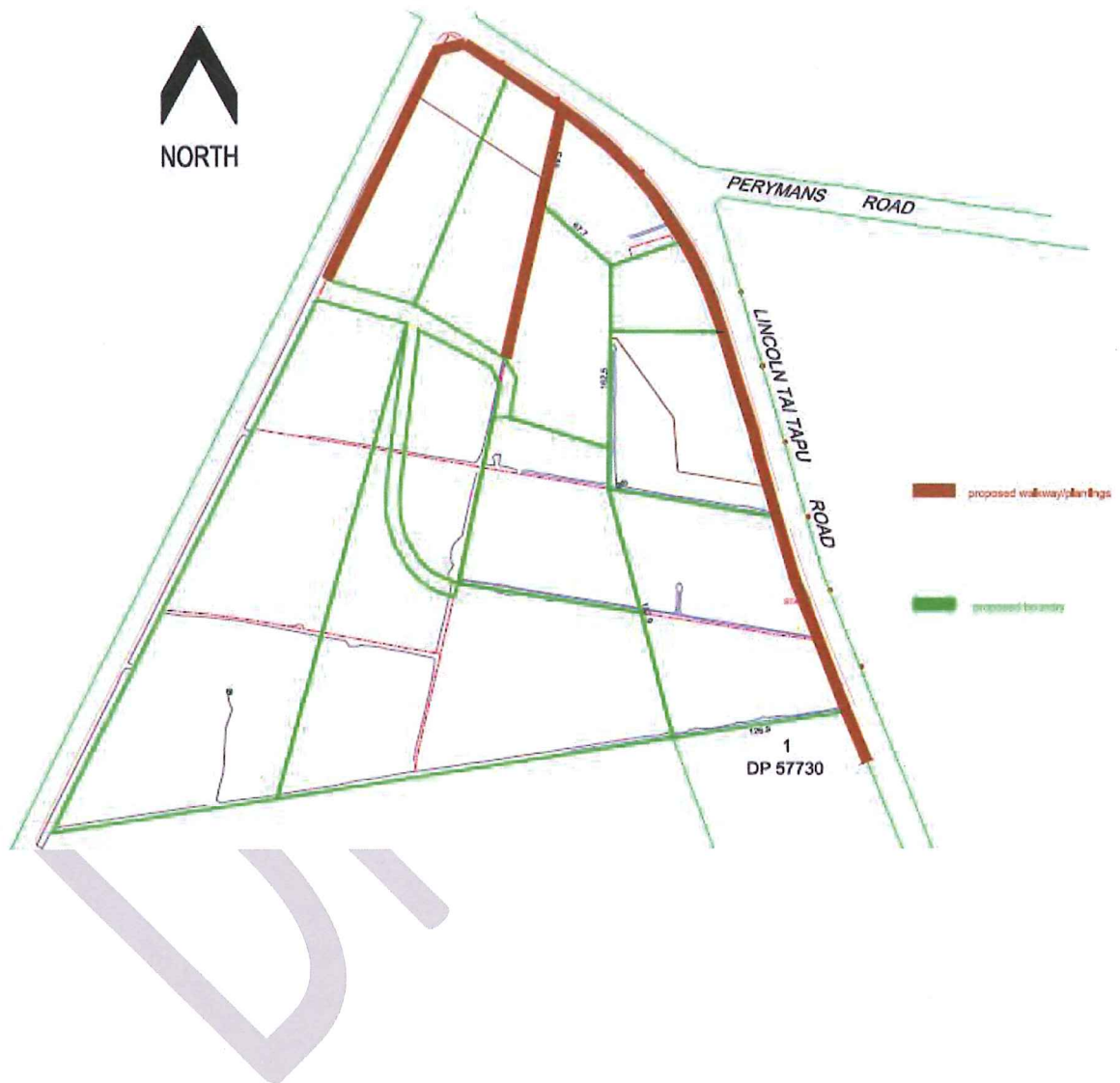


Appendix 5. Options for vehicle accessways

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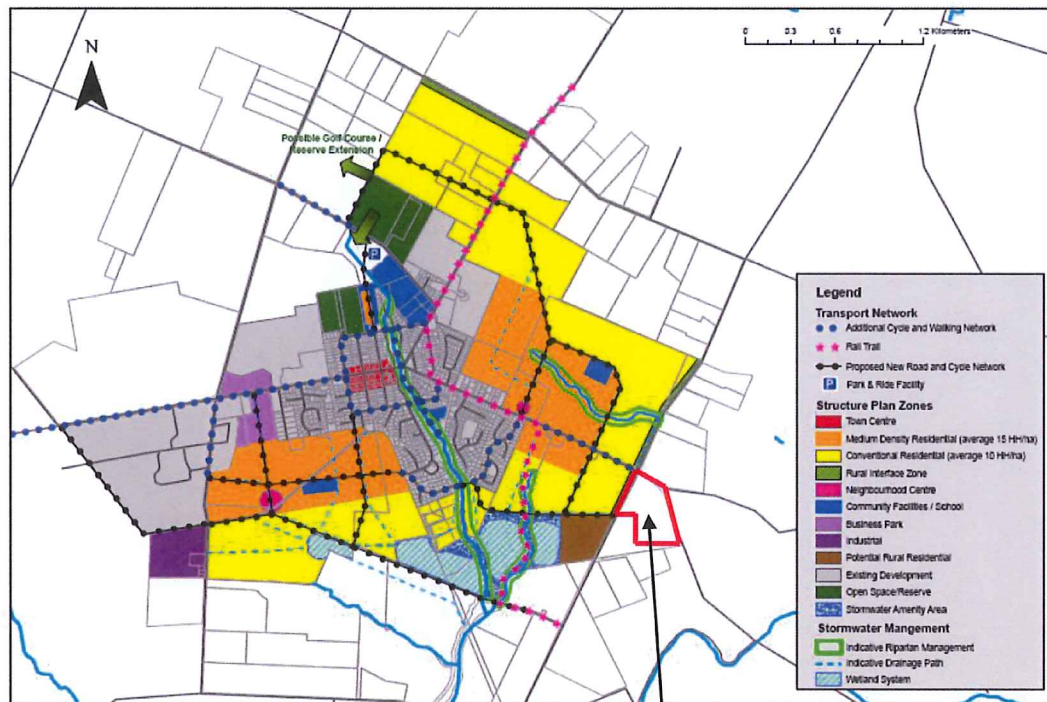
Appendix 6

Proposed cycle / walkways, including the first stage of a community loop walkway connecting Lincoln township to the railtrail at River road.



