

SUBMISSION ON

Managing the use and development of highly productive land

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To: Ministry for the Environment and Ministry for Primary Industries

Name of Submitter: Horticulture New Zealand

Supported by: NZ Asparagus Council, NZ Kiwifruit Growers Inc., Onions NZ Inc., Potatoes NZ, Process Vegetables NZ, TomatoesNZ, Vegetables NZ Inc.

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Our submission

Horticulture New Zealand (HortNZ) thanks the Ministry for the Environment (MfE) and the Ministry for Primary Industries (MPI) for the opportunity to submit on Managing the use and development of highly productive land and welcomes any opportunity to continue to work with MfE and MPI and to discuss our submission.

HortNZ's Role

Background to HortNZ

HortNZ represents the interests of approximately 4,200 commercial fruit and vegetable growers in New Zealand who grow around 100 different fruit and vegetables. The horticultural sector provides over 40,000 jobs.

There are approximately 80,000 hectares of land in New Zealand producing fruit and vegetables for domestic consumers and supplying our global trading partners with high quality food.

It is not just the direct economic benefits associated with horticultural production that are important. Horticulture production provides a platform for long term prosperity for communities, supports the growth of knowledge-intensive agri-tech and suppliers along the supply chain; and plays a key role in helping to achieve New Zealand's climate change objectives.

The horticulture sector plays an important role in food security for New Zealanders. Over 80% of vegetables grown are for the domestic market and many varieties of fruits are grown to serve the domestic market.

HortNZ's purpose is to create an enduring environment where growers prosper. This is done through enabling, promoting and advocating for growers in New Zealand.



Executive Summary

Greenhouses need the option of highly productive land

HortNZ supports an amendment to the National Policy Statement for Highly Productive Land (NPS-HPL) to allow greenhouses to establish on highly productive land (HPL).

New greenhouses need to meet criteria related to water access, surrounding pasture for nutrient discharge, zone, minimum parcel size, access to an energy source, flat land, distance from point of sale, distance from population centres, and distance from ancillary activities. Most of these criteria are more likely to be met on HPL. Approximately 83% of existing greenhouses are on highly productive land.¹ Based on a case study analysis in areas with access to renewable geothermal energy, found in Appendix E, sites suitable for greenhouses are 4x more likely to be on HPL than not.

HortNZ supports an exception for intensive indoor primary production similar to the one granted for greenhouses. These are also primary production activities. The purpose of the NPS-HPL was to address unfettered urban and rural lifestyle growth across HPL. The intent was not to constrain primary production or New Zealand's food production system.

Climate-proofing our food supply

Greenhouses are a form of climate adaptation, and they ensure that our food supply is resilient to adverse weather events. They also allow growers to extend the growing season in colder regions. This creates regional diversity in our food supply when growers can produce tomatoes, cucumbers or capsicum in any region with the right planning framework.

Expected growth of sector footprint is small

We do not expect extensive growth in the hectares of greenhouses in coming years. A few big businesses are looking to build new sites, and there is a continuous need to replace aging infrastructure or change location as leases end. We are not, however, expecting a rapidly expanding industry. Growth of the sector is discussed in the tens of hectares, not the hundreds. The footprint of the greenhouse sector is small because it is a highly efficient growing system.

¹ Appendix D: General Mapping Study

Table 1: Risks to horticulture from not allowing greenhouses on HPL

Risks to horticulture from not allowing greenhouses on HPL	Mitigations for those risks to horticulture
Greenhouses will be unable to establish on HPL, which will be a barrier to climate-resilient year-round food production. This is a risk to the domestic supply of fresh fruits and vegetables.	Make the following amendment to Clause 3.9 to the NPS-HPL to include an exception for greenhouses. (2) A use or development of highly productive land is inappropriate except...
If greenhouses are pushed further from horticultural areas, extended trucking distances will increase the greenhouses gas emissions from transporting produce to market.	(a).. <u>(k) it is for greenhouses</u> (l) it is for intensive indoor primary production.
The earthworks required to make land flat for greenhouses outside of HPL will be cost prohibitive for most businesses and degrade the environment if attempted.	
Inconsistent planning rules across regions will make it difficult for businesses to build regional diversity, which is necessary for resilience to extreme weather events.	Provide national planning direction for greenhouses through an amendment to the NPS-HPL.
Greenhouses will not have sufficient and reliable energy supply.	Provide a pathway for Battery Energy Storage Systems (BESS) through the definition of specified infrastructure or supporting activities for primary production.

Table 2: Risks to horticulture from allowing solar farms on HPL

Risks to horticulture from allowing new construction of RSI, especially solar farms	Mitigations for those risks to horticulture
<p>Landlords may end leases with horticultural businesses in favour of solar farms, threatening our domestic food supply.</p>	<p>Make the following amendment to clause 3.9 (3) to ensure energy infrastructure does not force out growers of our domestic food supply.</p> <p>Clause 3.9 (3) Territorial authorities must take measures to ensure that any use or development on highly productive land:</p> <ul style="list-style-type: none"> a) minimises or mitigates any actual loss or potential cumulative loss of the availability and productive capacity of highly productive land in their district; and b) avoids if possible, or otherwise mitigates, any actual or potential reverse sensitivity effects on land-based primary production activities from the use or development; <u>and</u> c) <u>avoids if possible, or otherwise mitigates, any actual or potential cumulative loss of the supply of fresh fruits and vegetables.</u>

Submission

1. Greenhouse growing

Greenhouses are indoor growing systems, which are essential to provide fruits and vegetables that Kiwis eat year-round. Also known as covered cropping, greenhouses play an important part in maintaining the supply of fresh produce at times of the year when outdoor cropping is challenging. They even-out the supply of fresh produce, extending the availability of seasonal crops. Consumer expectations of access to these crops drives production.

Over 90% of the tomatoes, capsicum and cucumber consumed fresh in New Zealand are grown in greenhouses, as well as lots of leafy greens, chilis, courgettes, eggplants, herbs, sprouted beans, witloof, nursery plants, cut flowers and medicinal marijuana. The industry's farm gate value is approximately \$300 million.²

Table 3: New Zealanders' total weekly household spend on key products (Year ending June 2019)³

Product (fresh or chilled)	Total weekly household spend (NZD)
Tomatoes	\$2,092,800
Lettuce	\$1,432,800
Peppers, capsicums, chilies	\$899,600

There are an estimated 310 ha of food-producing greenhouses in New Zealand.⁴ The sector is made up of 38% large (> 5 ha), 40% medium (> 1 ha and < 5 ha) and 22% small-scale (< 1 ha) growers. Nearly two-thirds are located in the Upper North Island and the rest are about equally divided between the Lower North Island and the South Island. The national and regional significance of covered cropping has been recognised in planning throughout New Zealand. For instance, the Tasman Resource Management Plan provides for survival water for greenhouse activity due to the effects of lost crops on food supply and the economy.⁵

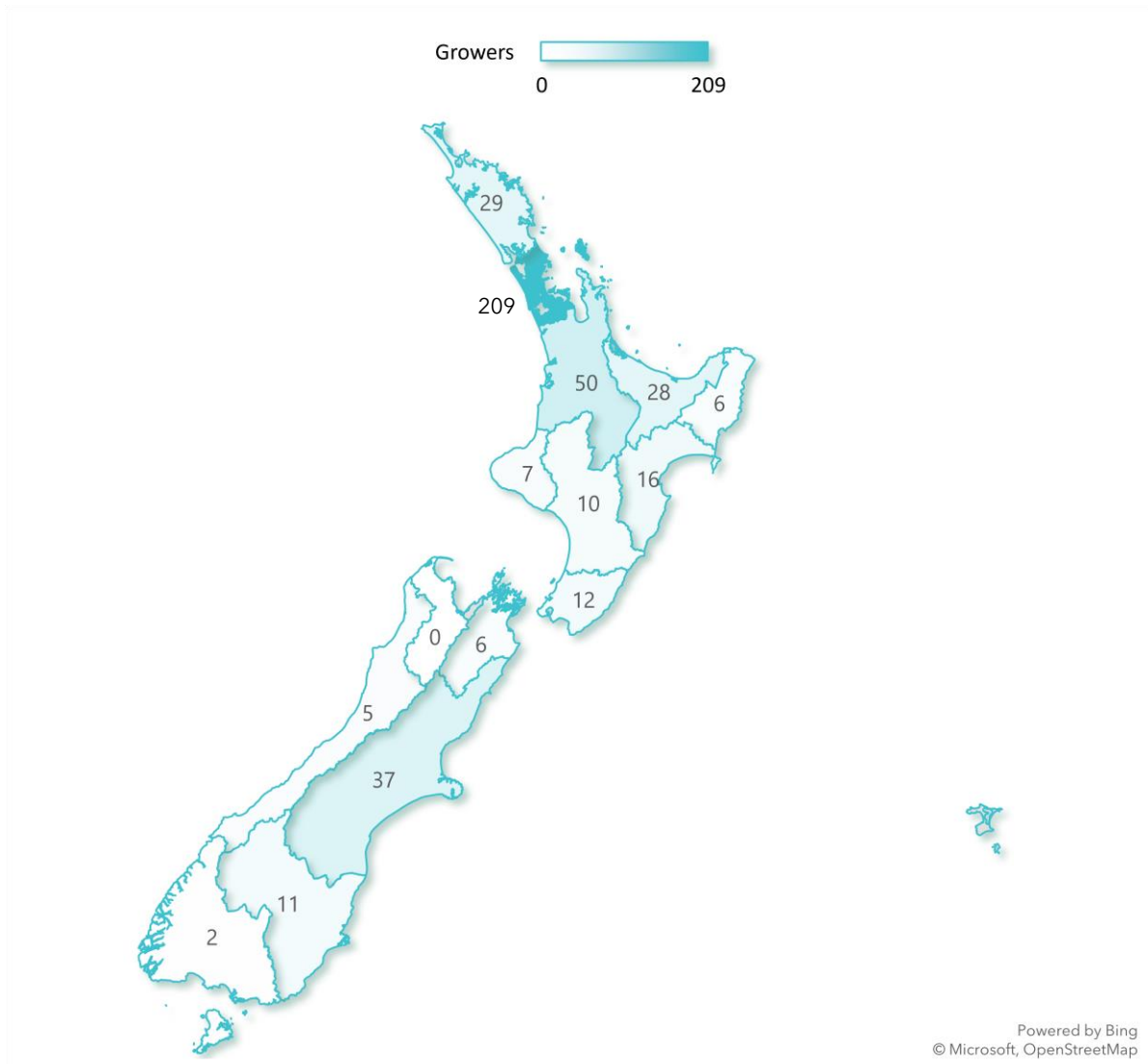
² Wells, Celia (2022). "Geothermal and Primary Production: Mitigation, adaptation and resilience pathways". GNS Science. Slideshow presentation.

³ StatsNZ. "Detailed household expenditure, year ended June 2019". Published online 03 March 2020. Accessed online [Household expenditure statistics: Year ended June 2019 | Stats NZ](#).

⁴ Deta Consulting. "Covered Crops Decarbonisation Plan: Final Report Revised". 8 February 2022. Produced for TomatoesNZ, Vegetables NZ, Inc., Horticulture New Zealand, EECA.

⁵ Tasman District Council. *Tasman Resource Management Plan - TRMP. Chapter 30 - Taking, Using, Damming and Diverting Water*. 15 June 2019. Provision 30.2.3.12 (D) Root Stock Survival Water.

Figure 1: Greenhouses by region in New Zealand



Some greenhouses use growing techniques different than outdoor cropping systems, including CO₂ enrichment, soilless cultivation and heating. Some growers pump captured or purchased CO₂ into their greenhouse to boost yields, which improves plant productivity by half. This allows growers to produce more vegetables faster, thus feeding more people. The plants then release much of that CO₂ as O₂, offsetting some of the business' emissions if they use fossil fuels. Greenhouse crops can be grown in the ground itself, in containers with soil, in a soilless growing medium like coconut coir, or in water – a practice known as hydroponics.

Most greenhouses are heated during the colder months of the year to establish a stable, controlled environment with optimal growing conditions for vegetables. This extends the growing season and improves yield. Some crops, like berries, are grown under cover in either semi or fully enclosed structures but not heated.

Currently, 11% of greenhouses use renewable energy, but all new or upgraded greenhouses will switch to renewable sources because of the cost of the Emissions Trading Scheme and other regulatory pressures to decarbonise.⁶

2. Greenhouses are a form of climate adaptation

A single adverse weather event can decimate a season's crop, but greenhouses are adaptive growing systems that mitigate the chances of disaster and maintain continuity of food supply. The covered crop industry plays an important role in evening out market supply issues in the off-season. This is particularly important when adverse weather events impact the few areas in the country where there is winter production of certain vegetables. They also allow growers to extend the growing season in colder regions. This creates regional diversity in our food supply when growers can produce crops in any region with the right planning settings.

Indoor growing systems are less vulnerable to environmental conditions and pressures such as significant weather events. During Cyclone Gabrielle, 60% of the tomatoes grown outdoors for processing in Hawke's Bay were destroyed, whereas indoor greenhouse tomatoes in the North Island were relatively unaffected.⁷ Even in times without extreme weather, greenhouses protect crops from wind, rain and hail which may become more intense with a changing climate.

Provisions to enable the establishment of greenhouses align with Key Priority 1.6 of the Aotearoa Horticulture Action Plan (AHAP) to "optimise land-use adaptation". A consenting pathway for greenhouses in the NPS-HPL will help achieve the goals of enabling the right crop in the right place.⁸ Alignment with AHAP is fully analysed in Appendix F, and Alignment with the New Zealand National Adaptation Plan is analysed in Appendix G.

2.1. Food security in a changing climate

Climate change is expected to cause supply chain disruptions across the globe. Greenhouses will help meet growing demand for vegetables as New Zealand's population grows. New Zealand currently only grows enough vegetables to meet the nutritional needs of 2 million people, not even half of our current population.⁹

Fresh produce is difficult and expensive to import to our country's geographic isolation. Imported vegetables are typically airfreighted to New Zealand due to their perishability, which causes greenhouse gas emissions. Airfreighting fresh produce has complex logistical considerations and constraints including "the geopolitical risk of relying on another nation for part of our basic food needs".¹⁰ The higher logistic cost of importing produce also increases the price for consumers. Imported produce may not be subject to the same environmental or climate regulations as New Zealand, so exporting our demand may lead

⁶ Deta Consulting. "Covered Crops Decarbonisation Plan: Final Report Revised". 8 February 2022. Produced for TomatoesNZ, Vegetables NZ, Inc., Horticulture New Zealand, EECA.

⁷ Process Vegetables NZ

⁸ Horticulture NZ. "Growing Together 2035: Aotearoa Horticulture Action Plan - Strategy". February 2023. Accessed online <https://www.mpi.govt.nz/dmsdocument/55309/>.

⁹ Rush, E., Obolonkin, V. Food exports and imports of New Zealand in relation to the food-based dietary guidelines. *Eur J Clin Nutr* 74, 307-313 (2020). <https://doi.org/10.1038/s41430-019-0557-z>

¹⁰ AgriChain. *Sensitivity of domestic food supply in SVGAs*. 13 July 2023.

to climate leakage. Policies that support our domestic food supply help achieve Key Priority 2.2 of AHAP to “build the domestic market” and work toward a “food-secure future” for New Zealanders.¹¹

3. Food production is an appropriate use of highly productive land

We have heard concern from MPI and MfE that allowing greenhouses to establish on highly productive land will open the floodgates to other rural activities like truck depots establishing on protected soils.

