

# SUMISSION IN OPPOSITION TO PLAN CHANGE 69 PROPOSAL

Opposition to Plan Change 69 to rezone land from Rural (Outer Plains) to Living Z, Living X (Lincoln) and Business 1.

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## 1. Introduction

My name is Keith Craig Cameron and I hold a PhD in Soil Science from Reading University, UK (1981) and a BSc in Soil Science from Aberdeen University, UK (1977). I have over 40 years of research and teaching experience in Soil Science and I hold the position of Emeritus Professor of Soil Science at Lincoln University. I am a past President of the New Zealand Society of Soil Science and an elected Fellow of the NZ Society of Soil Science. I am an elected Fellow of the Royal Society of New Zealand and a Fellow of the NZ Institute of Agricultural Science. I am also an Officer of the New Zealand Order of Merit (ONZM) appointed by Her Majesty the Queen for “Services to Agricultural Research”.

There were over 85 public submissions against Plan Change 69 that specifically cite concerns about the loss of highly productive land and/or the loss of versatile soils. I therefore believe that I can represent a relevant aspect of public interest (the loss of highly productive land and/or loss of versatile soil that would occur if Plan Change 69 is approved).

## 2. Evidence – Loss of Highly Productive Land

My evidence relates to the potential loss of versatile soils and the highly productive land that would be lost if Plan Change 69 was approved. The area of land is primarily comprised of Class 1, 2 and 3 land making it an area of ‘Highly Productive Land’ (Figure 1).

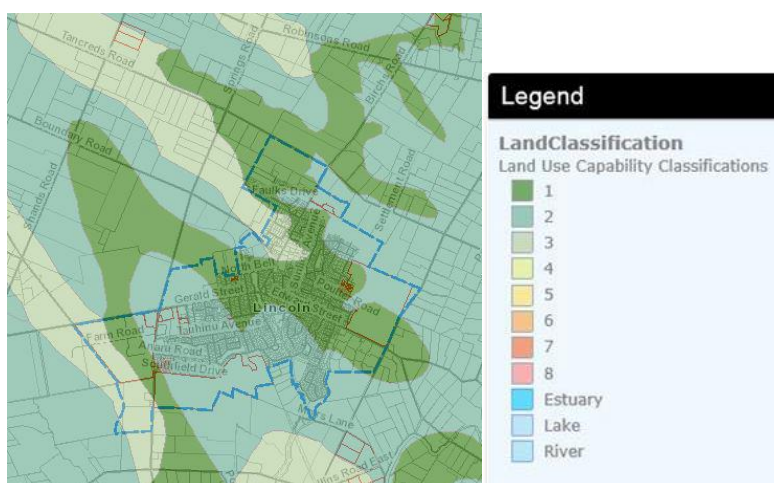


Figure 1. The distribution of Class 1, 2 and 3 land around Lincoln showing that the area identified in Plan Change 69 is comprised of Class 1, 2 and 3 land (map abstracted from Selwyn District Council Baseline Assessment Versatile Soils (DW015)).

According to the Manaaki Whenua/Landcare Research S-map on-line database, the soils in the land area covered by proposed Plan Change 69 are mostly Templeton, Wakanui, Taitapu and Flaxmere/Temuka soils (Figure 2).



Figure 2. The distribution of Wakanui, Templeton and Flaxmere soils on, and immediately around, the land area proposed for subdivision (snipped from S-Map database).

The Wakanui and Templeton soils *of this area* **are suitable for arable and horticultural production**. Indeed, these soils have been used for arable and horticultural cropping around Lincoln for decades (for example on the Lincoln University Cropping Farm, the Plant & Food Research sites and on PGGWrightsons' Kimihia Research Station, plus land adjacent to the proposed subdivision area on the south side of Collins Road).

It is important to note that Wakanui silt loam soils are described in the Soil Survey Bulletin for Canterbury (Soil Bureau Bulletin 14) as the best cropping soils:

*"When adequately drained, they can be considered the **best cropping soils** of all the high fertility groups".*

The photographs below show intensive food production on Wakanui and Templeton highly productive soils on land immediately adjacent to the proposed subdivision land and on other land around Lincoln town.



Photo #1. Crop production on Wakanui silt loam soil immediately south of proposed subdivision land area on Collins Road (photo taken 24<sup>th</sup> Oct 2021).