Appendix 6 cont.

Pedestrian / cycleways in the Lincoln structure plan in relation to our proposed development site.



Development site

Appendix 7. Lincoln Envirotown support letter



Taking responsibility for
a sustainable future



www.lincolnenvirotown.org.nz

Lincoln Envirotown Trust
c/- 694 Gould's Road
RD4 Christchurch 7674

12th April 2011

Letter of support for the proposed development by Robert Barker, Alistair King, Sam Carrick

Lincoln Envirotown Trust (LET) representatives have visited this site and discussed the plans with the present landowners.

We were very impressed by the proposed provision for establishment of a 10m wide buffer of indigenous plantings adjacent to Lincoln-Tai Tapu Road. We see this as an exciting opportunity to create a unique Eastern gateway to Lincoln, showcasing our local native plants in line with the Lincoln Envirotown concepts and other developments in the township (Ryelands, Ngai Tahu block, Liffey Springs), and aligning with the branding of Lincoln University. These plantings would also act to enhance the character of this semi-rural area, as well as mitigate any visual amenity issues from rural residential densities, as the development would not be visible from Lincoln - Tai Tapu Road, Lincoln Township or surrounding land holdings.

As part of the buffer planting area, provision would also be made for land to be allocated for development of a future community walk/cycleway loop to connect the township with the Rail Trail on River Road, and which would significantly enhance the linkage of Lincoln Township with the surrounding semi-rural environment. This is a very generous offer on the part of the landowners.

We also support the proposed significant wetland restoration and riparian planting. The existing landowners already have a track record in riparian restoration at this site, with approximately 0.5 ha fenced and beginning to be planted. Two of the landowners have been awarded Environmental Enhancement Fund grants by Environment Canterbury. In the proposed rural residential development these plantings would be expanded to 2 ha, encompassing all of the waterways and springs. This is a significant improvement over the historical treatment of these springs under rural landuse, where cattle have been free to graze. The plans allow for establishment of stormwater treatment ponds and wetlands upstream of the springs.

The suggested native planting ties in with the idea promoted

Appendix 7 continued: Lincoln Envirotown support letter

by LET of Lincoln being part of the Te Ara Kākariki network of native biodiversity from the mountains to the sea. We expect to see a return of many native species to the area. The walkway would allow the public to enjoy the native plantings and the area would also be a demonstration for other landowners who plan to encourage native biodiversity on their own land.

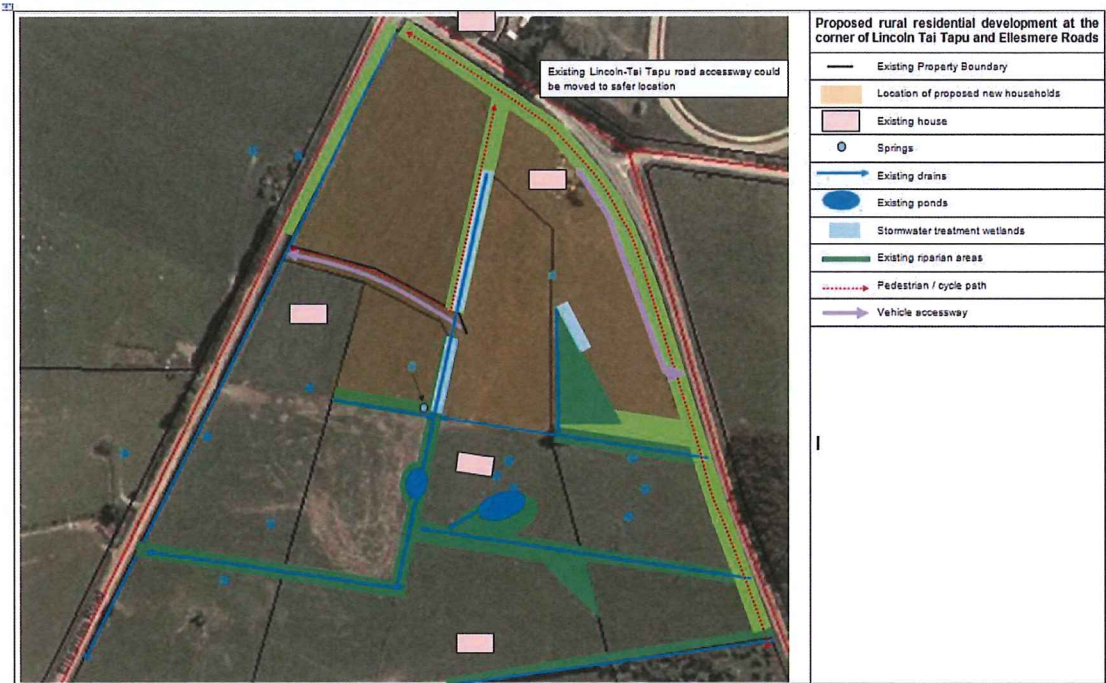
The present owners are willing to work further with the Lincoln Envirotown Trust (and Waikare Ellersmere Trust) to ensure the success of their vision (e.g. Covenants over the plantings / wetlands, and appropriate planting design), and promote a network of wildlife corridors linking to the Port Hills.