This concern can be addressed by limiting the scope of NPS-HPL amendments to defined activities, particularly low emissions food production. This approach aligns with:

- Clause 129 (g) of the Natural and Built Environment Act (NBEA) which calls for the National Planning Framework to enable the supply of fresh fruits and vegetables;¹²
- Focus Area 4 of New Zealand’s First Emissions Reduction Plan to transition to lower-emissions land use and systems.¹³

Producing low emissions food, including fruits, vegetables, pork and poultry,¹⁴ is an appropriate use of highly productive land. The purpose of the NPS-HPL was to address unfettered urban and rural lifestyle growth across HPL. The intent was not to constrain primary production or New Zealand’s food production system. These indoor production systems have a small footprint nationally, and they are compatible with other primary production on HPL from a reverse sensitivity perspective.

4. Greenhouses have a need to operate on highly productive land

Without appropriate amendments, the NPS-HPL will prevent climate adaptation measures in our food system through expanding the greenhouse sector. New greenhouse development will be driven by market demand, but that expansion is only possible if planning regulations permit them to establish in suitable sites. At present, 83% of greenhouses are located on HPL. This statistic comes from the mapping study of greenhouses on HPL described in Appendix D.

With the status quo, very few new greenhouses are likely to meet the supporting activity definition in the NPS-HPL. This means that they will be prohibited from establishing on highly productive land and will not be supported by the Clause 3.9 (2) (a) provision suggested as

¹¹ Horticulture NZ. “Growing Together 2035: Aotearoa Horticulture Action Plan – Strategy”. February 2023. Accessed online <https://www.mpi.govt.nz/dmsdocument/55309/>.

¹² Natural and Built Environment Act 2023. Clause 129 (g) Accessed online <https://www.legislation.govt.nz/act/public/2023/0046/latest/LMS847877.html>

¹³ Ministry for the Environment. *Aotearoa New Zealand’s first emissions reduction plan*. Chapter 13: Agriculture. May 2022. Accessed online [Aotearoa New Zealand’s first emissions reduction plan \(environment.govt.nz\)](https://www.environment.govt.nz/aotearoa-new-zealand-first-emissions-reduction-plan).

¹⁴ Drew, J, Cleghorn, C, Macmillan, A and Mizdrak, A, 2020. Healthy and climate-friendly eating patterns in the New Zealand context. *Environmental health perspectives*, 128(1), p.017007. Database accessed online: [ghg-emissions-associated-with-nz-foods-database-840619.xlsx \(live.com\)](https://www.ghg-emissions-associated-with-nz-foods-database-840619.xlsx)

a workaround by MPI and MfE. New greenhouses are not always supporting activities to other primary production. The NPS-HPL enables a range of activities other than land-based primary production to occur on HPL under Clause 3.9, many of which have no relationship to food production nor the rural environment. Food-producing greenhouses are more appropriate to locate alongside other primary production than these exemptions.

4.1. Criteria for choosing new greenhouse sites

The following list captures growers' criteria when choosing a new greenhouse site. This list was developed in consultation with TomatoesNZ and Vegetables NZ, Inc., the product groups representing most horticultural greenhouse growers.

Table 4: Factors influencing new greenhouse sites

Neutral factors	Factors more likely on HPL
Surrounding pasture. Land parcel is big enough or has neighbours with enough pasture to manage nutrient discharges at a ratio of 10 ha grass to 1 ha glass. ¹⁵	Water access. Clean and suitable water access is available on the site.
Minimum parcel size. Greenhouse is 1 ha or more to be a profitable size.	Access to an energy source. For new greenhouses, this will need to be a renewable energy source, meaning an electricity connection or geothermal heat. Electricity connections are more available closer to the urban-rural fringe, where a lot of highly productive land is located.
	Flat land. Extensive earthworks requirements to flatten the land would make a site too expensive to build or may be impossible due to features of the landscape.
	Zone. Site is zoned rural or rural production to avoid reverse sensitivity effects.
	Distance from point of sale. Supermarket distribution centres and wholesalers are more likely to be located in or near urban environments.

¹⁵ Horticulture NZ, Sustainable Farming Fund. *A Code of Practice for The Management of Greenhouse Nutrient Discharges*. June 2007 (pg. 26)

	<p>Distance from population centres. Workers should not be expected to commute more than 30 min by road from their home.</p>
	<p>Distance from ancillary activities. Greenhouses will need to be close enough to their post-harvest packing facilities to protect their highly perishable produce in transit.</p>

More detail on some of these criteria is provided in the sections below.

4.2. Surrounding pasture

The code of practice for Greenhouse Nutrient Discharge provides growers with a checklist, decision tree, and reference values to manage freshwater impacts.¹⁶ This self-audit describes a formula for disposing of nutrient discharge without exceeding kg/ha loads per annum. A rule of thumb is growers should discharge effluent onto 10 ha of grass for each 1 ha of glass.¹⁷

4.3. Minimum parcel size

Existing greenhouse infrastructure is ageing, with a significant proportion of the greenhouse stock reaching its design life of 25 years. In 2020, 47% of greenhouses were between 10 and 20 years old, and 37% were older than 20 years.¹⁸ These greenhouses will all need to be replaced when they are too old. Businesses looking to rebuild may take that as an opportunity to move to a new site, and the new greenhouses built to replace existing stock tend to be large for economic efficiency.

4.4. Water access

Many surface water sources in NZ are too contaminated with *E. coli* to be used to irrigate horticultural crops without treatment. Groundwater is usually suitable for irrigation, and frequently underlies HPL. It is possible to access water from most location, but suitable water is more likely found on HPL. Section 7.1.2 covers the need for clean water in greenhouses in more detail.

4.5. Access to an energy source

Ground source heat pumps are one renewable energy system with sector interest and a high return on investment. Growers are concerned that the electrical grid will not be able to

¹⁶ Horticulture New Zealand. "Greenhouse Nutrient Solution Discharge: The requirements for achieving Good Practice". February 2020. Accessed online <https://www.nzgap.co.nz/guidelines>.

¹⁷ A. Barber, L. Wharfe. "A Growers' Guide to The Management of Greenhouse Nutrient Discharges: Based on 'A Code of Practice for the Management of Greenhouse Nutrient Discharges'". June 2007. Accessed online <https://www.hortnz.co.nz/assets/Compliance/Grower-Guide-Managing-GH-Nutrient-Discharges-1.pdf>.

¹⁸ Lumen Ltd. "Tomatoes New Zealand: Grower Survey November 2020". 2021. Prepared on behalf of TomatoesNZ and Vegetables NZ, Inc.

handle the vast load of all industries trying to electrify and decarbonise at once, so an alternative heat source is attractive. Recent GNS analysis found that ground source heat pumps are far more efficient than air source heat pumps, especially when accessing geothermally enhanced groundwater. Geothermal has the potential to significantly reduce operating costs.¹⁹ Multiple greenhouses have established in the Taupo District, a geothermal hotspot, with at least one already using geothermal heat.

Another option is renewable electricity. Especially for growers in the South Island, switching to electricity would require huge investments in electricity infrastructure upgrades. Electricity companies are asking for cost-prohibitive capital contributions from customers to join the grid, and rural electricity users already face several power cuts per year without the additional load. The most cost-effective path is community infrastructure, which is more efficient than building transformers for each individual business. This is another reason why new greenhouses would need to be located close to each other and other horticultural businesses to share the cost of community energy infrastructure.

4.6. Rural or rural production zone

Greenhouses cannot locate in urban areas due to high costs and a fundamental conflict between this primary production land use and urban activities. Urban-zoned land is too expensive to establish new greenhouses. There is not enough continuous land in urban areas to establish greenhouses bigger than one hectare, the approximate threshold for profitability for new developments. Urban sites do not have enough available open space to discharge effluent appropriately. This practice usually takes place on pasture, as explained in section 4.2 on “Surrounding pasture”.

Primary production activities in urban areas would face prohibitive reverse sensitivity concerns. Greenhouse operations produce noise, light and truck movements that are all normal for a working horticultural operation but may be protested by residential neighbours. While vertical farms may be more suitable in urban areas, they are not yet profitable in New Zealand, and they do not exist at scale. Evidence has not yet shown that they are a viable alternative to greenhouses.

Special Purpose Zones have been suggested as a possible solution, but they currently fall under the definition of urban in the NPS-HPL. It would be impractical and unreasonable to expect councils to pre-emptively spot-zone for greenhouse activity. It would also be onerous to expect operators to apply for private plan changes to rezone for greenhouse activities.

4.7. Distance from point of sale

Fresh produce is perishable, so there is a tight timeline to get the product from farm gate, to packhouse, to wholesaler or distributor, to retailer, to consumer. Transport time is often outside of a retailer and growers’ control and is dictated by transport routes. That is why horticultural businesses need to be located close to major roads.

¹⁹ GNS, GeoExchange. Pre-publication report available on request.

4.8. Distance from population centres

Greenhouses need workers to care for growing plants, harvest, and pack produce. Overall, the greenhouse sector provides approximately 2400 jobs.²⁰ Competitive employers cannot expect employees to make unreasonable commutes, so it is easier to hire if they are located close to population centres. Horticulture has an overall labour shortage caused by changes to immigration settings, ripple effects from the COVID border closure, and accelerating inflation. With an insufficient supply of potential workers, it is important for employers to make their workplace offerings attractive to candidates.

4.9. Distance from ancillary activities and shared network of resources with other primary production

Horticultural operations share a lot of resources and similar ancillary activities that need to be within close proximity. These include post-harvest packing facilities, plant nurseries, major roads, energy infrastructure, agricultural equipment supply companies.

If greenhouses are pushed further from horticultural areas, extending trucking distances will increase the greenhouses gas emissions from transporting produce to market. Greenhouses prefer to be located near other horticultural businesses where efficiencies in packhouses, transportation and distribution and labour can be achieved.

4.10. Criteria case studies

The case studies analysed in the table below showcase greenhouse businesses that are looking to build a new site. NZ Hothouse has three greenhouses in the South Auckland area. Their 10-ha greenhouse in Drury is on a site that has been rezoned urban and acquired by a developer for industrial land use, and it is 25 years old, which means it is at the end of its life span. They are seeking a site for relocation.

Rohe Produce is a new business with a resource consent to build two 9-ha greenhouses north of Ohaaki. The site they are developing is leased from Māori. Because the site is Māori owned, the NPS-HPL may provide a pathway. However, future developments may not be able to be located on specified Māori land.

Table 5: Case study site selection criteria from growers looking for new sites

NZ Hothouse	Rohe Produce	Summary
A suitable heat source. The scale of the energy required is significant. The existing site uses gas equivalent to 3000 homes. The alternatives being	Access to carbon dioxide. Carbon dioxide and heat are essential for crop growth. Geothermal heat is the preferred source of low-emissions energy and carbon dioxide.	Access to energy: more likely to be on HPL

²⁰ Lumen Ltd. "Tomatoes New Zealand: Grower Survey November 2020". 2021. Prepared on behalf of TomatoesNZ and Vegetables NZ, Inc.

considered are geothermal and heat transfer.		
Access to labour, they need 8-10 people/ha, so the sites must be commutable distance from a town.		Distance from population centres: more likely to be on HPL
Some earthworks are possible for a reasonably flat site, but it adds cost and environmental effects.	Flat land with enough land around to provide for expansion.	Flat land: more likely to be on HPL
Access to a reliable roading network, they seek sites within 10 km to 20 km from an expressway.	Located near other horticultural businesses to provide collective and efficient use of packing and distribution infrastructure.	Distance from ancillary activities and point of sale: more likely to be on HPL
	Domestic distribution of perishable products needs to be close to arterial State highways.	
Surrounded by a sufficient rural buffer zone. They estimate 10 Ha of glass and would need 40 Ha of total land around. The additional land provides room for disposal of nutrients in a sustainable manner and to manage reverse sensitivity.	Suitable pastoral land adjacent for the disposal of the nutrient discharge. Noting that the discharge is minimal. The system is a hydroponic system/closed system, with very little waste and over 90% recycled back into the crop.	Surrounding pasture and zone: may be more likely on HPL (cannot locate in urban areas)
	Rurally zoned and not right on the urban boundary due to reverse sensitivity issues associated with transport movements. The system uses LED light, and even with blackout screens, this activity needs to be away from residential where light can cause a nuisance at night.	

Access to reliable, clean water. Rainwater harvest provides 70% of water, but access is required to good quality, reliable water.

Water access: more likely on HPL

4.11. Mapping evidence

To explore whether highly productive land really is better suited to greenhouse production, we mapped a range of the criteria above with publicly available data. The maps, method and data sources are included in Appendix E. We chose the area from Taupo to Tauranga as our project area due to grower interest in accessing renewable geothermal heat for future greenhouse sites. Only 9% of the project area was highly productive land. Of the land that met the criteria for greenhouses, 36% was highly productive. In other words,

$$\frac{\text{HPL suitable for greenhouses}}{\text{Total land suitable for greenhouses}} > \frac{\text{HPL in project area}}{\text{Total project area}}$$

The proportion of HPL suitable for greenhouses to total land suitable for greenhouses was 4x the ratio of total HPL to total land. This suggests that with site-selection criteria, greenhouses are 4x as likely to need to locate on HPL than if they had no site-selection criteria at all. This number will vary depending on the region and the exact site-selection criteria of a grower, but it is significant for the future of decarbonised greenhouses.

5. Greenhouses pose little risk to soil resources

We do not expect that there will be extensive growth in the hectares of greenhouses in coming years. While there are a few big businesses looking to build new sites, there is a continuous need to replace aging infrastructure, and we are expecting the locations of greenhouses to change, we are not expecting a rapidly expanding industry. There are only 310 ha of greenhouses currently in New Zealand, and this figure will likely not grow more than 10% in the next decade. The footprint of the greenhouse sector is small because it is an efficient growing system. As the climate becomes less stable, we may see more than 10% expansion in greenhouses growing fruits and vegetables, but even so, estimates from the sector are in the tens of hectares rather than the hundreds.

This area is miniscule compared to the total amount of HPL in New Zealand. For example, Table 6 illustrates that the amount of lifestyle blocks under 8 ha on HPL is 548x the amount of total existing greenhouse land. The amount of land projected to be converted to solar panels by 2030 is 35.6x the current area of greenhouses. These land uses are a far greater threat to preserving soil resources for primary production than greenhouses, which are themselves a form of primary production.

Table 6: Impact of land use on HPL

Land use	Hectares	Percent of total HPL*
HPL in New Zealand ²¹	3,830,000	100%
Lifestyle blocks under 8 ha on HPL ²²	170,000	4.44%
Projected area of solar panels by 2030 ²³	11,040	.288%
Current area of greenhouses in New Zealand**	310	.008%
Projected area of greenhouses by 2030	341	.009%

*If all of these hectares were on highly productive land.

**These are not all on highly productive land. Based on the analysis in Appendix D, 83% of greenhouses are on HPL, so a rough estimate is that 257 ha of greenhouses are currently on HPL, which would only be .007% of total HPL.

6. Greenhouses are part of our low emissions future

The carbon footprint of indoor crops is similar to imported tropical fruit and less than imported processed foods and domestically produced meat and dairy.²⁴ It is higher compared to domestically grown outdoor fruit and vegetables, but the greenhouse sector is in the process of decarbonising. Half of the sector’s emissions come from coal-burning greenhouses.²⁵ The sector is rapidly phasing out coal, since its use will be banned by the government by 2037.²⁶ When that energy transition is complete, greenhouses will be very low emissions foods.

²¹ Ministry for the Environment. “National Policy Statement for Highly Productive Land: Information sheet”. September 2022. Accessed online [national-policy-statement-highly-productive-land-infosheet.pdf](https://www.environment.govt.nz/national-policy-statement-highly-productive-land-infosheet.pdf) ([environment.govt.nz](https://www.environment.govt.nz)).