Photo #2. Crop production land on Wakanui soil immediately south of proposed subdivision land area on Collins Road (photo taken 24<sup>th</sup> Oct 2021).

It is therefore not correct to state that the Wakanui soil on the land area in the proposed subdivision is not productive or not suitable for production; because cultivation for crop production currently happens on this land (as shown in Photo # 3 below).



Photo #3 Wakanui soil under cultivation and crop production on the land area proposed for subdivision under Plan Change 69 (Photo taken on 30<sup>th</sup>Oct 2021).

Covering Highly Productive Land in houses and roads robs future generations of this land. Is this what we want to leave to future generations?

In the past 25 years alone, over 400ha of Highly Productive Land has been lost around Lincoln.

Highly versatile and highly productive land is a scarce and finite resource – only 5 percent of New Zealand’s total land area is highly versatile and only 15 percent is highly productive (Lynn et al., 2009; Rutledge et al., 2010, MfE, 2021).

Selwyn District Council’s Baseline Assessment of Versatile Soils indicates that within Selwyn District there are only 6,522 hectares of Class 1 land and only 46,111 hectares of Class 2 land.

The soil survey report of Canterbury (Kear et al., 1967) which is ‘The Authority on this matter’ states that:

*“A mere 2.5% of the total area of the Plains has soils that are classed as first-class cropping land with minor limitations to intensive use”.*



Considering the rarity of these soils, it is essential that this land be protected for future generations to use for food production.

It should not be developed into houses and associated infrastructure because this would make the land, and the soil it comprises, no longer available for food production.

The Mayor of Selwyn District Council (Mr Sam Broughton) has raised concerns about the loss of versatile soils to housing developments, stating in an interview reported on The AM Show on 5 July 2021 that:

*“With the ability to continue to grow out, not up, the mountains are the limit – but should they be? Each home comes at the expense of farmland. As we move forward, I think that we need to protect our versatile soils. We can’t just have towns that continue to sprawl across the Plains”.*

The Housing Minister (Hon Megan Woods) has also expressed concern about the continued expansion of housing across the Plains when she stated in The Press on 20<sup>th</sup> Oct 2021 that:

*“You can’t just let Christchurch keep expanding forever across the Plains.”*

Selwyn District Council’s own Baseline Assessment of Versatile Soils (DW015) states:

*‘When land is used to develop houses and associated infrastructure the land, and the soil it comprises, is no longer available for other uses’.*

New Zealand cannot afford to continue to cover this limited non-renewable resource with houses, concrete and roads.

There is now so much national concern about this issue that MPI has released a draft National Policy Statement for Highly Productive Land (NPS-HPL) (MPI, 2019). This policy makes it clear that Councils will be required to ensure there is enough highly productive land available for primary production now and in the future, and to protect it from inappropriate subdivision, use and development.

The Minister of Agriculture (Hon Damien O’Connor) has expressed concern about the loss of Highly Productive Land in New Zealand:

*“Our land is a precious taonga – an irreplaceable treasure and a source of life and wellness for our country”*

(<https://www.beehive.govt.nz/release/government-moves-protect-elite-soils>).

Minister O’Connor also said that:

*“We cannot afford to lose our most highly productive land. It brings significant economic benefits including employment for nearby communities, and adds significant value to New Zealand’s primary sector”*

<https://www.beehive.govt.nz/release/government-moves-protect-elite-soils>.

The Environment Minister (Hon David Parker) has said that:

*“The draft National Policy Statement for Highly Productive Land stands alongside the new National Policy Statement for Urban Development, to ensure we get the balance right and that the development we need is in the right place. We need to house our people and to feed them too.”*

The recent report by the Ministry for the Environment and Statistics NZ entitled ‘Our Land 2021’ (MfE and Stats NZ, 2021) shows that the loss of Highly Productive Land is a major risk for New Zealand because:

- *The area of highly productive land that was made unavailable for agriculture (because it had a house on it) increased by 54 percent for 2002–19.*
- *Between 2002 -19, Urban land use increased by 31 percent on land that was potentially available for agriculture.*
- *The area of residential land outside city boundaries (rural residential areas) also more than doubled in this time.*

The proposed National Policy Statement on Highly Productive Land makes it clear that Councils have a duty and responsibility to protect Highly Productive Land (MPI, 2019) and:

*“Would direct councils to be more strategic about planning how and where development should occur, including identifying areas where evidence shows urban development may not be appropriate”.*

Even the National Policy Statement – Urban Development (NPS-UD) (2020) Objective 15.2.1 requires the:

*‘Maintenance and improvement of the quality of Canterbury’s soil to safeguard their mauri, their life supporting capacity, their health and productive capacity’.*

Approving Private Plan Change 69 request to cover Class 1, 2 and 3 soil in housing, concrete and roads would be contrary to this Objective.