Yours faithfully



Dr Sue Jarvis
Chair Lincoln Envirotown Trust
694 Goulds Road
RD4 Clevedon 7574
New Zealand
phone: 03 329 5838
mobile: 021 100 1009
www.lincolnenvirotown.org.nz

Appendix 8. Concept plan for native plantings



Current restoration progress



Before planting (2008)



Presentday (2011)

Existing entranceway to Lincoln Township



Vision for future entrance way to Lincoln township



Existing springs under rural landuse



DR

Appendix 9. Letter of support from Waihora Ellesmere Trust

DRAFT

Appendix C – Assessment Against RRS criteria for Lincoln

Rural Residential Strategy (2013) assessment Criteria (reproduced)

The criteria are categorised into the following three groups:

C = The critical outcomes required to achieve the goals of the UDS and Appendix 1 of the Land Use Recovery Plan - Chapter 6 of the CRPS

SS = Site specific issues that require detailed assessments and contextual analysis to determine how any identified potentially adverse effects could be avoided, remedied or mitigated

Na = Matters that do not apply to certain geographic locations within the UDS area of the District

Generic Criteria	Lincoln	Proposed Site
Chapter 6 of the CRPS (LURP)		
Located outside the identified priority areas for development and existing urban areas	c	The site is located outside of identified priority areas
Located so that it can be economically provided with reticulated sewer and water supply integrated with a publicly owned system, and appropriate stormwater treatment and disposal	C	Adjoins the urban limits set by the LURP and therefore services being installed as part of development of greenfield priority areas will be able to be extended to economically provide for the site
Access provided to a sealed road but not directly to Strategic and Arterial Roads (as identified in the District Plan), and State Highways	ss	Lincoln Tai Tapu Road is an arterial route. Access will be primarily to Ellesmere Road with some limited access to Lincoln Tai Tapu Road.
Avoid noise sensitivity activities occurring within the 50 dBALdn air noise contour so as not to compromise the efficient operation of the Christchurch International Airport, or the health, well-being and amenity of people	na	This criteria does not apply to this site.
Avoid the groundwater recharge zone for Christchurch City's drinking water	na	This criteria does not apply to this site.
Avoid land required to protect the landscape character of the Port Hills	Na	This criteria does not apply to this site.

Not compromise the operational capacity of the West Melton Military Training Area or Burnham Military Camp	na	This criteria does not apply to this site.
Support existing or upgraded community infrastructure and provide for good access to emergency services	c	The proposal will not impede access for emergency services, and the proposal will not have an impact on existing community infrastructure.
Not give rise to significant adverse reverse sensitivity effects with adjacent rural activities, including quarrying and agricultural research farms, or strategic infrastructure	ss	The site is bound by Lincoln Tai Tapu road to the north and east providing a degree of separation from adjoining rural activities, and provides a 10m wide landscape buffer along this boundary. As no new dwellings are proposed along the southern boundary with rural zoned land it is considered that there is no opportunity for reverse sensitivity effects to arise.
Avoid significant natural hazard areas, including steep or unstable land	Na	This criteria does not apply to this site.
Avoid significant adverse ecological effects	ss	Given the proposal for wetland restoration and riparian planting, and protection of the springs this development will represent a significant positive ecological benefit.
Not significantly adversely affect ancestral land, water, sites, wahitapu and wahitaonga to Ngai Tahu	ss	Given the restoration of the springs on the site and the use of wetlands to treat stormwater, the proposal represents a positive effect on the Mauri of water. No identified cultural sites exist on the site.
Avoid adverse effects on existing surface water quality	ss	Given the restoration of the springs on the site and the use of wetlands to treat stormwater, the proposal represents a positive effect on surface water quality.
Integrate into, or consolidate with, existing settlements	c	The proposal is located adjoining the urban limits of Lincoln and is able to be integrated with and consolidate the Township.
Development site supports the development of an ODP and is not seen as a transition to full residential forms of development	c	A draft ODP has been prepared which will ensure development of the site is not a transition to full residential forms of development
Rural residential form, function and character		

Avoid locations that are obvious residential growth paths	c	The site is not located in an obvious residential growth path.
Support locations that directly adjoin and are able to consolidate with Townships and residential Priority area to support the provision of economically viable infrastructure and to promote social cohesion and ready access to recreational, employment and other services established within Townships	c	The site is located adjoining the urban limits of Lincoln and is able to consolidate with the Township. A proposed primary west-east road within the adjoining ODP Area 2 development links to the site, via an access point onto Ellesmere Road located opposite the approximate midway position of the site's Ellesmere Road frontage. Planned developed to Ellesmere Road will enable appropriate extension of services across Ellesmere Road to economically provide infrastructure for this site. The location of the site on the boundary of the township ensures development of the site will promote social cohesion and access to recreational, employment and other services located in Lincoln.
Support locations that can sustain a mixture of housing densities ranging from 0.3ha to 2ha in size whilst achieving an overall density of 1 to 2 hh/ha, but where the overall area supports sustainable enclaves in respect to the overall number of households to enable the anticipated rural residential form, function and character to be achieved	ss	The development of the site is proposed to include a mixture of housing densities to provide for larger lots containing softer soils and with the springs to the south, and smaller allotments to the north where there are firmer soils. This will provide for approximately 1-2 hh/ha.
Avoid locations that may compromise the quality of ecosystems or indigenous biodiversity and ensure that rural residential areas do not adversely affect ancestral land, water, and the WahiTapu and WahiTaonga of TeRununga o Ngai Tahu and TeTaumutuRununga. These include the need to protect and enhance rivers, streams, groundwater, wetlands and springs within the catchment of Lake Ellesmere/TeWaihora, springs and any associated mahingakai sites.	ss	Given the unique nature of the proposed development to enhance native bush, create wetlands and protect water quality of existing springs on the site, it is considered that development of this site will have a positive effect on ecosystems, biodiversity and water.
Support locations that utilise existing road layouts and	ss	Ellesmere Road is identified on Map 26 as providing road