²² Ministry for the Environment. “National Policy Statement for Highly Productive Land: Information sheet”. September 2022. Accessed online [national-policy-statement-highly-productive-land-infosheet.pdf](https://www.environment.govt.nz/national-policy-statement-highly-productive-land-infosheet.pdf) ([environment.govt.nz](https://www.environment.govt.nz)).

²³ Ministry for the Environment. *Public Consultation on Potential Amendments to the National Policy Statement for Highly Productive Land*. 5 September 2023. Accessed online [Regulatory Impact Statement Template](https://www.environment.govt.nz/regulatory-impact-statement-template) ([environment.govt.nz](https://www.environment.govt.nz)). (p. 32)

²⁴ Drew, J, Cleghorn, C, Macmillan, A and Mizdrak, A, 2020. Healthy and climate-friendly eating patterns in the New Zealand context. *Environmental health perspectives*, 128(1), p.017007. Database accessed online: [ghg-emissions-associated-with-nz-foods-database-840619.xlsx](https://www.environment.govt.nz/emissions-associated-with-nz-foods-database-840619.xlsx) ([live.com](https://www.live.com))

²⁵ Deta Consulting. “Covered Crops Decarbonisation Plan: Final Report Revised”. 8 February 2022. Produced for TomatoesNZ, Vegetables NZ, Inc., Horticulture New Zealand, EECA.

²⁶ Hon. Dr. Megan Woods. “Government ban on new coal boilers in place”. 30 June 2023. Accessed online <https://www.beehive.govt.nz/release/government-ban-new-coal-boilers-place>

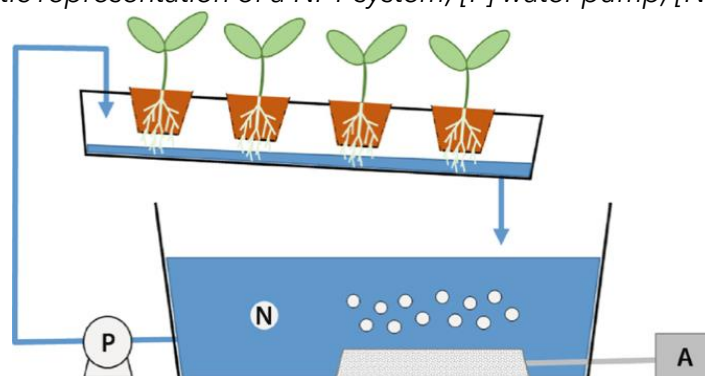
The industry has been working with EECA on a decarbonisation plan.²⁷ This plan estimates that covered cropping emissions are 212 kt/year. An approximately \$220 million investment is required for decarbonisation. It is prohibitively expensive for small growers to switch fossil-fuel heating systems to low-carbon alternatives. These high costs are leading to a consolidation in the sector. Large businesses able to invest in decarbonisation are expanding their domestic market share by buying smaller businesses as growers exit the market. This means that there are not a lot of businesses looking to build new greenhouses. Instead, businesses are growing by absorbing other businesses' infrastructure. Further restrictions on where greenhouses can locate, however, will make it more difficult to access renewable energy sources on new sites. This is a barrier to the sector's goals for climate mitigation and adaptation.

This winter, Australian tomatoes were imported, undercutting the price of domestically grown crop. New Zealand growers were forced to reduce sales prices to compete, leaving less cash on hand to transition to more sustainable greenhouse heating options. Australia does not have the same climate change requirements as New Zealand, so we are essentially exporting our emissions by importing food with a worse environmental impact. The harder we make it to grow with greenhouses in New Zealand, the more we will export our emissions by importing to fill the food gaps.

7. Benefits for water quality and quantity

Greenhouses are efficient users of water compared to other primary production, in terms of both quality and quantity. There are two types of water systems for greenhouses. The first, run-to-waste, is better suited to fruit-producing crops like tomatoes and involves discharging used water to land. The second, nutrient film technique (NFT) is a closed, soilless system better suited to leafy greens.²⁸ Both involve constant measurement of water and nutrient use to ensure best practice. More water is used to maintain hygiene in the growing system for food safety and biosecurity than for irrigation. This includes washing the gullies beneath plants and washing the harvested plant itself. Figure 2 shows how water is efficiently recycled within an NFT system.

Figure 2: Schematic representation of a NFT system; [P] water pump, [N] nutrient solution²⁹



²⁷ Deta Consulting. "Covered Crops Decarbonisation Plan: Final Report Revised". 8 February 2022. Produced for TomatoesNZ, Vegetables NZ, Inc., Horticulture New Zealand, EECA.

²⁸ ScienceDirect. "Nutrient Film Technique". Accessed online <https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/nutrient-film-technique>.

²⁹ Geilfus, C. M. (2019). Hydroponic Systems in Horticulture. In *Controlled Environment Horticulture* (pp. 35-40). Springer, Cham.

7.1. Water quality

7.1.1. GREENHOUSES DO NOT CONTRIBUTE MANY CONTAMINANTS

Greenhouse growers are precise about exactly how much of a nutrient input they use. Because greenhouses are controlled systems, it is easy to know exactly how much of different nutrients like nitrogen and phosphorus plants need to reach the correct size for market requirements at the right time. Growers would not use any more inputs than the precise amount necessary because that would be a waste of money. Fertilisers are very expensive.

Greenhouse growing can support freshwater outcomes in over-allocated catchments, while the community considers opportunities for broader land use change. Because greenhouses are mostly a closed system, they do not contribute to the over-allocation while other primary sector uses reduce their nutrient outputs. Growing food in greenhouses, intensive indoor primary production and land-based aquaculture, could be encouraged to relieve the pressure on freshwater environments while maintaining outdoor vegetable production, which is important for the domestic supply of healthy food.

There is some movement for leafy greens to shift indoors. Southern Fresh, an outdoor salad crop grower, have moved 7 ha indoors to improve the resilience and quality of production. The indoor growing system will have a lower nitrate leaching load than outdoor growing of an equivalent crop. While not all crops are suitable for growing in greenhouses, higher-value salad crops are suitable for growing indoors and have the highest leaching profile of all outdoor-grown vegetables.³⁰ This means that moving them indoors has a positive impact on freshwater nutrient load. Most new greenhouses will come from expansion of existing greenhouse businesses, however. We are not expecting significant quantities of vegetables to move indoors.

7.1.2. GREENHOUSES NEED ACCESS TO CLEAN WATER

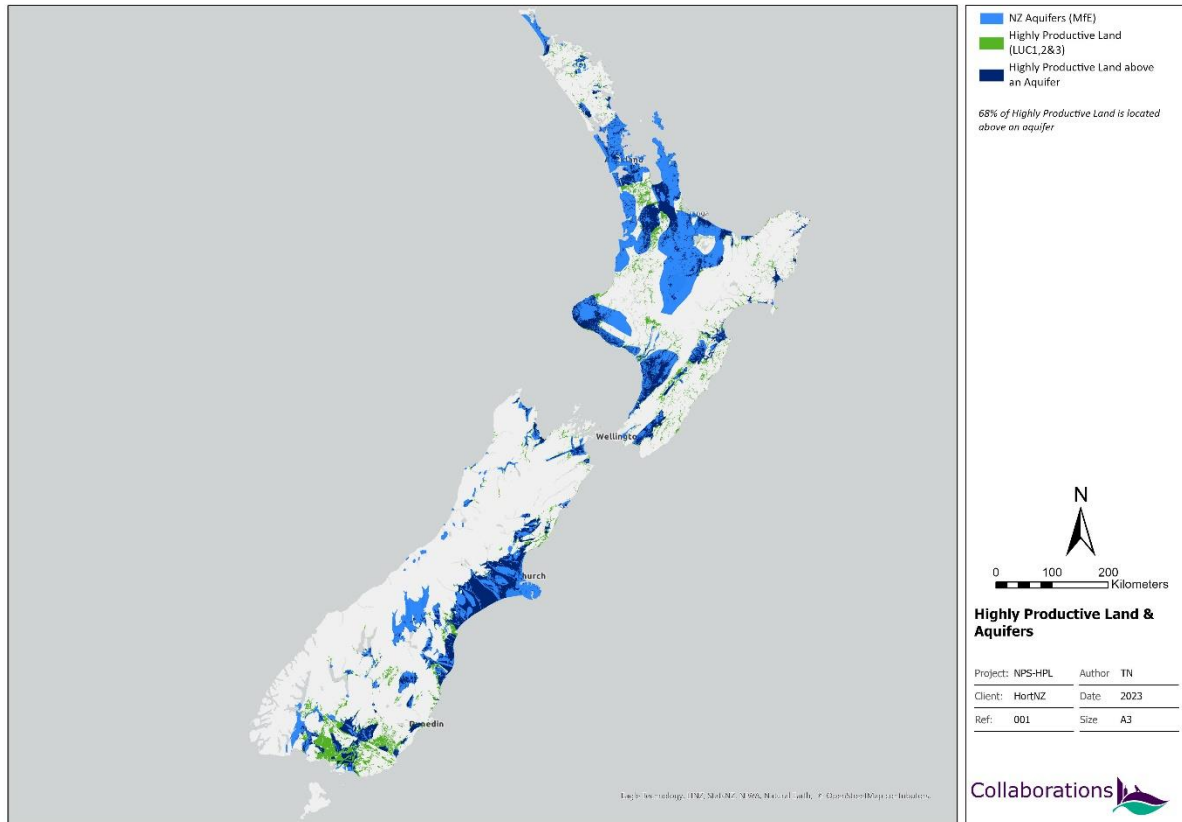
In all growing systems, abstraction is also required to meet water demand. Most streams and rivers in NZ are too contaminated with *E. coli*³¹ to be safely used for irrigating vegetable crops that are eaten raw.³² Groundwater suitable for irrigating vegetable crops is most likely available in the alluvial aquifers that underly highly productive land. Based on the mapping analysis found in Figure 3, 68% of HPL sits above an aquifer. As such, properties on HPL are more likely than not to have groundwater access.

³⁰ Agribusiness Group. *Nutrient Performance and Financial Analysis of Lower Waikato Horticulture Growers*. March 2014. Prepared for Waikato Regional Council, Ministry of Primary Industries and HortNZ. Accessed online <https://www.hortnz.co.nz/assets/Environment/National-Env-Policy/JR-Reference-Documents-/Agribusiness-2014.-nutrient-performance-and-financial-analysis-of-lower-waikato-horticulture.pdf>.

³¹ Stats NZ. "River water quality: Escherichia coli". 14 April 2022. Accessed online <https://stats.govt.nz/indicators/river-water-quality-escherichia-coli/>.

³² Ministry for Primary Industries. *Discussion Document Update: Pathogens in Fresh Fruit and Vegetables in New Zealand*. March 2020. Accessed online <http://www.mpi.govt.nz/dmsdocument/40956/direct>.

Figure 3: Aquifers and highly productive land in New Zealand



7.2. Water quantity

Greenhouses are very efficient in their water use, but they require reliable access to water. For instance, tomatoes and capsicum require three litres of water per plant per day.³³ Some greenhouse systems are hydroponic, meaning they grow in water instead of soil. These systems can reuse water through the NFT system.³⁴ For instance, one small hydroponic grower on the South Island uses less than 10 m³ of water per day for over half a hectare, including washing. Greenhouse systems can include stormwater management systems that capture from impervious surfaces, then treat and reuse the water resource, which can provide a significant proportion of their required water.

8. Greenhouses should be provided for in national planning direction

The Section 32 report for the NPS-HPL stated that the policy was meant to address the “inconsistent approach to managing HPL nationally”.³⁵ Councils are currently applying the

³³ Agribus Group. *Assessment of the requirement for, and the impact of, not providing sufficient irrigation capability to allow for root stock survival on the Waimea Plains*. 2015.

³⁴ Grower2Grower. “Future-Proof Lettuce Cultivation”. 14 September 2021. Accessed online [Future-Proof Lettuce Cultivation - Grower2Grower](#).

³⁵ Ministry for the Environment. 2022. *National Policy Statement for Highly Productive Land: Evaluation report under section 32 of the Resource Management Act*. Wellington: Ministry for the Environment. (p. 21)

NPS-HPL inconsistently with regard to greenhouses due to the lack of a clear pathway in the policy statement. Clear national direction is needed to resolve this issue and ensure resilience in our domestic food supply.

Clause 129 (g) of the NBEA rightly does not distinguish how to enable the supply of fruit and vegetables, but expanding available locations for greenhouses meets this objective. Covered and outdoor cropping systems are both covered by this national direction.

Discussion Questions: Intensive indoor primary production and greenhouses

Q. 1 Do you think the NPS-HPL requires an amendment to provide a consent pathway for intensive indoor primary production and greenhouses to be developed on HPL? Why?

YES

This is addressed throughout the body of this submission and in the planning and legal evidence in Appendices B and C. Greenhouses are a form of climate adaptation for our food supply. They have siting criteria that are most often suited to HPL, and they pose minimal risk to soil resources or other primary production activities.

The NPS-HPL, as it stands, does not contain a consent pathway for greenhouses or intensive indoor primary production to be developed on HPL. According to our planning evidence provided by Vance Hodgson, HPC Ltd, there is limited provision for these activities as supporting, small/temporary, existing activities but not as new activities. Even greenhouses relocating due to an expired lease or desire to expand will be classified as new activities, and thus be prohibited due to the strong “avoid” directive in clause 3.9 (1). This approach is inconsistent with other non-land-based primary activities provided for within clause 3.9(2), which have similar or greater environmental effects compared to greenhouses.

Q. 2 What do you think are the risks with amending the NPS-HPL to provide for intensive indoor primary production and greenhouses on HPL?

The risk to the soil resource from allowing greenhouses on HPL is negligible because of the very small size of the greenhouse sector.

The risk of reverse sensitivity impacts on primary production associated with allowing greenhouses on HPL is negligible or even a positive benefit. Greenhouses are a compatible and complementary activity with land-based primary production.

There are risks to our food supply and the horticulture industry if greenhouses are not provided a pathway to establish on HPL.

Risks to horticulture from not allowing greenhouses on HPL	Mitigations for those risks to horticulture
Greenhouses will be unable to establish on HPL, which will be a barrier to climate-resilient year-round food production. This is a risk to the domestic supply of fresh fruits and vegetables.	Make the following amendment to Clause 3.9 to the NPS-HPL to include an exception for greenhouses. (2) A use or development of highly productive land is inappropriate except...
If greenhouses are pushed further from horticultural areas, extending trucking distances will increase the greenhouses gas emissions from transporting produce to market.	(a)... <u>(k) it is for greenhouses</u> (l) it is for intensive indoor primary production.
Inconsistent planning rules across regions will make it difficult for businesses to build regional diversity, which is necessary for resilience to extreme weather events.	Provide national planning direction for greenhouses through an amendment to the NPS-HPL.

Q. 3 Do you support option 1 (retaining the status quo)? Why?

NO

Option 1 does not provide a pathway for greenhouses to establish on highly productive land. It is unreasonable to provide pathways for urban growth and a range of activities beyond land-based primary production on HPL that have no connection to food production but not greenhouses, a key activity in our food supply chain. Option 1 is inconsistent with Section 129 (g) which requires the National Planning Framework to provide direction on “enabling supply of fresh fruit and vegetables”.

Q. 4 Do you support option 2 (a pathway under clause 3.9)? Why?

YES

This is addressed throughout the body of this submission and in the planning and legal evidence in Appendices B and C. A pathway under clause 3.9 positions greenhouses with other reasonable exceptions to the protective clauses of the NPS-HPL. If a pathway is not provided under 3.9, there is a strong “avoid” clause in 3.9 (1) that will prevent the establishment of most greenhouses on HPL, except as supporting, small or temporary activities.