In my opinion, it is factually incorrect for the Rolleston Industrial Development Group to state that ‘...this plan change will not detract from the availability of versatile soils in any significant way.’ (page 64 of Attachment 5 of NovoGroup report dated April 2021) because in fact the majority of the land at this site is ‘highly productive land’.

### 3. The Crux of the Matter

The crux of the matter is that housing development needs to be in the ‘right place’ and not on top of New Zealand’s limited resource of Highly Productive Land.

Most (about 70%) of the Canterbury Plains consist of shallow stony soils which have severe limitations for arable and pastoral use (Kear et al., 1967). These shallow stony soils occur throughout the Selwyn District; for example around Rolleston (Figure 3).

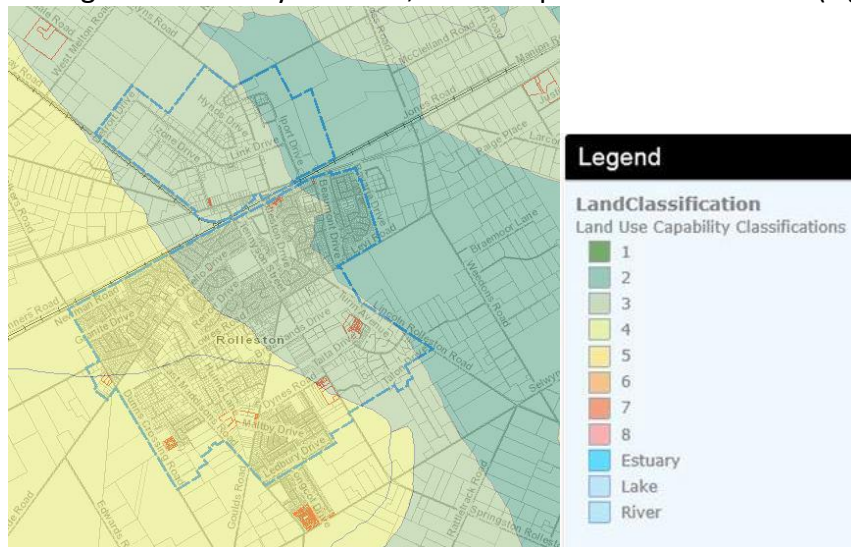


Figure 3. The distribution of land around Rolleston showing large areas of Class 4 land comprised of shallow very stony soils (map abstracted from Selwyn District Council Baseline Assessment Versatile Soils (DW015)).

The photographs below show that the shallow stony Lismore soil is less suitable than Templeton and Wakanui soil for intensive agriculture and horticulture because it has a shallower rooting depth and a lower water holding capacity than the soils in the area covered by Plan Change 69.



Photo #4. Lismore shallow stony silt loam soil showing a shallow topsoil above gravel. This soil has a low water holding capacity and is difficult to cultivate because of the high stone content.



Photo #5. Templeton silt loam soil profile showing a deep freely drained soil above sand and gravel. This soil has a high water holding capacity and easy to cultivate.

It is obvious from the photographs above that the Templeton silt loam soil (Photo #5) has a greater potential for use in a wide variety of food production systems making this land highly productive, whilst the shallow stony Lismore soil (Photo #5) is not highly productive land (and is therefore more suitable for use as housing development).



I therefore encourage Selwyn District Council to develop housing on these shallow stony Lismore soils; rather than continuing to cover more Highly Productive Land with houses, roads and other urban infrastructure.

#### 4. Comments on Section 42A Report

I note that the author of Section 42A report (Nick Boyes) agrees with concerns about the suitability of this land for subdivision when compared to other less productive land (para 61).