physical features as buffers and definitive boundaries between urban and rural residential activities to limit peri-urban sprawl		separation between the Township and the adjoining area, thus ensuring separation between the site and the township.
Landscape values		
Discernibly logical boundaries determined by strong natural or physical features	c	The west/nw and east site boundaries are defined by existing roads. The west/nw boundary with Lincoln Tai Tapu Road will be further defined with a 10m wide landscaped strip along the western boundary of the site to provide for future cycleway connections, and provides a strong logical boundary to the site. The southern boundary is defined by existing shelter and access ways.
Exclude land required to maintain the open space landscape character either between or surrounding the areas of urban activity within Greater Christchurch	ss	This site is not required to maintain open space between urban activities with Greater Christchurch. Although located between Lincoln and Tai Tapu, the site represents an opportunity to provide a unique and ecologically beneficial development at the Lincoln gateway, and includes strong boundaries to prevent further peri-urban sprawl.
Protection of natural features, significant trees and vegetation	ss	One of the significant features of proposed development is the protection and enhancement of natural features and vegetation.
Manage the amount of households within single locations to avoid the collective visual effects of intensified land use	c	This development would include the addition of 6 households, which would be screened and surrounded by native planting to promote a positive ecological effect.
Address the constraints to development identified in the Landscape Constraints Map prepared by Andrew Craig Landscape Architect (see Appendix 1 RRS13)	ss	None apply to this land..
Locations to adjoin Township boundary's by have an ability to achieve a degree of 'ruralness' as a consequence of adjoining land use and natural attributes	c	The site will retain a high level of open/space natural character due the proposed wetland creation and native plant restoration and planting (including along the Lincoln Tai Tapu Road frontage. The density of rural residential lots will be relatively low and the total number small..

LINCOLN ENVIRONS STUDY AREA CRITERIA		
Urban form and growth management	Critical or site specific matter	Proposal site
Rural residential development nodes to: (a) adjoin the residential priority areas and Living zone land; and (b) be consistent with the urban settlement patterns and strategic planning outcome outlined in the Lincoln Structure Plan and the Growth of Township objectives and policies of the District Plan	c	The site adjoins a residential priority area and is consistent with the compact township shape sought by the Lincoln Structure Plan and District Plan objectives
Lincoln has capacity to support an increased population base within rural residential living environments as it is an identified Key Activity Centre that has the community infrastructure, services and business areas to support a large self-sustaining community	c	Achieved
Preclude rural residential development south of the proposed Lincoln by-pass that would be severed from Lincoln and would contribute to poor integration and connectivity with the Township (refer to Appendix 2 – Map 26)	ss	Achieved
Avoid ribbon development along the alignment of reticulated services and strategic roads that may undermine the contrast between rural and urban forms of development and the distinctiveness of the primary gateways to Lincoln (refer to Appendix 2 – Map 26)	ss	This proposal would add to the distinctiveness of the gateway to Lincoln, providing a unique and appropriate entrance to the Township.
Avoid locations that may contribute to the long term coalescence of Lincoln with the Townships of Rolleston, West Melton, Templeton and Springston (refer to Appendix 2 – Map 28)	c	While the site is located between Lincoln and Tai Tapu, the site will provide a definite edge to the township, with boundary plantings proposed.

Rural character and productivity		
Support locations that maintain appropriate separation from the Intensive Farming Activities legitimately established on the periphery of Lincoln (see Appendix 2 – Map 5)	ss	Achieved
Maintain the visual distinction and amenity contrast between the rural periphery of Lincoln and the urban forms of Prebbleton, Springston, Rolleston and Christchurch City	c	Achieved
Preserve the rural character and productive capacity of large rural land holdings and the Rural (Outer Plains) zoned land to the west and south of Lincoln (refer to Appendix 2 – Map 26)	ss	The site does not make up part of a large landholding, rather four smaller landholdings where the owners are working together to achieve appropriate development in a small area.
Strategic Infrastructure		
Avoid locations that may not be able to connect to strategic infrastructure where it is available and cost effective to do so, including roading, stormwater management and reticulated water and wastewater networks (refer to the 5Waters Activity Management Plan and Transportation Activity Management Plan)	c	Connections across Ellesmere Road are considered cost effective and appropriate.
Avoid locations that may undermine the efficient operation of the strategic Infrastructure referenced in the District Planning Maps and the associated Study Area Maps contained in Appendix 2 – Map 5: Transpower high voltage transmission lines, Transpower electricity substation (TP5), Crown Research Institutes and Lincoln University research facilities, Weedons Road Cemetery (D171), Lincoln Golf Course (D126), Landfill to the west of the Township (D385), Lincoln Wastewater Treatment plant	c	Achieved

(D153), Integrated stormwater management scheme on the eastern boundary of Lincoln, Broadfield Primary School (ME17) and consideration of the strategic importance of Ellesmere Junction Road as a collector route between SH1 and SH75 (Christchurch to Akaroa)		
Natural hazards		
Avoid locations that are constrained by the high groundwater table, SDC recorded flood sites, Lower Plains and Lake Ellesmere Flood Areas and associated land drainage issues (including drains, springs and waterways) (see Appendix 2 – Map 17)	ss	As set out above these are not considered to be a constraint on the development of the site.
Avoid locations where liquefaction and lateral spreading was observed during the Canterbury Earthquakes, in addition to areas made up of fine saturated soils and where there is a high groundwater that may be susceptible to significant damage during further earthquake events (see Appendix 2 – Map 20)	ss	As set out above liquefaction and lateral spreading was not observed and specific soil types in the northern portion of the site are not susceptible to significant damage during further earthquake events.
Environmental, cultural and heritage values		
Avoid Land that may compromise the health, longevity or setting of the registered Protected Tree located on Shands Road to the north-west of Lincoln (T81) (See Appendix 2 – Map 5)	ss	Achieved
Avoid locations that may compromise the cultural values attributed to the WahiTaonga Management Site to the north-east of Lincoln (Oven C65) (see Appendix 2 – Map 5)	ss	Achieved
Avoid locations that may compromise the historic values attributed to the registered Heritage Buildings in proximity to Lincoln, including specifically Wheatsheaf House (H302), Greenpark War memorial and gates (H316 & H318) and green Park Memorial gates (H317)	ss	Achieved

