Manaaki Whenua
Landcare Research

4 August 2023
Ann Rodgers
Principal Policy Planner
Central Otago District Council
1 Dunorling Street

Alexandra 9340

Dear Ann

Peer review of Dr Reece Hill's statement of evidence on behalf of Steve Davies – Plan Change 19 to Central Otago District Plan – Hearings Panel 1 – 69 Hall Road

Summary
Dr Reece Hill's statement of evidence for 1 – 69 Hall Road, Bannockburn is a fair and accurate assessment of the available regional Land Use Capability and soil data, a sound analysis of the detailed contour map, archaeological reports, on-site soil pit observations and photographs and their implications with respect to the National Policy Statement for Highly Productive Land.

Background
Manaaki Whenua Landcare Research was engaged by the Central Otago District Council to peer review Dr Reece Hill's statement of evidence for a Central Otago District Council Plan Change 19 Hearings Panel for 1 – 69 Hall Road, Bannockburn.

The evidence was prepared for the subject Site in relation to its Land Use Capability (LUC) classification and the application of the National Policy Statement for Highly Productive Land (NPS-HPL).

The aim of the report was to provide an assessment of the most likely LUC Classes and soils on the Site, based on a desktop analysis of available regional scale LUC and soil map information, interpretation of remote sensed imagery, a detailed contour map, archaeological reports, site photographs, and on-site soil pit observations and photographs.

Land identified as Land Use Capability Classes 1, 2, or 3, as mapped by the New Zealand Land Resource Inventory (NZLRI), or by any more detailed mapping that uses the Land Use Capability classification is considered NPS-HPL.

In my opinion the report documents the results of a 'more detailed mapping exercise' and provides a more accurate representation of the LUC classes and soils present on the Site in its current form than the regional scale New Zealand Land Resource Inventory Land Use Capability map.

Points of Agreement

[

The statement of evidence is a fair and reasonable assessment of the most likely LUC Classes and soils on the Site, based on a sound desktop analysis of the available regional scale LUC and soil map information, interpretation of remote sensed imagery, a detailed contour map, archaeological reports, site photographs, and on-site soil pit observations and photographs and their implications with respect to the National Policy Statement for Highly Productive Land.

Dr Reece Hill did not undertake on-site observations or assessments, but obtained on-site soil and site observations from Mr Woodward and Mr Davies under his direction. These observations in combination with slope measurements and remote sensed imagery was equivalent to the information he would collect and use to determine the LUC classification for a site.

The LUC mapping system can be applied at multiple scales.

This statement highlights the limitations of enlarging regional scale LUC and soil mapping to more detailed scales [e.g., 1:50,000 to 1:5,000], especially with the location of map unit boundaries in the landscape. High resolution remote sensed imagery (and its interpretation), and detailed contour mapping enables the more accurate location of regional map unit boundaries in the landscape.

The detailed contour map enabled the more accurate location of the LUC unit boundary that is determined primarily on slope [15°], increasing the area of LUC unit 7s9+4e9 and reducing the area mapped as 3s6+4e9 in the northern part of the Site. Slopes greater than 15 degrees do not meet the LUC Class 3 criteria as specified in Land Use Capability Survey Handbook[1].

The soil observation photos at locations 5, 6, 7 and 8 show soil profiles with mixed poorly defined gravelly fine textured A horizons over gravels, with common surface stones and resemble very stony loamy sand soils on tailings. On rolling slopes these are classified as LUC Class 4s + non-productive land.

The on-site soil observations 1, 2, 3 and photos in combination with remote sensed imagery indicates that the NZLRI LUC 3s6+4e9 area in the south of the Site consists of a reinstated soil (Anthropic Soil) over a truncated gravel surface. The soil is shallow to very shallow and derived from mixed topsoil. As such, this the area is more correctly classified as LUC Class 4s land.

Land that is LUC class 4 or greater is not defined as 'highly productive land' for the purposes of applying the National Policy Statement for Highly Productive Land (NPS-HPL).

Dr Reece Hills's revised LUC classification for the Site [his Appendix 8] includes areas of non-productive land, an area of LUC class 4s with non-productive land, and an area of reinstated soil classed as LUC 4s.

Conclusion
Dr Reece Hill's statement of evidence for 1 – 69 Hall Road, Bannockburn is a fair and accurate assessment of the available regional Land Use Capability and soil data, a sound analysis of the detailed contour map, archaeological reports, on-site soil pit observations and photographs and their implications with respect to the National Policy Statement for Highly Productive Land

---

[1] Lynn, IH, Manderson, AK, Harmsworth, GR, Eyles, GO, Douglas, GB, Mackay, AD, Newsome PJF. 2021. Land Use Capability Handbook - a New Zealand handbook for the classification of land 3rd Ed. (revised & reprinted) Hamilton, AgResearch; Lincoln, Landcare Research; Lower Hutt, GNS Science 163pp.

Kind regards,

Ian H Lynn
4 August 2023

Ian H Lynn BSc (Hons) MApplSc (Hons)
Senior Researcher – Soils & Landscapes
Manaaki Whenua - Landcare Research
DDI +64 3 321 975 / M +64 27 471 4323
lynni@landcareresearch.co.nz
PO Box 69040, Lincoln 7640