*“...it is noted that the proposed NPS-HPL policies focus on redirecting growth to more appropriate areas rather than constraining growth per se. However, in the context of Lincoln, where versatile soils effectively surround the existing urban area, this does call into question the suitability of the land for urban development and the appropriateness of allowing any further urban growth to occur in this locality when compared to other less productive land.”*

I also note that the author of the Section 42A Report (para 64) states that:

*“I consider that PC69 would represent a moderate loss of the overall Class 1 and Class 2 versatile soil resource within the region.”*

I further note that the author of the Section 42A Report (para 65) states, with reference to the Land Use Classification of soils, that:

*“It is however one of the considerations when evaluating the benefits, costs and risk at a local, regional and national level of allowing PC69.”*

It is latter point that I ask the Hearing Commissioner and Selwyn District Council to consider carefully when making a decision. The ‘risk’ may not be immediate; it is a long-term risk. This is because the loss of versatile soils is permanent. Loss of this versatile soil places at risk the food production capacity of New Zealand for future generations.

#### 5. Comments on evidence of Katherine McCusker on Versatile Soils

Data from the Manaaki Whenua/Landcare Research S-map on-line database given in Appendix 1 of the Evidence by Katherine McCusker states that **87 ha of the property is Wakanui soil.**

As described earlier, Wakanui silt loam soils are described in the Soil Survey Bulletin for Canterbury (Soil Bureau Bulletin 14) as:

*“When adequately drained, they can be considered the best cropping soils of all the high fertility groups”.*

Appendix 1 of Ms McCusker’s evidence also shows (from the S-map database) that **26 ha of the property is Taitapu soil**. This soil is also described in Soil Bureau Bulletin 14 as having only:

*‘slight limitations for mixed farming’.*

Appendix 1 of Ms McCusker’s evidence shows (from the S-map database) that 69 ha of the property is Flaxmere soil. This Flaxmere soil is described on the S-map database as being “Poorly drained”, having “Very Limited” aeration in the root zone and having a “high vulnerability to waterlogging”.

However, despite the considerable differences that I have described above between the Wakanui and Taitapu soils compared with the Flaxmere soils, it appears that Ms McCusker has amalgamated them all together when she concludes that: “The remaining 189 ha (98% of the property) are imperfectly or poorly drained soils” (paragraph 23).

Based on my evidence given above, I do not believe that it is appropriate, or factually correct, to amalgamate the Wakanui and Taitapu soils into the same soil group as the Flaxmere soils.

I therefore believe that it is therefore incorrect to then state that: “The imperfectly or poorly drained nature of these soils provides limitations for agricultural use” (para 23), especially since any drainage limitations of the Wakanui and Taitapu soils are so easily overcome by installing a simple agricultural drainage system.

The Wakanui soils and the Taitapu soils have historically been used, and are currently used, for mixed cropping around Lincoln (see photos 1, 2 and 3) and in other parts of Canterbury. Indeed, when adequately drained, current knowledge and experience shows that they are considered some of the best cropping soils of all the high fertility groups in Canterbury.

Ms McCusker’s evidence (paragraph 12) refers to observations of wet soil during a survey conducted in July 2014, however, July is mid-winter and it is not surprising that there would be wet areas of soil.

It is also important to note that the EM survey described in the Appendix to Ms McCusker’s evidence was also conducted in mid-winter (18-19<sup>th</sup> July); so again it is not surprising that there were areas showing high water contents.

Considering the limitations of Ms McCusker’s evidence, that I have described above, it is my opinion that her statement (paragraph 20) “this site has only 4.6 ha of highly productive land” is factually incorrect.

According to the data from S-map given in Ms McCusker’s Appendix 1, the area of Templeton, Wakanui and Taitapu soils amounts to 124 ha (which represents 65% of the land

area proposed for subdivision). Thus, these versatile soils cover most of the area of land proposed for subdivision under the Private Plan Change Request #69.

## 6. Conclusion

I plead with the Hearing Commissioner and with Selwyn District Council to protect the remaining Highly Productive Land resource within Selwyn District for future generations.

The area of 'high productive land' comprised of Templeton, Wakanui and Taitapu soils on this site amounts to 124 ha (which is 65% of the land area proposed for subdivision).

Approval of Private Plan Change Request 69 would be in direct conflict with the New Zealand Government's proposed National Policy Statement (NPS-HPL) designed to protect Highly Productive Land.

I therefore appeal to the Hearing Commissioner and Selwyn District Council to reject Private Plan Change 69 Request at what would be the "11<sup>th</sup> hour" before the New Zealand Government's National Policy Statement on Highly Productive Land comes into effect.

## 7. References

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