(see Appendix 2 – Map 5)		
Consider the extent to which any locations may reduce the productive capacity of Class I and II versatile soils on the periphery of Lincoln (see Appendix 2 – Map 21)	ss	Most of the soils adjoining Lincoln are either Class I or II. Given the size of the current landholdings included in this development, these soils are not currently being, and are unlikely in the future to be, utilised for any significant productive purposes.
Investigate the environmental impacts of facilitating rural residential growth on land that may be potentially contaminated, including sites identified to the north-west and south of Lincoln(see Appendix 2 – Map 5)	ss	It is understood that the site has not been used for known HAIL activities in recent history given the small landholdings with dwellings located on each.

Appendix D – Geotechnical Reports for 737 and 731 Ellesmere Road

06 OCT 2010

3824
5 October 2010

R. Barker,
NZIFS
PO Box 98
Lincoln 7608



Dear Robert,

737 Ellesmere Road, Lincoln - SDC Building Consent Application No. 100966

1 Introduction

This geotechnical report has been prepared to address two items requiring further information as requested by the Selwyn District Council on 27 September 2010:

- To demonstrate that the supporting ground is suitable for the foundation, for the proposed building, following the Darfield earthquake of 4 September
- As this site may contain areas of peat to varying depths, a subsoil investigation is needed.

I inspected this property on 2 October. A visual assessment of the site and surrounding land was made as well as a subsurface soils investigation.

The building site is located due south of the intersection of, and between, Ellesmere Rd and Lincoln – Tai Tapu Roads. It is proposed to construct a garage / sleepout 18.0m by 9.0m near the south of the property. The building will be light weight single storey on a concrete slab floor.

2 Site

The site is on flat land. There is an open drainage channel on the west boundary, about 1.2m deep, and second drain about 20m north of the site. The drain widens into a small pond in the southwest corner of the site. A gravel driveway has been formed from Ellesmere Rd to the site, but the remainder of the surrounding property and land is in pasture grass. The building site itself is marked by a raised fill platform.

There were no signs of ground damage, deformation or liquefaction observed on the site or in the surrounding area. The closest liquefaction signs observed were about 1km to the south, close to the Halswell River.

4 Soil Profile

A site investigation was carried out on the building site with three handauger boreholes and scala penetrometer tests around the toe of the fill platform. The tests show consistent profile under the site with 0.4 – 0.6m of topsoil over silt and fine sand soils. While the upper 0.6 – 0.6m is soft, the soils above 2m depth are all firm. At between 1.9 and 2.3m depth, there is a peat content to the silt, with as much as 50% peat in the soil in places, plus discrete lenses of peat. This peaty silt soil was soft to very soft and easily penetrated by the auger. The water table was recorded at 0.6 – 0.7m depth.

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Tel (03) 9822 538
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120 Peterborough Street
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GEOLOGICAL & ENGINEERING SERVICES

FOR THE NOTE
The following MUST be
checked on site prior to
construction.

Deeper borelogs in the area show shallow gravel 300m to the north east (sandy silt to 0.7m over sandy gravels to over 18m depth) and 150m to the south east (brown claybound gravels to over 20m below 0.3m topsoil) . A third borehole about 200m to the southwest shows silty sand to 2.1m over silt to 6.9m over gravel to 20m. It is likely that the deeper soil profile at the subject site is similar to this.

5 Fill Platform

The building site has been filled to raise the building floor level above flood level. The fill is currently 0.8 – 0.9m above the surrounding ground. We understand from the owner that this fill platform was constructed as follows:

- Strip all topsoil from fill footprint
- Place and compact gravel fill in three discrete operations at about September – October 2009, May-June 2101 and July 2010.

I have not seen any photographs or compaction test records, and can only observe that:

- The fill used is sandy gravel
- The gravel has not appeared to have slumped despite standing at steep batter on two sides during the Darfield earthquake
- The fill is buttressed with topsoil fill on 70% of its perimeter, and there are other topsoil stockpiles which is consistent with the site having been stripped.

I conclude that the fill platform is probably as described and suitable for the construction of a garage building on it.

6 Foundations

The building will be constructed on a gravel fill platform 1.2 – 1.4m thick (allowing for 0.4 – 0.5m strip depth to remove topsoil) over firm silty sand and silt, with softer silt containing peat lenses at about 3m depth below the foundation level. The firm silty soils more than comply with the requirements for "good" ground in NZS3604. In my opinion, this provides thick enough "raft" of competent material between the foundations and the underlying softer peaty soil to minimize any differential settlement which might arise from consolidation of the peaty layer. The completed fill has been in place for over 2.5 months, and initial consolidation of the peaty soils should be advanced. Standard footings should be satisfactory for the building on this profile.

7 Conclusion

In conclusion, the site has not suffered any ground damage or liquefaction during the Darfield earthquake of 4 September. It is my professional opinion that the supporting ground is suitable for the foundations of the proposed building.

Yours faithfully

Geotech Consulting Limited



Ian McCahon

Disclaimer. This report has been prepared solely for the benefit of R Barker and Selwyn District Council. No liability is accepted by this Company or any employee or sub-consultant of this company with respect to its use by any other person. This disclaimer shall apply notwithstanding that the report may be made available to other persons for an application for permission or approval or to fulfill a legal requirement

06 OCT 2010

Kate Whitford
6 Kajens Court
Lincoln 7608

12 November 2010

Dear Kate

RE: Geotechnical Walkover Visual Inspection at Lot 1, 731 Ellesmere Road, Lincoln

1 INTRODUCTION

We understand that you are were in the process of building a new dwelling at the above site at the time the recent $M_w7.1$ earthquake struck. Based on our phone call to Selwyn District Council on 29 October 2010, we understand that they now require a geotechnical walkover inspection to be carried out prior to building works being allowed to continue on site.