We seek a new sub-clause (k) under 3.9 (2) to allow greenhouses to establish on HPL. As discussed in our legal evidence (Appendix C), the functional and operational need tests are “not relevant or necessary where the activity is typically associated with HPL and do have the same permanency as other activities contemplated by subclause (j)”.

Q. 5 Are there any other options we should consider?

YES

HortNZ recommends a policy under section 2.2 of the NPS-HPL that enables the supply of fresh fruit and vegetables, in line with Clause 129 (g) of the NBEA. The exception for greenhouses under section 3.9 will then support that policy.

We suggest the following text:

Policy 10: The use of highly productive land to enable the supply of fresh fruit and vegetables is prioritised and supported.

HortNZ would also support a national definition for greenhouse to supplement the amendment to 3.9.

9. Specified infrastructure

HortNZ opposes the suggested amendments to allow for the new construction of solar farms on highly productive land. We request that specified infrastructure that will obstruct the supply of fresh fruits and vegetables is excluded in the NPS-HPL. Solar panels can be established on the roofs of rural buildings like packhouses - they do not need to be on the land itself.

HortNZ is aware of one solar farm that has displaced over 300 ha of vegetable growing. The landlord cancelled the grower's lease to establish a solar farm instead. Regional consenting rules mean it is uncertain if this vegetable growing area can be replaced elsewhere in the region. If this occurs for multiple horticultural businesses, supply of fresh produce will decrease, causing an increase in price for consumers, raising the cost of living and the cost of healthy food in particular.

Webinars and the discussion document accompanying this consultation have suggested that solar panels can be used simultaneously with primary production. Government has no ability to dictate that landowners should have mixed-use primary production and energy production activities. There is nowhere in New Zealand where horticulture and land-based solar farms co-exist, and solar panels would fundamentally compete with the light resource used by plants to grow if they were established on the same land.

Discussion Questions: Specified infrastructure

Q. 1 Are you aware of any other issues that could impede the development of new specified infrastructure on HPL?

The goal of the NPS-HPL is not to facilitate the development of specified infrastructure. We do, however, believe that Battery Energy Storage Systems (BESS) should be considered specified infrastructure. Unless greenhouses have geothermal heating or industrial waste heat, they will be increasingly reliant on electrification and a stable grid supply in the push to decarbonise. BESS will have a tiny footprint on HPL but an outsize impact in supporting the green energy transition for our climate-resilient indoor growing systems. BESS must be safely and strategically positioned, so they should be allowed on HPL through a pathway as a supporting activity to horticulture or as a form of specified infrastructure.

Q. 2 Do you think the NPS-HPL requires an amendment to provide for the construction of new specified infrastructure on HPL?

YES

In general, we support a pathway for the construction of new specified infrastructure on HPL, including roads and rail. These activities have national significance and support primary production.

While we understand the need to be able to establish new specified infrastructure, we are concerned that allowances for solar farms will prevent the use of highly productive land for primary production.

Q. 3 Do you think the proposed amendment to clause 3.9(2)(j)(i) – adding ‘construction’ – will resolve the issues?

NO

This amendment will resolve the issue with establishing new specified infrastructure, but this will not prevent solar farms from taking up food-producing land. We seek that the test for productive capacity for establishing new specified infrastructure includes the impact on the supply of fresh fruits and vegetables, to mitigate land use conflicts between solar farms and horticulture.

Q. 4 Which option do you prefer? Why?

OPTION 2: INCLUDE THE WORD “CONSTRUCTION”

We support the inclusion of the word “construction” in Clause 3.9 (j) (i) with the condition that the loss of productive capacity test includes the impact on the supply of fresh fruits and vegetables, in line with Clause 129 of the NBEA. We suggest the following amendment to the definition.

Clause 3.9 (3) Territorial authorities must take measures to ensure that any use or development on highly productive land:

- d) minimises or mitigates any actual loss or potential cumulative loss of the availability and productive capacity of highly productive land in their district; ~~and~~
- e) avoids if possible, or otherwise mitigates, any actual or potential reverse sensitivity effects on land-based primary production activities from the use or development; ~~and~~
and
- f) **avoids if possible, or otherwise mitigates, any actual or potential cumulative loss of the supply of fresh fruits and vegetables.**

Appendix A: Submission on the proposed amendments to the NPS-HPL

Without limiting the generality of the above, HortNZ seeks the following decisions on the proposed amendments to the National Policy Statement for Highly Productive Land, as set out below, or alternative amendments to address the substance of the concerns raised in this submission and any consequential amendments required to address the concerns raised in this submission.

Additions are indicated by bolded underline, and deletions by strikethrough text.

Provision	Reason	Decision sought
3.9 Protecting highly productive land from inappropriate use and development	Support a clear pathway for greenhouses. Do not support a pathway for solar farms on HPL.	(2) A use or development of highly productive land is inappropriate except where at least one of the following applies to the use or development, and the measures in subclause (3) are applied... (a)... <u>(k) it is for greenhouses</u> <u>(l) it is for intensive indoor primary production.</u>
New Policy 10:	Align the NPS-HPL with Clause 129 (g) of the NBEA.	<u>Policy 10: The use of highly productive land to enable the supply of fresh fruit and vegetables is prioritised and supported.</u>
Definition of specified infrastructure	Solar farms pose a threat to the protection of highly productive land for primary production and the supply of fresh fruits and vegetables.	Clause 3.9 (3) Territorial authorities must take measures to ensure that any use or development on highly productive land a) minimises or mitigates any actual loss or potential cumulative loss of the

availability and productive capacity of highly productive land in their district;
and

b) avoids if possible, or otherwise mitigates, any actual or potential reverse sensitivity effects on land-based primary production activities from the use or development;
and

c) **avoids if possible, or otherwise mitigates, any actual or potential cumulative loss of the supply of fresh fruits and vegetables.**

Appendix B: Planning Evidence

MEMORANDUM

To: Emily Levenson, Environmental Policy Advisor Horticulture New Zealand

From: Vance Hodgson, HPC Ltd

Date: 25 October 2023

Subject: Potential Amendments to the NPS-HPL: Interim Regulatory Impact Statement and Discussion Document

INTRODUCTION

The Government is seeking feedback on potential amendments to the National Policy Statement for Highly Productive Land 2022 (NPS-HPL).

This memorandum provides an analysis of the Discussion Document (DD)³⁶ and Interim Regulatory Impact Statement (RIS)³⁷ recently released by the Ministry for Primary Industries and the Ministry for the Environment on the issue of the development and relocation of greenhouses and intensive indoor primary production on HPL, relative to the current NPS-HPL.

It includes a critique on the efficiency and effectiveness of the two below options within the DD being consulted on:

Option 1: Retain the NPS-HPL as currently drafted (status quo).

Option 2: Provide a consent pathway for both greenhouses and intensive indoor primary production in clause 3.9 of the NPS-HPL.

This evaluation identifies and examines another reasonably practicable option to address the issue, while still achieving the objective of the NPS-HPL.

NPS-HPL OVERVIEW FOR THE ISSUE

The single objective of the NPS-HPL is:

Objective: *Highly productive land is protected for use in land-based primary production, both now and for future generations.*

‘Protection’ is achieved through nine policies that amongst others include:

³⁶ Ministry for the Environment. 2023. *Managing the use and development of highly productive land: Potential amendments to the NPS-HPL – Discussion document*. Wellington: Ministry for the Environment

³⁷ Interim Regulatory Impact Statement: Potential amendments to the National Policy Statement for Highly Productive Land. Ministry for the Environment and Ministry for Primary Industries. 5 September 2023.

Policy 4: *The use of Highly productive land for land-based primary production is prioritised and supported.*

Policy 8: *Highly productive land is to be protected from inappropriate use and development.*

Land-based primary production is defined in the NPS-HPL:

Land-based primary production means production, from agricultural, pastoral, horticultural, or forestry activities, that is reliant on the soil resource of the land.

The nature of greenhouse activity is described in the industry statement from HortNZ and in the *Context Behind the Issue* in the RIS. Some are undercover soil-reliant growing systems, but others use a variety of growing media including soil-less hydroponics or grow bags. Therefore, greenhouses in some cases are not reliant on the soil resource of the land and not *land-based primary production*. This is also the case for intensive indoor primary production activities.

In the non-exhaustive list of things local authorities must do to give effect to the objective and policies, clause 3.9 ‘*Protecting highly productive land from inappropriate use and development*’ codifies the implementation approach to inappropriate use or development of HPL.

Clause 3.9(1) is the overarching requirement that:

(1) Territorial authorities must “avoid” [emphasis added] the inappropriate use or development of HPL that is not land-based primary production.

Clause 3.9(2) then prescribes a contained list of exceptions of use or development of HPL that may be appropriate where the additional overarching measures in subclause (3) are applied. This requires territorial authorities to take measures to minimise or mitigate actual loss or potential cumulative loss of HPL and to avoid or otherwise mitigate reverse sensitivity effects. Of relevance to this issue are the exceptions in clause 3.9 for *supporting activities* and *small-scale temporary activities*.

The analysis below considers what direction clause 3.9(2) provides in relation to new greenhouses and intensive indoor primary production to develop and relocate on HPL.

PROBLEM DEFINITION – A PATHWAY FOR NEW INTENSIVE INDOOR PRIMARY PRODUCTION AND GREENHOUSES

The RIS sought Cabinet approval to consult on potential amendments to the NPS-HPL. The problem definition stated in the RIS as follows:

Two issues have been identified with the NPS-HPL that warrant consultation:

- 1. “It is unclear whether a consent pathway is provided” [emphasis added] for the construction of new specified infrastructure on HPL (other than via a designation), despite the original intent that a consent pathway for such infrastructure would be provided. This lack of clarity could lead to inconsistencies in district plans and resource consent decisions and with other national direction.*
- 2. “No consent pathway” [emphasis added] is provided for new intensive indoor primary production and greenhouses to develop and relocate on HPL, despite their importance for ensuring a diverse and resilient primary sector.*

The RIS defines a *consent pathway*:

‘Consent Pathway’ refers to there being clear direction in the NPS-HPL about when a particular type of use or development may be appropriate on HPL, providing councils with the opportunity to include provision for those activities in their plans and policy statements.

No or Unclear Pathway?

There is a distinction in the problem definition as presented to Cabinet. Issue 1 cites an ‘unclear’ *consent pathway* is provided and Issue 2 cites ‘no’ *consent pathway*. This implies that:

- a) There is uncertainty as to whether Council can include provision to the construction of new specified infrastructure on HPL, and
- b) That the NPS-HPL does not provide for new intensive indoor primary production and greenhouses to develop and relocate on HPL.

There is then inconsistency in RIS and DD referring to both ‘no’ *consent pathway* as well as various expressions of an ‘unclear’ *consent pathway* for new intensive indoor primary production and greenhouses to develop and relocate on HPL. **Appendix 1.**

The distinction is important to consider in the context of the two options presented in the DD. ‘No’ *consent pathway* for new intensive indoor primary production and greenhouses is a different issue to ‘no clear’ *consent pathway* and relevant in the assessment of Option 1 to retain the NPS-HPL as currently drafted (status quo).

NPS-HPL IMPLEMENTATION PATHWAYS

The following evaluation sets out whether Part 3 Implementation of the NPS-HPL provides direction or “a pathway” on the appropriateness of new indoor primary production and greenhouses on HPL and therefore providing councils with the opportunity to include provision for those activities in their plans and policy statements.

Clause 3.9(2) states that a use or development of HPL is inappropriate except where at least one of the listed circumstances applies and the measures in subclause 3 are also applied.

The exceptions in 3.9(2) are structured into two parts.

- 3.9(2)(a)-(i) is a defined list of use or development on HPL that would not fall within the definition of *land-based primary production activities*. E.g., supporting activities such as a packhouse or dairy wintering barn, any designation or NOR.
- 3.9(2)(j) lists specified infrastructure, defence facilities, mineral and aggregate extraction as exceptions in subclause 3.9(2)(j) subject to additional tests for ‘appropriateness’ based on functional or operational need.

3.9(2)(a) Supporting Activities

As expressed in the NPS-HPL section 32³⁸ and through the NPS-HPL guidance from MfE³⁹, clause 3.9(2)(a) provides a pathway for intensive indoor primary production and greenhouses as *supporting activities*, but not as standalone activities on HPL.

Supporting activities are defined in the NPS-HPL as:

***supporting activities**, in relation to highly productive land, means those activities reasonably necessary to support land-based primary production on that land (such as on-site processing and packing, equipment storage, and animal housing)*

RIS section 1.3.3 *Primary industry concerns on the NPS-HPL: Intensive indoor primary production and greenhouse industries*; states that greenhouses and intensive indoor primary production are often synergistic but not supportive of land-based primary production.

The findings of RIS section 1.3.4 on a consent pathway through clause 3.9(2)(a) is:

MPI and MfE consider that although it is intended that clause 3.9(2)(a) may capture some intensive indoor primary production and greenhouses as 'supporting activity', this clause would not extend to capture the development of commercial scale operations.

The above reference to commercial scale operations in the RIS is not clarified but assumed to refer to any new greenhouses on HPL.

3.9(2)(g) Small-Scale and Temporary Activities

Clause 3.9(2)(g) provides an exception for small-scale and temporary land-use activity that has no impact on the productive capacity of the land.

The findings of RIS Section 1.3.4 on a potential consent pathway through clause 3.9(2)(g) is:

MPI and MfE view that clause 3.9(2)(g) does not provide a clear consent pathway for the development of intensive indoor primary production and greenhouses on HPL. This clause would not extend to nor capture the development of commercial scale operations.

Again, the reference to commercial scale operations in the RIS is not clarified but assumed to refer to any new greenhouses on HPL.

Clause 3.11 *maintenance, operation, or upgrading* of any existing activities on HPL

Clause 3.11 requires territorial authorities to include objectives, policies and rules in district plans that enable the *maintenance, operation, or upgrading* of any existing activities on HPL.

The industry evidence clarifies the extent of existing activity on HPL. HortNZ have set out reasons why greenhouse footprints/locations may need to change as a response to climate change.

The NPS-HPL guidance note has taken the position that upgrading is to be interpreted as follows:

³⁸ [NPS Highly Productive Land: Evaluation under section 32 of the Resource Management Act | Ministry for the Environment](#)

³⁹ [National Policy Statement for Highly Productive Land: Guide to implementation | Ministry for the Environment](#)

Territorial authorities have discretion to decide how this will work in their district plan, however potential options include (but are not limited to):...

- *providing a permitted-activity pathway to maintain, operate or upgrade existing activities on HPL, provided there is no increase in the footprint of the activity and there is no change to the intensity of the activity or the likelihood that the activity will result in reverse sensitivity effects on adjacent land-based primary production activities.*
- *enabling rules tailored to specific scenarios, where the territorial authority anticipates the need for activities to expand (eg, enabling existing intensive indoor primary production, as defined in the National Planning Standards) to respond to changing animal-welfare legislation and practices, including the rebuilding and the expansion of a building's footprint.*

Territorial authorities are under no obligation to use the guidance material. Interpretation of clause 3.11 could therefore be inconsistent across district plans, creating uncertainty for farmers and growers about their ability to adapt and meet the requirements necessary to remain operational. The words *maintenance, operation, or upgrading* are controlling factors and as expressed in the RIS and DD, clause 3.11 is not intended to provide for increased intensity.