The scope was outlined in our proposal to you dated 29 October 2010 and was focused on observations within the immediate vicinity of the building platform and not the entire 4 Ha lot area.

The scope of the report is for a suitably experienced geotechnical practitioner to carry out a geotechnical walkover visual inspection to determine whether there are any obvious signs that the land at the subject property has suffered earthquake-induced ground deformation as a result of the $M_w7.1$ earthquake on 4 September 2010.

2 SITE DESCRIPTION

The subject site is a rectangular shaped rural residential lot accessed from a right of way extending from the eastern side of Ellesmere Road, Lincoln. The site and surrounding land are essentially flat.

The lot is bound by rural residential lots and pasture land to the north, east and south and Ellesmere Road to the west.

A timber fence is present along the northern boundary while the remainder of the boundaries are defined by post and wire fences and shelter belts.

A dwelling is currently under construction (and nearing completion) in the northern portions of the subject site (see Figures 1 and 2). We understand from you that the floorslab was in place and the brickwork partially completed at the time of the $M_w7.1$ earthquake.

Finally, a drainage trench was noted to extend west to east through the central portions of the property (see Figure 3).

3 VISUAL OBSERVATIONS

The following provides a summary of visual observations made at the property on 11 November 2010. Photographs taken during our visit are appended.

- No obvious cracking was noted in the brick work (see Figures 1, 2 and 4);
- The wooden and wire fences around the property boundaries appeared consistent with their age and do not appear to have been damaged by the recent earthquake (see Figures 5 and 6);
- Several earthfill stockpiles were noted across the site (see Figures 1 and 2) and a shallow (approximately 200mm deep) drainage / irrigation trench was noted to extend around the extent of the dwelling (see Figure 7);
- The ground was noted to be tight against fence posts around the site and the foundations of the house under construction (see Figures 1, 2 and 4);
- The walls of the dwelling were vertical and no obvious distortion or cracking was noted (see Figures 1, 2 and 4);
- Although deformations due to construction trafficking was noted around the proposed dwelling, no obvious significant ground deformation (lateral or vertical) was observed; and
- No sand boils or ground fissures indicating damage due to liquefaction were observed.

4 CONCLUSIONS

There were no obvious observable signs of earthquake-induced ground deformation.

In our opinion, there is no immediate requirement for further geotechnical inspection at the property in relation to the $M_w 7.1$ Canterbury earthquake.

5 LIMITATIONS

This report has been prepared solely for the use of our client, Kate Whitford and her professional advisers in relation to the specific project described herein. No liability is accepted in respect of its use for any other purpose or by any other person or entity.

It is recommended that all other future owners of this property seek professional geotechnical advice to satisfy themselves as to its ongoing suitability for their intended use.

The geotechnical walkover visual inspection carried out at Lot 1, 731 Ellesmere Road, Lincoln was specifically limited to a visual inspection of the readily accessible parts of the property. It did not include accessing buildings or inspection of ground under the buildings, foundations or buried services.

We have not carried out a detailed, structural inspection of any building(s) on the property nor has a topographical survey been undertaken. We had not visited the property prior to the earthquake.

The inspection was intended to be a 'snapshot' assessment, the outcome of which could significantly change due to ongoing aftershocks, adverse weather conditions and other factors that are currently affecting the Canterbury region. No background research has been completed nor have any subsurface investigations, detailed analyses or laboratory testing which would normally be required for a thorough earthquake induced ground deformation assessment. The inspection was therefore of insufficient detail to assess all geotechnical risks associated with earthquake damage. There could also be delayed effects that have not yet manifested themselves.

If you have any queries or you require any further clarification on any aspects of this report, please do not hesitate to contact the undersigned.