Conclusion

Section 1.3 of the RIS: *Policy problem and its context (intensive indoor primary production and greenhouses)* states that in the policy development of the NPS-HPL, intensive indoor primary production and greenhouses were *excluded* as appropriate use and development of HPL. This is consistent with the section 32 and the NPS-HPL guidance previously provided from MfE. Notably, a concern with intensive indoor primary production and greenhouses is not expressed or assessed in the NPS-HPL cost benefit analysis⁴⁰ that focuses on the policy's impact on urban and lifestyle use and development.

The section 32 informing NPS-HPL is particularly clear on the intent:

Summary of relevant resource management issue(s)

Issue 4: Appropriate and inappropriate uses of HPL

- *Therefore, the NPS-HPL should include a definition of 'landbased primary production' including production from agricultural, pastoral, horticultural and/or forestry activities that are reliant on the soil resource of the land. The definition should also clarify that 'land-based primary production' includes activities reasonably necessary to support the production of materials on HPL (eg, packing sheds or equipment storage). This will help avoid potential confusion and implementation issues with the National Planning Standards definition of primary production. It also makes it clear that the focus of the NPSHPL is to protect HPL for land-based primary production activities reliant on the soil resource – not other forms of primary production with no reliance on soil resource (eg, intensive indoor primary production).*

Supporting productive uses (Policy 4 and clause 3.12): Assessment of efficiency – Policy 4 and clause 3.12

Criteria: Environmental

Assessment: Benefits

- *Land-based primary production is often more compatible with remaining natural ecosystems on HPL compared to other activities such as urban rezoning, rural lifestyle development and intensive indoor primary production.*

⁴⁰ [National Policy Statement for Highly Productive land Cost-Benefit Analysis \(environment.govt.nz\)](https://www.environment.govt.nz/national-policy-statement-for-highly-productive-land-cost-benefit-analysis)

Criteria: Economic

Assessment: Costs

- Restricts land available for other non-primary production activities on HPL other than where exceptions are provided elsewhere in the NPS-HPL. In particular, it will limit options for other non-land-based primary production activities that typically rely on a rural location to operate (eg, indoor intensive farming and glasshouses). Potential increased costs for these activities to be located elsewhere.

It is reasonable to assume that a planning response giving effect to the NPS-HPL would result in there being 'no' consent pathway for new greenhouses to develop and relocate on HPL rather than an 'unclear' consent pathway. This conclusion is supported by the section 32, the guidance document, the opinion of MPI and MfE expressed in the RIS and explicit in the RIS *Problem Definition*.

INTENSIVE INDOOR PRIMARY PRODUCTION AND GREENHOUSES AS AN APPROPRIATE USE

While new intensive indoor primary production and greenhouse are not always reliant on the soil resource they are anticipated and have a need to be in rural environments. This connection is embedded in the national planning approach.

The National Planning Standards set out zone names and descriptions as follows:

Table 13 Zone Names and Descriptions

General rural zone: Areas used predominantly for primary production activities, including intensive indoor primary production. The zone may also be used for a range of activities that support primary production activities, including associated rural industry, and other activities that require a rural location.

Rural production zone: Areas used predominantly for primary production activities that rely on the productive nature of the land and intensive indoor primary production. The zone may also be used for a range of activities that support primary production activities, including associated rural industry, and other activities that require a rural location.

There is a need for these activities to be on HPL established through historical practice and the industry evidence.

The RIS sets out the costs and associated benefits of providing for intensive indoor primary production and greenhouses.

The intensive indoor primary production and greenhouse industries serve domestic food supply and international trade. These activities are expected to grow in response to serving New Zealand's growing population, export opportunities, and growing international market for low emissions food. Expansion is also anticipated due to climate change adaptation, freshwater limits and targets, and as noted earlier, opportunities within export markets for low-emissions foods both domestically and abroad. Noting careful consideration of the trade-offs for providing for these activities and the potential permanent loss of HPL. Considerations will also need to be given to the impact that a pathway for intensive indoor primary production and greenhouses may have on the availability of HPL for use in land-based primary production (as well as consideration for the impacts on both industries if the status quo is maintained, detail on regulatory burden is provided below).

Clause 3.9 provides for a range of uses on HPL, including urban development and non-land-based primary production activities that will have the same or similar effects on HPL as new greenhouses and intensive indoor primary production. Clauses 3.9(2)(a) and 3.9(2)(g) are suggested pathways for

some greenhouses and intensive indoor primary production activity, again recognising these activities as an appropriate use where those tests are passed.

The lack of provision for new greenhouses and intensive indoor primary production on HPL does not align with the policy intent for other non-land-based use and development of HPL.

OPTION 1: STATUS QUO

Option 1, the status quo, retain the NPS-HPL as currently worded approach, is advanced for several reasons in the DD and RIS including that this would allow for evidence on the impacts of the NPS-HPL on intensive indoor primary production and greenhouses (if any) to be collected; this could be through gathering relevant case law and resource consent outcomes for these matters, as this will allow for a wider understanding of the scale of the issue(s).

The RIS states as follows:

1.3.4 What are the current potential options under the NPS-HPL for intensive indoor primary production and greenhouses to develop on HPL, and what are the perceived limitations of these options?

Under the status quo, the development of new intensive indoor primary production and greenhouses are directed away from HPL. However, there are some potential options (discussed below) to potentially enable these activities on HPL and for them not be considered as inappropriate use and development of highly productive land.

The NPS-HPL has been in effect for less than a year and most councils have not yet undertaken the necessary plan changes to align with the requirements of the NPS-HPL. How the potential options (discussed below) in the NPS-HPL are expected to develop and be given effect to in regional and district plans will differ across New Zealand depending on the size and scale of these activities in different regions.

As identified in section 1.3.5 of the RIS, the status quo will result in greenhouses continuing to be excluded on HPL. The potential options, are as previous identified, limited to clause 3.9(2)(a) supporting activities and 3.9(2)(g) small-scale and temporary activities which do not provide for new greenhouses on HPL outside of these activities. Clause 3.11 is also considered in the scope of potential options, which provides for the continuation of existing activities and enables the maintenance, operation and upgrading of existing activities on HPL. This does not extend to increased intensity.

In retaining the status quo, it is not clear why, as suggested in the RIS, that in giving effect to the NPS-HPL the response to clause 3.9(2)(a) and 3.9(2)(g) may differ between regional and district plans across New Zealand depending on the size and scale of the activities in different regions. All are required to give effect to the same single objective and clear policies of the NPS-HPL. The extent of HPL will be determined regionally pursuant to clause 3.4 but the application of the NPS-HPL is required to be consistent. If an activity is not an exception pursuant to clause 3.9, then it is deemed inappropriate use or development of HPL.

As above, consistent with the Problem Definition stated in the RIS and to give effect to the current NPS-HPL, the developing planning response will likely see a 'no' consent pathway position for new greenhouses to develop and relocate on HPL, expressed through resource consent decisions and plan change processes. Case law and resource consent outcomes are unlikely to be necessary to further clarify that interpretation.

The status quo, retain the NPS-HPL as currently worded approach, does not resolve the issue.

OPTION 2: A CONSENT PATHWAY IN CLAUSE 3.9

Non-land-based activities to occur on HPL, subject to specific functional or operational tests being met

The DD states as follows:

The primary objective of the NPS-HPL is to protect the soil resource for use in land-based primary production. This is achieved by advising councils on how to identify and map HPL, and what restrictions should be placed on its subdivision, use and development.

The NPS-HPL does, however, give councils some flexibility to allow for certain activities that are not land-based primary production to occur on HPL in certain circumstances. These activities may deliver wider cultural, social, environmental and economic benefits. Consent pathways in the NPS-HPL are provided for non-land-based activities to occur on HPL, subject to specific requirements being met. These include functional or operational tests.

Pursuant to clause 3.9(4), territorial authorities are required to include objectives, policies and rules to give effect to the NPS-HPL. The NPS-HPL does not prescribe the status of activities. Despite this, the DD presents Option 2 as a mechanism to provide *a consent pathway* for both intensive indoor primary production and greenhouses via clause 3.9(2). This option is described in the DD as follows:

This option would provide a bespoke pathway for developing and relocating intensive indoor primary production and greenhouses on HPL. It would be subject to specific tests being met, such as functional or operational tests. These are similar to tests required for other non-land-based primary production activities in the NPS-HPL.

Functional need and *operational need* are terms defined in the Ministry for the Environment. November 2019. National Planning Standards. Wellington: Ministry for the Environment.

functional need means the need for a proposal or activity to traverse, locate or operate in a particular environment because the activity can only occur in that environment.

operational need means the need for a proposal or activity to traverse, locate or operate in a particular environment because of technical, logistical or operational characteristics or constraints.

In planning practice these terms are often used in the policy and assessment context for the activities listed in 3.9(2)(j).

There is a distinction between the two terms. Functional need means the activity can only occur in that environment while operational need relates to a preference for the activity to occur at a location because of technical, logistical or operational characteristics or constraints.

The terms are often used together in an either/or scenario (such as the NPS-HPL) or individually as in the tests the appropriateness of specified infrastructure, mineral and aggregate extraction activities in the National Policy Statement for Freshwater Management 2020 concerning Natural Inland Wetlands (3.22).

The legal submission for HortNZ sets out the caselaw around these terms and highlights issues with applying these tests in the context of greenhouses. A functional need test appears highly

problematic and potentially prohibitive for these activities. These activities can occur in other environments, but it is not practical to do so.

The applicability of the tests is questionable for greenhouses and intensive indoor primary production, and it is not set out in the RIS or DD what value this might provide on top of the broader policy assessment, including the specific measures in clause 3.9(3) that apply to all use and development on HPL being considered under clause 3.9(2).

Notably these tests do not apply to the range of activities in 3.9(2)(a)-(i) with no difference in effects on HPL to greenhouses and intensive indoor primary production. The RIS and NPS-HPL guidance are clear that greenhouses and intensive indoor primary production have a potential pathway through clause 3.9(2)(a) where supporting activity status to a land-based primary production activity can be proved. These are anticipated appropriate activities on HPL. There is no functional or operational need test for this assessment, just the clarification of supporting activity status which may suit some but not all proposals.

If the functional need test is unable to be clearly passed, operational need is a consideration. There are apparent characteristics of greenhouses and intensive indoor primary production that suggest an operational need. However, the legal submission notes that whether a development or use of land is considered a functional or operational need will require an assessment on the facts of each individual scenario. The opinion and decision making will vary between territorial authorities.

Therefore, while Option 2 provides some direction that new greenhouses and intensive indoor primary production is an appropriate use, the requirement to prove functional or operational need is considered an uncertain and unnecessary burden.

As previously identified, Option 2 is presented as a mechanism to provide a consent pathway for both greenhouses and intensive indoor primary production via clause 3.9(2). It is incorrect to assume these activities, (if provided for in 3.9(2)), or any other activity already included in 3.9(2) should be directed to a consent process. Some may reasonably fall to be permitted activities. This is a determination for future plans by territorial authorities assessing all of the factors.

Special Purpose Zone

At the MfE/MPI public webinar (10 October 2023), MfE staff advised that an option territorial authorities may consider in a future plan change process to give effect to the NPS-HPL, is the use of a Special Purpose Zone for greenhouse and intensive indoor primary production activity.

The inclusion of Special Purpose Zones in a district plan is set out through the National Planning Standards.

Section 4 *District Plan Structure Standard* and Section 5 *Combined Plan Structure Standard*, prescribes the Mandatory Directions which includes the zones to be chosen in the construct of a plan structure and the order that these are to be included.

Special Purpose Zones are to be set out as follows:

- Airport zone
- Corrections zone
- Future urban zone
- Hospital zone
- Māori purpose zone

- Port zone
- Stadium zone
- Tertiary education zone
- **[Additional Special Purpose] zone**

Section 8 Zone *Framework Standard*, Mandatory Directions (3) of the National Planning Standards prescribes that an Additional Special Purpose Zone must only be created when the proposed land use activities or anticipated outcomes of the additional zone meet all of the following criteria:

- a. are significant to the district, region or country*
- b. are impractical to be managed through another zone*
- c. are impractical to be managed through a combination of spatial layer*

The NPS-HPL deems any Special Purpose Zone **urban** in 1.3 Interpretation:

***urban**, as a description of a zone, means any of the following zones:*

- (a) low density residential, general residential, medium density residential, large lot residential, and high density residential:*
- (b) settlement, neighbourhood centre, local centre, town centre, metropolitan centre, and city centre:*
- (c) commercial, large format retail, and mixed use:*
- (d) light industrial, heavy industrial, and general industrial:*
- (e) **any special purpose zone**, other than a Māori Purpose zone:*
- (f) any open space zone, other than a Natural Open Space zone:*
- (g) sport and active recreation*

Pursuant to Policy 5 of the NPS-HPL; *The urban rezoning of highly productive land is **avoided**, except as provided in this National Policy Statement.*

Implementation clause 3.6 sets out the test for urban rezoning of HPL, including the relationship of that decision making to the National Policy Statement on Urban Development 2020, additional tests on development capacity, assessment of other options, and consideration of the loss of HPL for land-based primary production.

The test for the inclusion of a Special Purpose Zoning in a district or combined plan appears problematic where that might be proposed by a territorial authority in a pre-emptive spot, or area zoning for these activities, and prohibitive for an operator to apply for a private plan change to rezone for that activity.

Therefore, the option of a future plan Special Purpose Zone plan change process by a territorial authority to provide for greenhouse activity and intensive indoor primary production on HPL is not a clear pathway through the NPS-HPL.

OPTION 3: SPECIFIC ACTIVITY LISTING IN CLAUSE 3.9

As noted above, the applicability and value of a functional or operational need test for greenhouses and intensive indoor primary production on HPL is questionable. That being the case, an alternative amendment could be new and separate activity listings in 3.9 for greenhouses and intensive indoor primary production as follows:

- 3.9 Protecting highly productive land from inappropriate use and development**
(1)

- (2) *A use or development of highly productive land is inappropriate except where at least one of the following applies to the use or development, and the measures in subclause (3) are applied:*
- (a)
- (k) it is for greenhouses.
- (l) it is for intensive indoor primary production.
- (3)

This will provide clear direction that such activities are an appropriate use. The activities are a comfortable fit within the other non-land-based primary production activities listed in 3.9(2)(a)-(J), repeating again that some greenhouse activity and intensive indoor primary production may fall to be considered under 3.9(2)(a) as a supporting activity or 3.9(2)(g) as a small-scale or temporary such that new 3.9(2)(k)&(l) become logical extensions/exceptions.

The measures in subclause (3) remain a consideration such that any actual loss or potential cumulative loss of HPL is to be minimised or mitigated.

Given that intensive indoor primary production is defined in the National Planning Standards, there is no added interpretation value in repeating the definition in the NPS-HPL.

There is no added interpretation value in including a definition of a greenhouse. Where necessary this could be defined at a plan level or in future national planning standards. These activities are likely to relate to the supply of fresh fruit and vegetables and align with the direction of travel in planning frameworks having regard to the domestic food supply and maintaining food security⁴¹.

The amendment would also address an aspect of uncertainty that exists in the NPS-HPL concerning existing activities (clause 3.11). The proposed clause 3.9(2)(k)&(l) would provide clarity and certainty for these activities to continue and adapt to change.

As guided by the RIS approach, to assess the efficiency and effectiveness of the options the following assessment of proposed Option 3 is provided to supplement the RIS assessment.

How do the options compare to the status quo/counterfactual?

Key: ++ much better than doing nothing/the status quo, + better than doing nothing/the status quo, - worse than doing nothing/the status quo, - - much worse than doing nothing/the status quo, 0 similar to making no change retaining the status quo

	Option 1 – Status Quo	Option 3 - Provide a pathway for both intensive indoor primary production and greenhouses in clause 3.9
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⁴¹ Clause 129 of the Natural and Built Environment Act 2023.

129 National planning framework must provide direction on certain matters

The national planning framework must include content that provides direction on—

(a)...

(g) *enabling supply of fresh fruit and vegetables.*

Consistency with the NPS-HPL.	<p style="text-align: center;">-</p> <p>Does not align with policy intent provided for other non-land-based use and development of HPL.</p>	<p style="text-align: center;">++</p> <p>The NPS-HPL objective is supported by existing policies and implementation clauses that provide for a range of exclusions including urban development and non-land-based primary production activities (with the same effects on HPL).</p> <p>Greenhouses and intensive indoor primary production are able to establish via the 3.9(2)(a)&(g) pathways as appropriate activities with the same effects on HPL.</p> <p>The s32 of the NPS-HPL concluding that these activities would not undermine achieving the objective.</p> <p>The same is true of provisioning <u>new</u> intensive indoor primary production and greenhouses to locate on HPL.</p> <p>The objective of the NPS-HPL to protect highly productive land for use in land-based primary production for current and future generations is achieved. No change to the policies or other implementation measures are required.</p>
Consistency with the wider resource management system	<p style="text-align: center;">-</p> <p>In the context of a balanced consideration of Part 5 and meaning of sustainable management, the purpose of the Act is achieved including the s5 matter of safeguarding the life-supporting capacity of soil. In legacy plan decision making these are often permitted activities in rural zones on HPL on the understanding these activities are not of a scale or character that threaten the resource and are activities that need a rural location to operate.</p> <p>Does not aligned with the provisions in the Natural and Built Environment Act, the National Planning Framework relevant for</p>	<p style="text-align: center;">++</p> <p>In the context of a balanced consideration of Part 5 and meaning of sustainable management, the purpose of the Act is achieved including the s5 matter of safeguarding the life-supporting capacity of soil. In legacy plan decision making these are often permitted activities in rural zones on HPL on the understanding these activities are not of a scale or character that threaten the resource and are activities that need a rural location to operate.</p> <p>Aligns with the provisions in the Natural and Built Environment Act and National Planning Framework relevant for the supply of fresh fruit and vegetables.</p> <p>Aligns with the National Adaptation Plan.</p>

	<p>the supply of fresh fruit and vegetables.</p> <p>Does not align with the National Adaptation Plan.</p>	
Effectiveness	<p>-</p> <p>The absence of a pathway for intensive indoor primary and greenhouses to develop on HPL would remain as would pathways through 3.9(2)(a)&(g) with the same effects on HPL.</p> <p>Does not align. with policy intent provided for other non-land-based use and development of HPL</p>	<p>++</p> <p>Provides a clear pathway for new intensive indoor primary production and greenhouses.</p> <p>Pursuant to cl 3.9(4), territorial authorities are required to include objectives, policies and rules to give effect to the NPS-HPL. The NPS-HPL does not prescribe the status of activities, rules or standards.</p> <p>The measures in subclause (3) remain a consideration such that any actual loss or potential cumulative loss of HPL is to be minimised or mitigated.</p> <p>Aligns with policy intent provided for other non-land-based use and development of HPL.</p>
Implementation	<p>-</p> <p>The implementation and monitoring of the NPS-HPL continues as anticipated in the development of the policy. Significant costs and uncertainty imposed on councils and resource consent applicants due to no specific provision for intensive indoor primary production and greenhouses</p>	<p>++</p> <p>Supports consistent decision making and management by councils, without placing undue costs or uncertainty on central government, councils, tangata whenua, landowners and other stakeholders.</p> <p>The issue is apparent now and it is unreasonable to load the uncertainty and cost on to an applicant or council to establish how national policy should be interpreted.</p>
Cultural, Economic, Environmental and Social wellbeing	<p>-</p> <p>Does not provide flexibility for new operations which could have cultural, economic and environmental impacts through directing these activities to other locations and inability to adapt to change.</p> <p>There are costs associated with the loss of these activities from the</p>	<p>++</p> <p>Recognises the need for intensive indoor primary production and greenhouses to develop on HPL.</p> <p>Removes consenting costs and uncertainty from the established resource management issue.</p>

	primary production system or inability to adapt with social and health impacts on food supply.	<p>Avoids a broad range of effects associated with directing these activities to non-HPL or other environments.</p> <p>Provides resiliency for primary production to respond to mitigate against adverse weather events and adapt to climate change.</p>
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What option is likely to best address the problem, meet the policy objectives, and deliver the highest net benefits?

The RIS Problem Definition is:

“No consent pathway” [emphasis added] is provided for new intensive indoor primary production and greenhouses to develop and relocate on HPL, despite their importance for ensuring a diverse and resilient primary sector.

Option 3 would address the issue and be in line with the pathways in the NPS-HPL that are provided for other non-land-based primary production. Option 3 would:

- Provide a pathway for the establishment of new intensive indoor primary production and greenhouses.
- Provide flexibility for these primary production activities to adapt to climate change and work toward decarbonising the industries.
- Avoid the effects of locating these activities on non-HPL or in other environments.
- Align with the Natural and Built Environment Act 2023 and clause 129 of the National Planning Framework that requires enabling supply of fresh fruit and vegetables as mandatory content.

The RIS sets out the costs and the associated benefits of providing for intensive indoor primary production and greenhouses, which is also applicable in the consideration of Option 3 presented above.

The RIS sets out the overall regulatory burden of Intensive indoor primary production and greenhouses as follows:

There is an overall regulatory burden to consider relating to implementation of any changes to the NPS-HPL to provide for intensive indoor primary production and greenhouses.

- *The addition of another sub-clause to clause 3.9 of the NPS-HPL which councils need to have regard to in their processing of consents, is likely to add more complexity. This is because the range and scope of activities that are provided an exception would now also extend to intensive indoor primary production and greenhouses.*
- *On the flip side, if the amendment to provide for the listed activities are not provided for, there is a potential that primary production industries may try to test other pathways in the NPS-HPL (listed in section 1.3.4 above) – pathways which are not clear or anticipate commercial scale operations. This could place unduly consenting costs on primary industry stakeholders.*

Contrary to the position expressed in Point 1 of the RIS, the addition of another sub-clause to clause 3.9 would add clarity to the regulatory process, not just in resource consent decision making but importantly for future plan change processes to give effect to the NPS-HPL.

The lack of clarity is evident in the RIS and NPS-HPL guidance that describes how there is some scope to consider intensive indoor primary production and greenhouse activity (and upgrade) through clause 3.9(2)(a) and 3.9(2)(g) and 3.11. As noted in Point 2 of the RIS, a new intensive indoor primary production and greenhouse activity would need to prove consistency with those pathways available. The outcome in terms of effects on HPL would be the same whether the activity was standalone or supporting a land-based primary production activity. The reference to *commercial scale operations* in Point 2 is not clarified but assumed to refer to any new intensive indoor primary production and greenhouse activity.

CONCLUSION

The current implementation methodology within the NPS-HPL provides no pathway for new greenhouses and intensive indoor primary production use on HPL, and limited provision for these activities as supporting, small/temporary, existing activities. This approach is inconsistent with other non-land-based primary activities provided for within clause 3.9(2), which have similar environmental effects.

New greenhouses and intensive indoor primary production activities are important for ensuring a diverse and resilient primary sector and there is a practical need for these activities to occur on HPL. Amendments are required to provide clear direction to territorial authorities that these uses are appropriate on HPL subject to the requirements of clause 3.9(3).

The current two options being considered do not provide this direction. The supporting RIS and DD does not comprehensively examine whether the provisions are the most appropriate way to achieve the objective and address Issue 2.

Consequently, an alternative option, of specific recognition of these activities within clause 3.9(2), has been presented that does provides a pathway, gives effect to the NPS-HPL objective, avoids consequential effects, and aligns with the Natural and Built Environment Act 2023 (clause 129) and the National Adaptation Plan.

APPENDIX 1

Interim Regulatory Impact Statement: Potential amendments to the National Policy Statement for Highly Productive Land. Ministry for the Environment and Ministry for Primary Industries. 5 September 2023.	
No Consent Pathway / Absence of a Consent Pathway	
Page 2	<p>Problem Definition</p> <p>Two issues have been identified with the NPS-HPL that warrant consultation:</p> <p>2. No consent pathway is provided for new intensive indoor primary production and greenhouses to develop and relocate on HPL, despite their importance for ensuring a diverse and resilient primary sector.</p>
Page 8	<p>1.1.2 Wider context of what the NPS-HPL is, and the issues raised about the policy</p> <p>Two issues have been identified with the NPS-HPL that warrant further consider and wider public consultation:</p> <p>2. No consent pathway is provided for intensive indoor primary production and greenhouses to develop and relocate on HPL, despite their importance for ensuring a diverse and resilient primary sector.</p>
Page 18	<p>1.3.5 How is the status quo expected to develop for intensive indoor primary production and greenhouses?</p> <p>The absence of a consent pathway to test if intensive indoor primary production and greenhouses have a functional or operational need to locate on HPL (status quo) may result in less investment certainty for both industries.</p> <p>The absence of a consent pathway under the status quo could mean that both sectors have less flexibility to adapt to climate change and continue to meet food requirements by New Zealand's population. It is likely that food producing sectors like intensive indoor primary production and greenhouses may look to increase the use of structures to house animals and crops to ensure some level of security and resilience to adverse weather events.</p>
Page 25	<p>Potential options to provide for intensive indoor primary production and Greenhouses Non regulatory options</p> <p>Under the status quo, there is no consent pathway for some primary production industries to test functional or operational need to locate on HPL, this could make adapting to climate change and decarbonising the industries more challenging.</p>
Page 28	<p>Effectiveness</p> <p>The absence of a consent pathway for intensive indoor primary and greenhouses to develop on HPL would remain.</p>
No Clear Consent Pathway	
Page 4	<p>Issue 2: no clear consent pathway for new intensive indoor primary production and greenhouses</p>

	The second issue is that no clear consent pathway is provided for intensive indoor primary production and greenhouses to develop or relocate on HPL, despite their importance for ensuring a diverse and resilient primary sector.
Page 13	<p>1.3 Policy problem and its context (intensive indoor primary production and greenhouses) 1.3.1 The policy problem</p> <p>There is no clear consent pathway for new intensive indoor primary production and greenhouses to test their functional or operational need to locate on HPL despite their importance for ensuring a diverse and resilient primary sector.</p>

Ministry for the Environment. 2023. <i>Managing the use and development of highly productive land: Potential amendments to the NPS-HPL – Discussion document. Wellington: Ministry for the Environment</i>	
No Clear Consent Pathway	
Page 4	<p>Executive Summary</p> <p>The NPS-HPL came into effect in October 2022. Since then, stakeholders have raised two issues about its restrictions on non-land-based uses and development. These are:</p> <ol style="list-style-type: none"> 1. The lack of a clear consent pathway for construction of new specified infrastructure on HPL in clause 3.9(2)(j)(i). 2. The lack of a clear consent pathway for developing and relocating intensive indoor primary production and greenhouses on HPL.
Page 5	<p>Issue 2: no clear pathway for new intensive indoor primary production and greenhouses</p> <p>This issue was raised by the primary sector. The NPS-HPL lacks a clear consent pathway for intensive indoor primary production and greenhouses to test their functional or operational need to be located on HPL. This type of production contributes to a diverse and resilient primary sector.</p>
Page 8	<p>Implementation of the NPS-HPL</p> <p>Two issues about the implementation of the NPS-HPL have been raised by stakeholders, including councils and the renewable electricity and primary production industries:</p> <ol style="list-style-type: none"> 1. The omission of a clear consent pathway for the construction of new specified Infrastructure in clause 3.9(2)(j)(i). This could limit the ability to provide for necessary new specified infrastructure on HPL. 2. The absence of a clear consent pathway for intensive indoor primary production and greenhouses to develop or relocate on HPL. This may make climate change adaptation more challenging for these industries.
Page 13	<p>Issue 2: Intensive indoor primary production and greenhouses About this issue</p> <p>The development of new intensive indoor primary production and greenhouses on HPL does not have a clear consent pathway, even if there may be functional or operational need to be located on HPL.</p>
Page 15	Consent pathways under the status quo

	<p>Previous feedback from primary sector groups found that in most circumstances, the above options did not provide a clear consent pathway for the development of new intensive indoor primary production and greenhouses on HPL.</p>
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Appendix C: Legal Evidence

Memorandum

Date: 30 October 2023
To: Horticulture New Zealand

1 From: Ben Williams / Rachel Robilliard
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NATIONAL POLICY STATEMENT FOR HIGHLY PRODUCTIVE LAND - KEY LEGAL CONSIDERATIONS FOR CONSULTATION ON POTENTIAL CHANGES

- 1 This memorandum is provided in respect of feedback being sought on potential to the National Policy Statement on Highly Productive Land (*NPS-HPL*).
- 2 Since the NPS-HPL was introduced, two issues have been raised about its restrictions on the use and development of highly productive land (*HPL*) for activities that do not rely on soil.
- 3 There are two issues currently being consulted on in respect of the NPS-HPL. They relate to:
 - 3.1 lack of a clear consent pathway for the construction of new specified infrastructure on highly productive land in clause 3.9(2)(j)(i). Specified infrastructure can include developments such as solar farms and infrastructure needed at pace, for example to support the recovery after Cyclone Gabrielle.
 - 3.2 absence of a clear consent pathway for developing and relocating intensive indoor primary production and greenhouses on highly productive land.
- 4 You have asked us to summarise the key legal considerations relating to the second issue.
- 5 This memorandum addresses:
 - 5.1 clause 3.9 of the NPS-HPL, the direction to 'avoid';
 - 5.2 the consideration of activities that have a 'functional' or 'operational' need to locate on highly productive land; and
 - 5.3 consideration of whether amendments are consistent with the purpose of the Resource Management Act 1991 (*RMA*).



- 6 In our opinion, given the lack of legal certainty regarding how certain concepts under the RMA and NPS-HPL are to be applied, the option proposed for addressing this issue in the consultation document would not provide a clear consent pathway.

Requirement to 'avoid'

- 7 Clause 3.9 of the NPS-HPL requires territorial authorities to “**avoid** the inappropriate use or development of highly productive land that is not land-based primary production”.
- 8 The meaning of the word “avoid” has been considered in relation to other RMA planning documents. In *Environmental Defence Society v New Zealand King Salmon (King Salmon)* the Supreme Court held that the ordinary meaning of the word ‘avoid’ means “not allow” or “prevent the occurrence of”.⁴² Therefore, read literally, clause 3.9 provides that decision makers must not allow inappropriate use or development.
- 9 What adverse effects are to be avoided and what is inappropriate is assessed by reference to what is being achieved. Consequently, what is meant by the word “inappropriate” is heavily affected by context.⁴³ For example, in *King Salmon*, the Court considered a policy that referred to making provision for aquaculture activities “in appropriate places in the coastal environment” to refer to suitability for the needs of aquaculture in a technical sense rather than some broader notion. However, in relation to a different objective that said that the protection of the values of the coastal environment does not preclude use and development “in appropriate places and forms, and within appropriate limits”, the Court considered the context to suggest that what is appropriate “is not concerned simply with technical suitability for the particular activity but with a broader concept that encompasses other considerations, including environmental ones.”⁴⁴
- 10 *Port Otago* provides further guidance on the meaning of “avoidance policies” and clarifies that the effects that are to be avoided must be material. In this case the Court held that:⁴⁵

... the avoidance policies in the NZCPS must be interpreted in light of what is sought to be protected including the relevant values and areas and, when considering any development, whether measures can be put in place to avoid material harm to those values and areas.