For and on behalf of Coffey Geotechnics (NZ) Limited

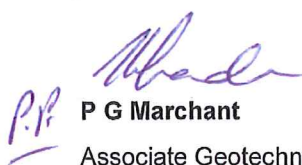
Prepared By



D A Tookey

Project Geotechnical Engineer

Authorised By



P G Marchant

Associate Geotechnical Engineer

Distribution: Kate Whitford
Coffey Geotechnics Archives

1 Copy
1 Copy

Attachment: Site Photographs



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5



Figure 6

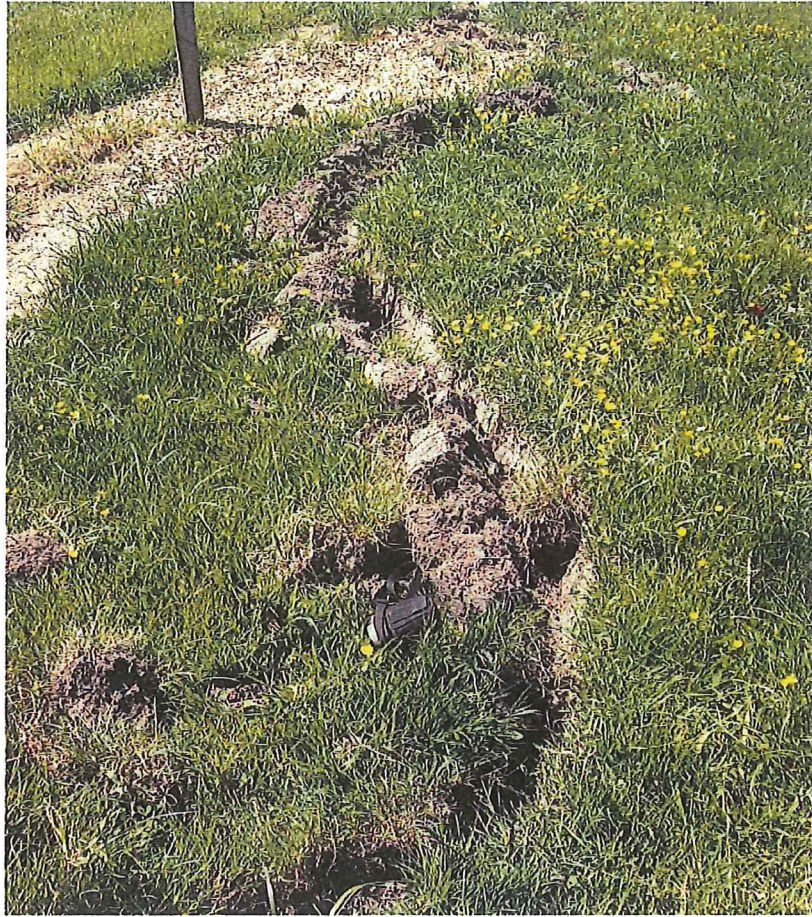


Figure 7

Re Proposed Rural Residential Subdivision

To: Robert Barker

Ellesmere Road

Lincoln

Dear Robert

This letter is in support of your application to subdivide your land, as outlined in your proposal, into rural residential sections. There is a demand for smaller lifestyle properties and we feel the smaller lots on the outskirts of Lincoln will make an ideal transition from residential to rural.

Regards



Alastair King

2-3-14

Daire Ltd (owner of 405 Lincoln Tai Tapu road)

0272 920 853

20 May 2014

Selwyn District Council
Attention: Craig Friedel,
Strategy and Policy Planner
PO Box 90 Rolleston 7643 FAX

**Submission on Council's Rural Residential Strategy – Consultation
Draft and the associated Statement of Proposal**

To Whom It May Concern:

We are writing in support of changing the Rural Residential policy, as it will affect our property in a positive way.

Our address is 2/731 Ellesmere Road, valuation number 2404002803.

Kind regards

Sandrine Carrara and Michael Jessep

2/731 Ellesmere Road
RD 2
Christchurch 7672

0274992683

28 February 2014.

SDM11/4

Mr. Robert Barker,
Ellesmere Developments Limited,
797 Ellesmere Road,
RD2,
CHRISTCHURCH 7672.

Dear Robert,

SUBMISSION ON SELWYN DISTRICT COUNCIL RURAL RESIDENTIAL STRATEGY

Thank you for your assistance in negotiating the final draft of the Sale and Purchase Agreement for Orion's purchase of the 8284m² proposed lot within your property Lot 2 DP 400131. I have now approved this agreement to our solicitors at Chapman Tripp and have asked them to forward this finalised copy to your solicitor for signing.

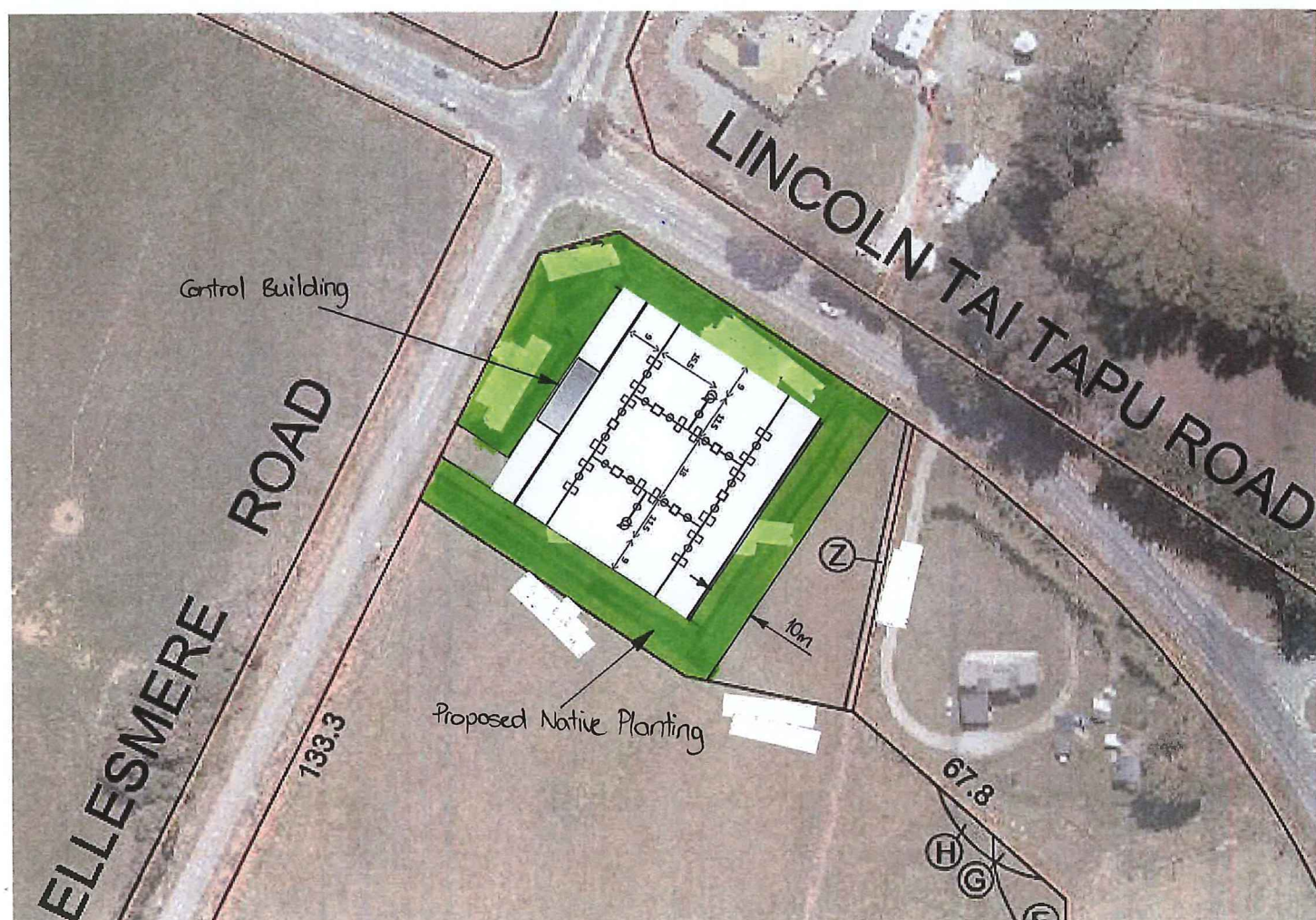
In your email of 18 February 2014 you indicated that you are planning to apply to have the remainder of Lot 2 DP 400131 zoned Rural Residential as part of the Selwyn District Council's Rural Residential Strategy. Orion has no opposition to this proposed rezoning and residential development. The site we are purchasing is for the development of a future substation site which is planned to be constructed in 8-10 years time and will include a 10m wide planting of native shrubs and trees on its perimeter. The planting of this 10m wide area is planned for next year so that the plants are well established by the time the substation is eventually constructed. I have attached a sketch of the proposed planting and substation layout.