- 11 Furthermore, the Court considered that it may be acceptable to allow activities that have minor or transitory adverse effects in outstanding areas and still give effect to policies 13 and 15 of the NZCPS where their avoidance is not necessary (or relevant) to preserve the natural character of the coastal environment, or protect natural features and natural landscapes.
- 12 Although the intention behind of the word “avoid” is clear, it must be considered in the context of what is to be protected. What must be avoided depends on the circumstances of each case and consequently, does not create certainty regarding

⁴² *Environmental Defence Society v New Zealand King Salmon* [2014] NZSC 38, [2014] 1 NZLR 593 at [93].

⁴³ At [100].

⁴⁴ At [100].

⁴⁵ At [68].



whether resource consent applications for a glasshouse, for example, would or would not be granted.

Functional and operational need

- 13 The consultation document proposes that glasshouses would be subject to the same regime as activities currently listed in clause 3.9(j). The activities allowed by clause 3.9(j) are subject to there being a “*functional*” or “*operational*” need for the use or development of HPL.
- 14 The terms “*functional need*” and “*operational need*” are defined in the National Planning Standards:
 - 14.1 “*Functional need*” ... means the need for a proposal or activity to traverse, locate or operate in a particular environment because the activity can only occur in that environment.⁴⁶
 - 14.2 “*Operational need*” ... means the need for a proposal or activity to traverse, locate or operate in a particular environment because of technical, logistical or operational characteristics or constraints.
- 15 The threshold for establishing an operational need is lower than a functional need. However, there must still be a “*need*” rather than a “*want*.”
- 16 Recent examples include the packaging of water into bottles (operational need) associated with water take from an aquifer (functional need).⁴⁷ In this case, the Court found the functional need to be demonstrated, given the assurance of access to the water resource in the area and the requirements for marketing that resource.⁴⁸
- 17 In other recent cases the Environment Court has found there to be an obvious operational need for carparking areas to co-locate with a supermarket development,⁴⁹ and an operational need for a wind turbine to locate on a ridgeline.⁵⁰
- 18 The cases referred to above provide some assistance in determining what might meet the threshold of what is a functional or operational need. However, they do not provide a complete answer to what is a complex legal issue. Whether a development or use of land is considered a functional or operational need will require an assessment on the facts of each individual scenario. Thus, the requirement for there to be a functional or operational need is too uncertain to provide a clear consent pathway for glasshouses.
- 19 The functional and operational need tests may be relevant to the existing activities listed in subclause (j). However, they are not relevant or necessary where the activity is typically associated with HPL and do have the same permanency as other activities contemplated by subclause (j).

⁴⁶ “*Environment*” has the same meaning as in s 2 of the Resource Management Act 1991.

⁴⁷ *Te Runanga o Ngati Awa v Bay of Plenty Regional Council* [2019] NZEnvC 196.

⁴⁸ *Te Runanga o Ngati Awa v Bay of Plenty Regional Council* [2019] NZEnvC 196.

⁴⁹ *Woolworths New Zealand Ltd v Christchurch City Council* [2021] NZEnvC 133.

⁵⁰ *Pickering v Christchurch City Council* [2016] NZEnvC 237.



Consistency with the purpose of the RMA

- 20 The regulatory impact statement prepared for the changes to the NPS-HPL records that Option 2 could lead to outcomes that are inconsistent with the s 5 of the RMA to safeguard the life-supporting capacity of soil. We understand that the merits of this statement will be addressed in the HortNZ submission. It is important to acknowledge, however, that the NPS-HPL should give effect to Part 2 of the RMA, but that there is a nuance that must be applied when considering whether a proposal is consistent with the purpose of the RMA.
- 21 In *King Salmon* the Supreme Court made it very clear that s 5 sets out the overall objective of the RMA and is to be treated as a guiding principle which is intended to be applied by those performing functions under the RMA.⁵¹ In other words, the section not to be treated the primary decision-making provision or as a specifically-worded purpose intended more as an aid to interpretation.
- 22 The language of s 5 is deliberately open and allows for the balancing of conflicting considerations in terms of their relative significance or proportion in the final outcome.⁵² In *North Shore City Council v Auckland Regional Council*, the Tribunal commented on the openness of language in s 5 saying:⁵³

We have considered in the light of those remarks the method to be used in applying section 5 to a case where on some issues a proposal is found to promote one or more of the aspects of sustainable management, and on others is found not to attain, or to attain fully, one or more of the aspects described in paragraphs (a), (b) and (c). To conclude that the latter necessarily overrides the former, with no judgment of scale or proportion, would be to subject section 5(2) to the strict rules and proposal [sic] of statutory construction which are not applicable to the broad description of the statutory purpose. To do so would not allow room for exercise of the kind of judgment by decision-makers (including this Court — formerly the Planning Tribunal) alluded to in the NZ Rail case.

- 23 In relation to the broad application of s 5 it was held in *King Salmon*, that:
- 23.1 Although the RMA's overall objective is sustainable management, provision must still be made for the s 6 matters (including preservation and protection) as part of sustainable management.
- 23.2 The definition of sustainable management should be read as an integrated whole, rather than addressing developmental interests in the first part and intergenerational and environmental interests in the second part. Therefore, the word 'while' is to be read as meaning 'at the same time as'.

⁵¹ *Environmental Defence Soc Inc v The New Zealand King Salmon Co Ltd* [2014] NZSC 38, [2014] 1 NZLR 593.

⁵² *Trio Holdings v Marlborough District Council* W103A/96 (PT), partially reported at (1996) 2 ELRNZ 353, [1997] NZRMA 97.

⁵³ *North Shore City Council v Auckland Regional Council* (1996) 2 ELRNZ 305 (EnvC) at 345–347, cited in *Environmental Defence Soc Inc v The New Zealand King Salmon Co Ltd* at [41].



- 23.3 Avoidance policies can fall within the concept of sustainable management and is a response legitimately available to those performing functions under the RMA.
- 24 This broad and reasoned application of s 5 also applies when considering the appropriateness of an NPS.
- 25 Recently, in *Muaūpoko Tribal Authority Inc v Minister for Environment*, the High Court considered the decision to exempt vegetable-growing regions from the requirement to adopt national “bottom lines” related to water quality in the National Policy Statement for Freshwater Management 2020.⁵⁴ In this case, the applicants claimed that the decision was contrary to the s 5 purpose to “*promote the sustainable management of natural and physical resources*”. The applicants had argued that s 5(2)(a) to (c) in the definition of “*sustainable management*” contained environmental “*bottom lines*” and that the vegetable exemption contravened these.
- 26 Overall, the Court found that the exemption policy was not contrary to any of the provisions in pt 2 of the Act. The Court did not accept that s 5 itself contained environmental bottom lines.⁵⁵ Such interpretation would be at odds with the emphasis with the Supreme Court’s emphasis on the “*broadly framed*” and “*general and flexible*” language of the section which stated a guiding principle for those performing functions under the Act.⁵⁶ Rather than incorporating bottom lines, the Court held that Supreme Court’s proposition in *King Salmon* was that s 5(2) may allow for the statement of environmental bottom lines in planning documents such as National Planning Standards.⁵⁷
- 27 In the context of the regulatory impact statement considering changes to the NPS-HPL, it is therefore necessary and appropriate to take a broad and reasoned approach to s 5.

Ben Williams / Rachel Robilliard

Partner / Senior Solicitor

⁵⁴ *Muaūpoko Tribal Authority Inc v Minister for Environment* [2022] NZHC 883, [2022] NZRMA 481.

⁵⁵ The Court also considered this to be consistent with the recent decision in *Trans-Tasman Resources Ltd v Taranaki-Whanganui Conservation Board* [2021] NZSC 127.

⁵⁶ *Muaūpoko Tribal Authority Inc v Minister for Environment* [2022] NZHC 883, [2022] NZRMA 481 at [138].

⁵⁷ At [138]. This interpretation is consistent with statements made by Glazebrook J about s 5 and *King Salmon* in another recent Supreme Court case, *Trans-Tasman Resources Ltd v Taranaki-Whanganui Conservation Board* [2020] NZSC 67.

Appendix D: General Mapping Study

METHODOLOGY

Of the 445 addresses of greenhouses in the database⁵⁸, 326 locations were used based on the criteria below:

- Remove addresses with PO Boxes/Private Bags (not representative of a covered crop site);
- Remove addresses that are clearly a residential house in the middle of a city i.e. a postal address as opposed to a site address; and
- Remove records that are clearly doubled up.

The analysis picks up a point location per address which is not always situated on the covered crop itself. To make this more precise:

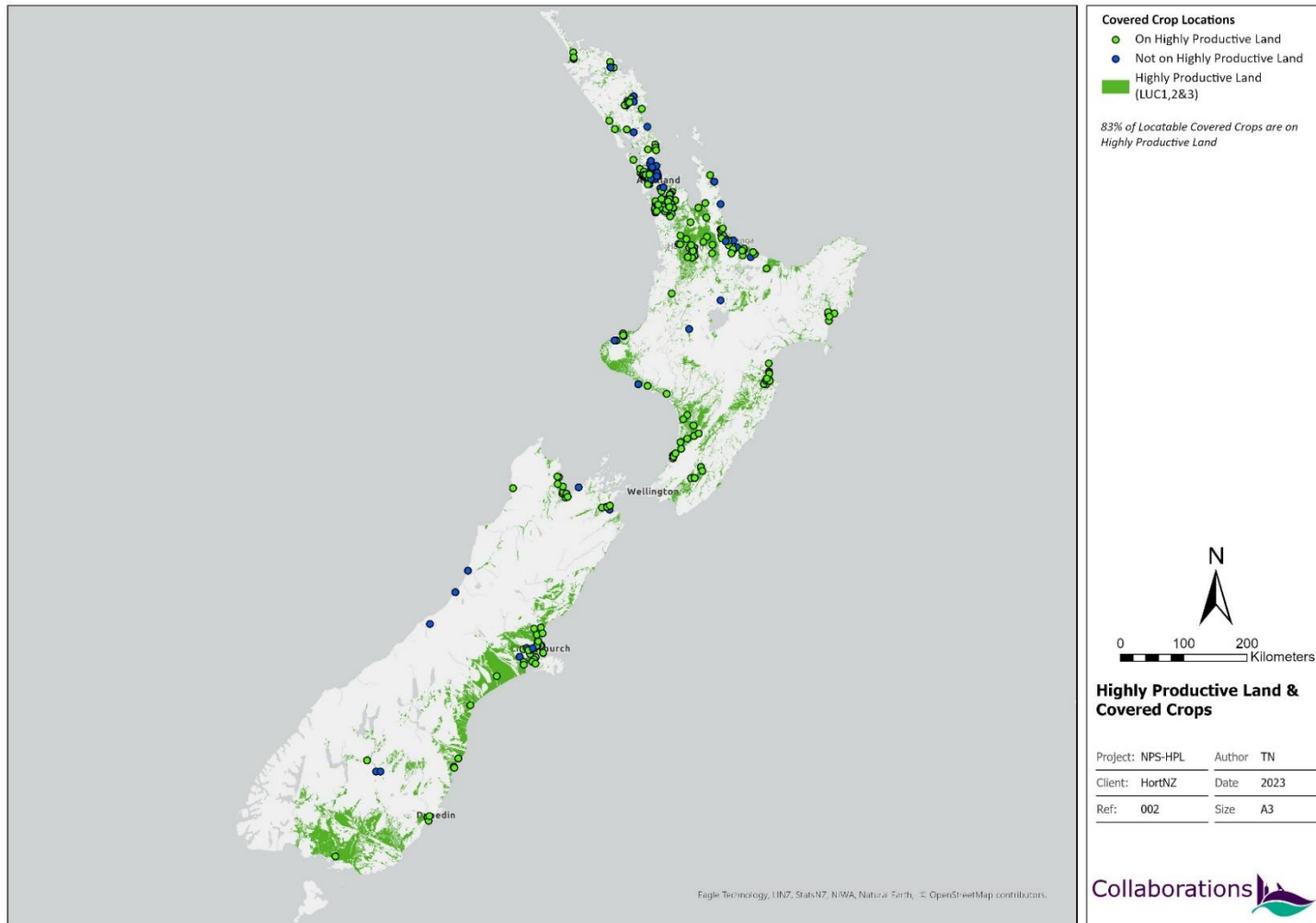
- Intersect the points with the underlying property title to pick up the whole site; and
- In the odd case where the address point didn't intersect a title (e.g., road carriageway) buffer the point by 50m to pick up more of the actual site.

RESULTS

Of the 326 locatable covered crops, 271 are on HPL (83%). See map on the following page.

⁵⁸ Vegetables NZ, Inc.