I look forward to receiving the signed Sale and Purchase Agreement in due course.

Yours sincerely,



Shaun McConnell.
PROJECT MANAGER - PROPERTY
DDI: (03) 363 9747.
Email: shaun.mcconnell@oriongroup.co.nz.

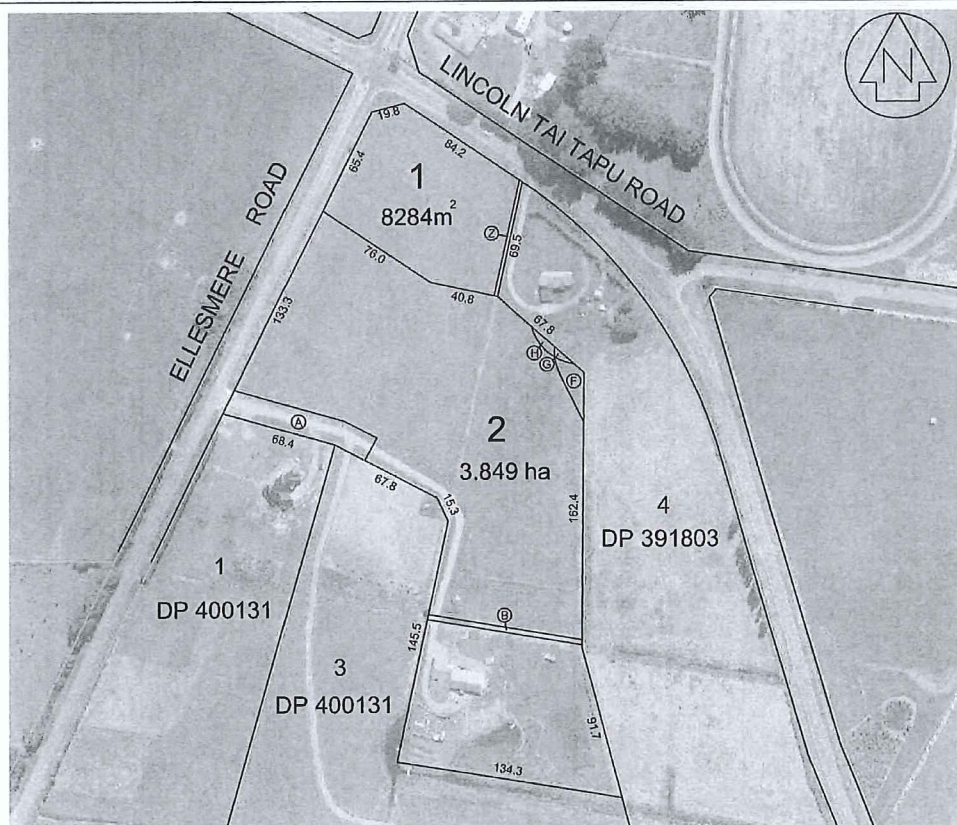


Proposed Easement			
Purpose	Shown	Servient Tenement	Dom. Tenement
Right to convey water, electricity, computer media & telecommunications	Z	Lot 1	Lot 2

- Notes:
- 1) AREAS AND DIMENSIONS ARE SUBJECT TO FINAL SURVEY
 - 2) Easements to protect services will be formalised at the time of survey.
 - 3) Zoned: Selwyn District
 - 4) Comprised in C.T. 400488

Areas F, G, H are Land Covenants in E17633113.6

Existing Easements			
Purpose	Shown	Servient Tenement	Document
Right of way, Right to drain water & sewage, right to convey water, electricity, computer media & telecommunications	A	Lot 2	E18092399.4
Right to convey electricity in gross	A	Lot 2	E180602399.5
Right to drain water	B	Lot 2	E17633113.5



Clark Land Surveyors Ltd
Registered Surveyors - Land Development Consultants



Unit 6, 11 Print Place
PO Box 8177, Riccarton
CHRISTCHURCH
PH (03) 3390401 FAX (03) 3390408
email: cls@cls.co.nz

Proposed Subdivision of
Lot 2 DP 400131
Orion NZ Ltd.
Ellesmere Road & Lincoln Tai Tapu Road

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Any unauthorised employment or reproduction, in full or in part, is forbidden

Scale: 1:2000
At A3 File Ref: 061318

02/03/2014

Selwyn District Council
Attention: Craig Friedel
Strategy and Policy Planner
PO Box 90 Rolleston 7643 FAX

Submission on Council's Rural Residential Strategy – Consultation Draft and the associated Statement of Proposal

To Whom It May Concern:

We are writing in support of changing the Rural Residential policy, we feel that this will affect our property 1/731 Ellesmere Road in a positive way.

Kind regards

Derrick & Kate Whitford
1/731 Ellesmere Road
RD2
Christchurch 7672
021 243 6878