Figure 4: Greenhouses on highly productive land



Appendix E: Geothermal Mapping Study

Figure 5: Highly productive land in project area

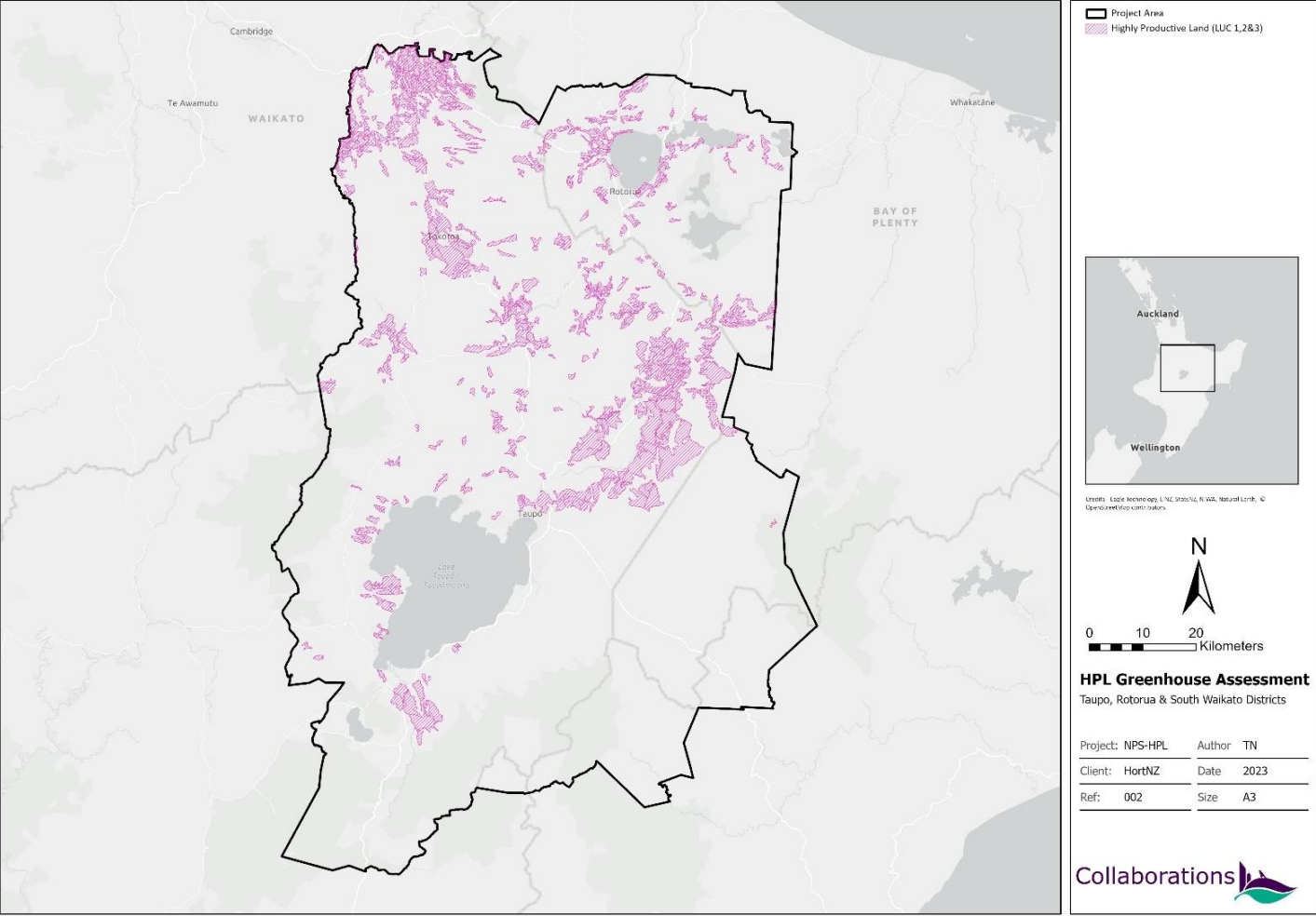


Figure 6: Highly productive land suitable for greenhouses in project area

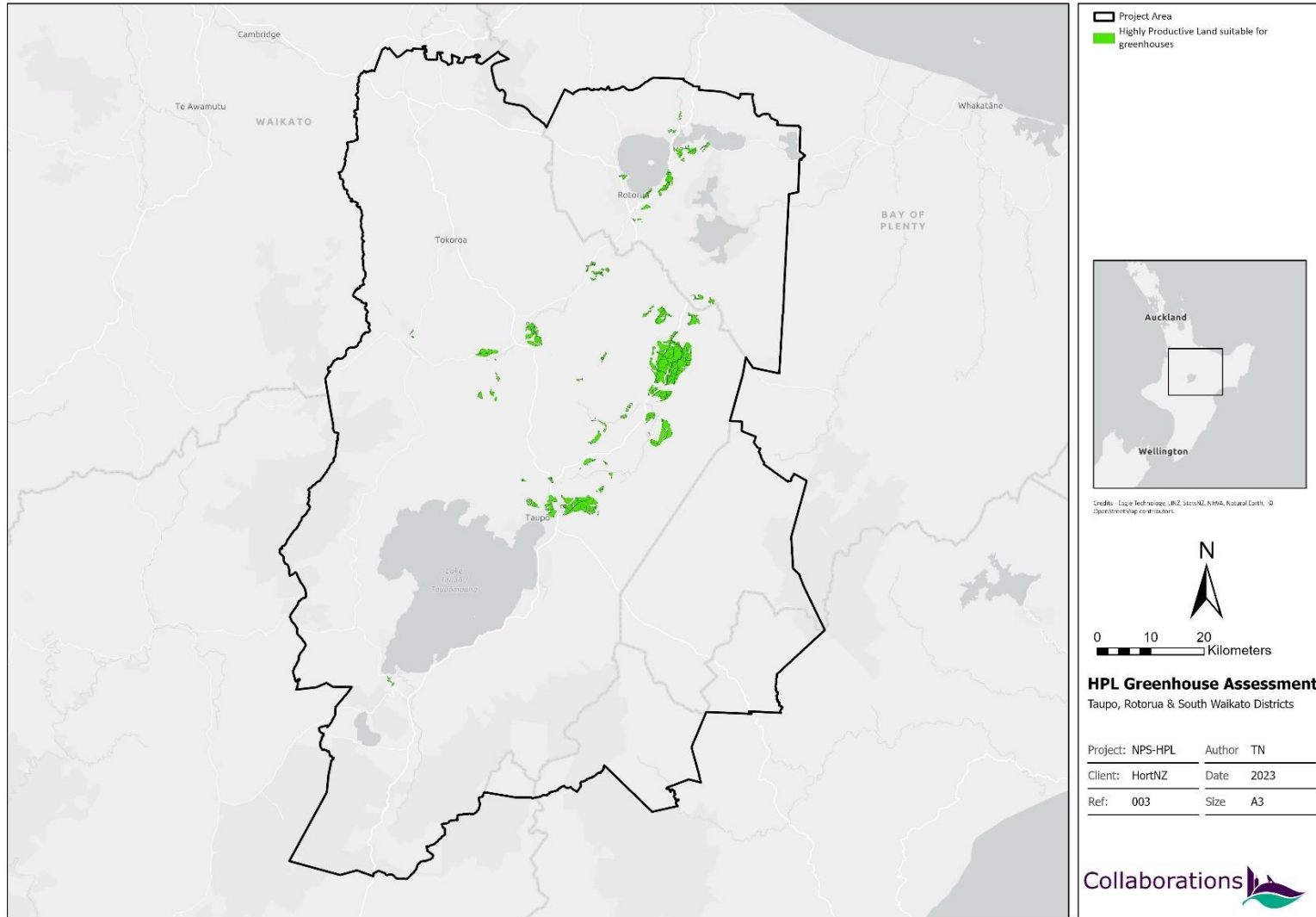


Figure 7: Non-highly productive land suitable for greenhouses in project area

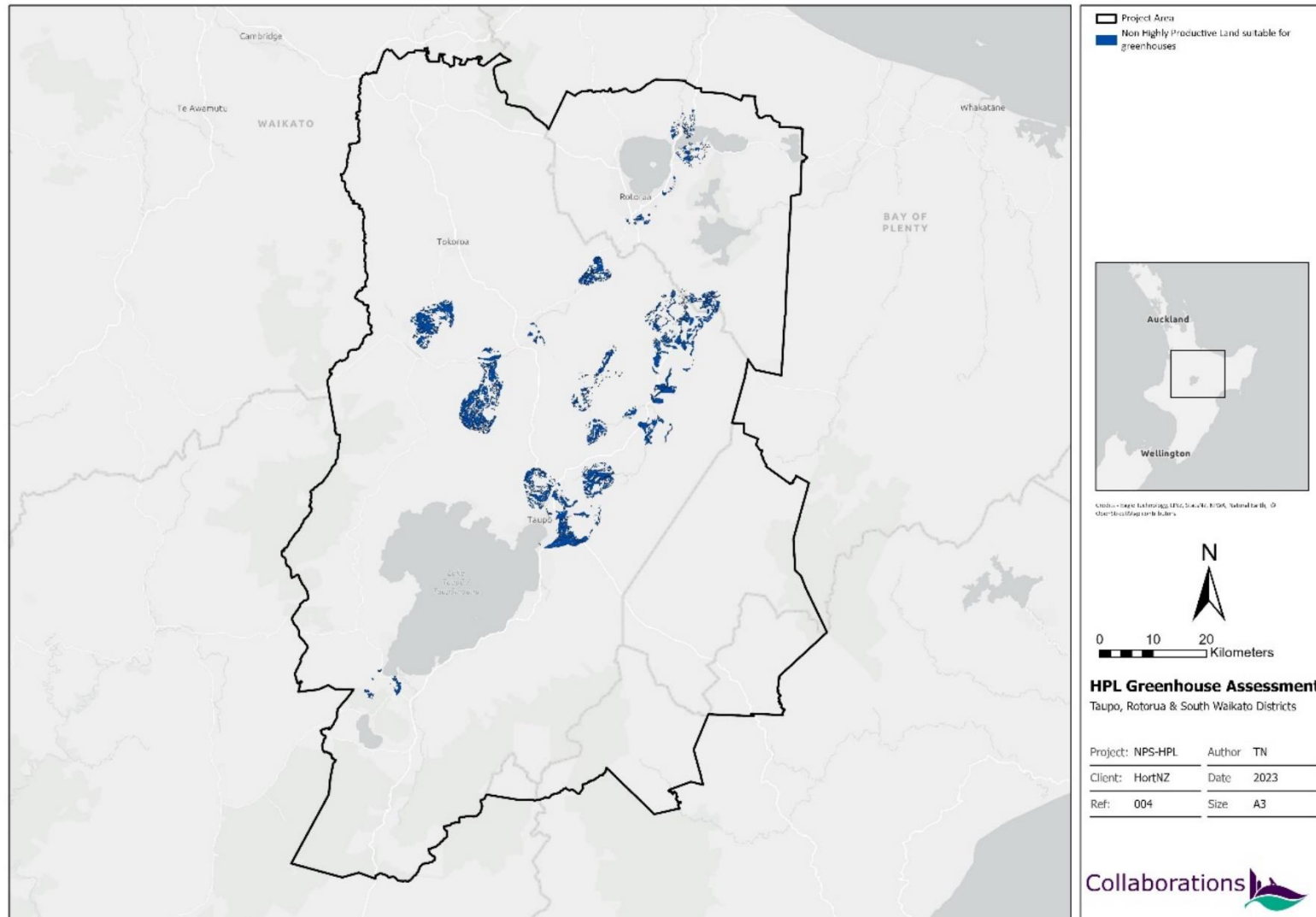
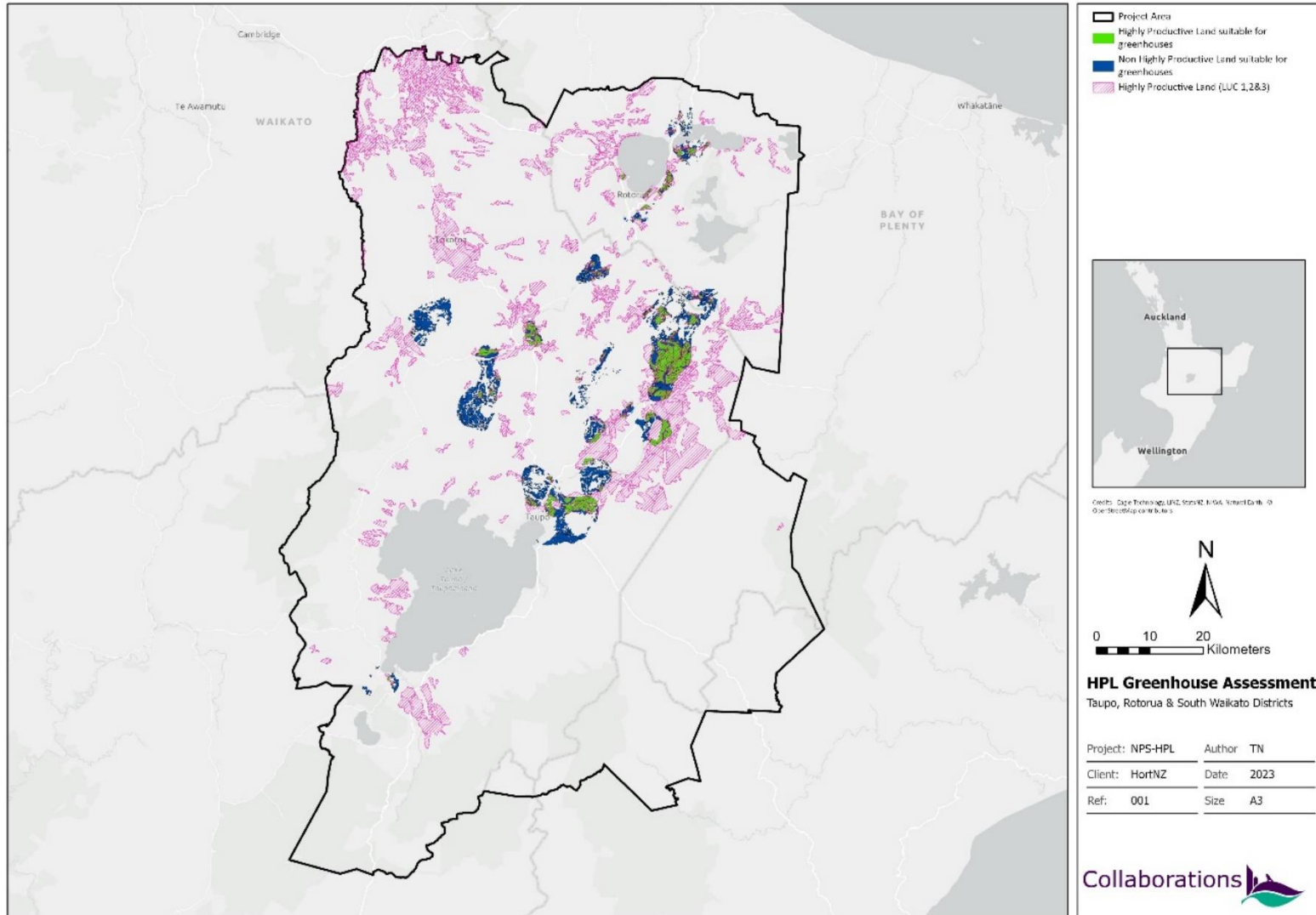


Figure 8: Highly productive land and area suitable for greenhouses in project area



Subject: NPS-HPL Greenhouse Site Assessment

Attention: Horticulture NZ – Emily Levenson

From: Tom Nation

Date 13/10/2023

1 Introduction

1.1 Objectives

Horticulture New Zealand (HortNZ) have engaged Collaborations to undertake a spatial assessment looking at suitable land for large greenhouse operations and what proportion of this land is ‘Highly Productive Land’ (HPL). Part of the Taupo and Bay of Plenty regions (Figure 1) was assigned as the study area. This is largely due to the accessibility of geothermal GIS data (considered a key future factor for siting greenhouses). Section 1.2 outlines the criteria HortNZ thinks a grower would use when picking a location for a *new* greenhouse operation.

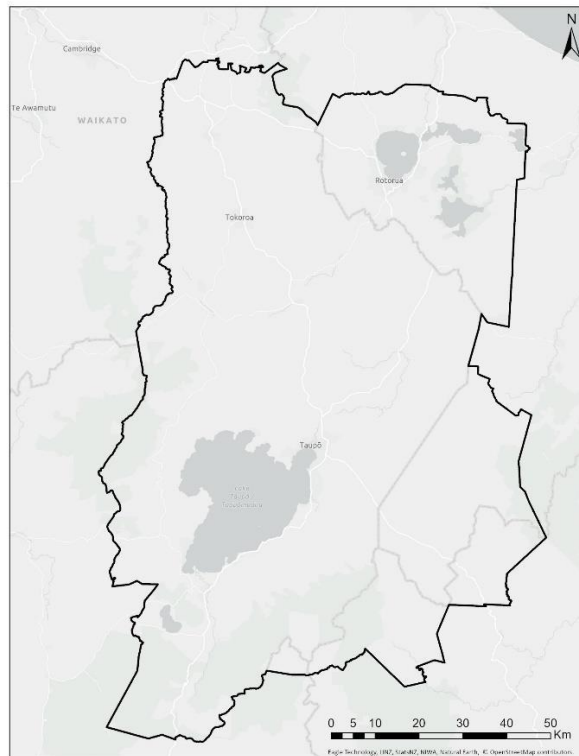


Figure 1 - Assessment Area

1.2 Scope of Works

Carry out a GIS assessment to identify suitable land for greenhouse development using the following criteria:

- Access to geothermal heat.
- Flat land (5-degree slope and under).
- Within 2.5 hours by road from a supermarket distribution centre.
- Within 30 minutes by road from a population centre for workers' commute (Tokoroa, Rotorua, Whakatāne, Taupo, Turangi, Tauranga, Kawerau).
- Representative site to be approximately 1ha.
- Land parcel is big enough or has neighbours with enough pasture to dispose of effluent waste (10 ha grass to 1 ha glass)
- Zoned rural or rural production.
- Land has to be developable i.e., not DoC Conservation Land etc.

Once identified, the suitable land should be intersected with HPL and non HPL. For this assessment, HPL is Land Use Capability classes 1, 2 and 3.

2 Methodology

1. Created project boundary based on where the key constraint (geothermal heat) in the intersecting Territorial Authorities.
2. Intersected the constraints outlined in 1.2 to identify suitable land.
3. Summarised proportion of this land on HPL (LUC 1,2,3) vs not HPL (LUC 4+).

3 Data Sources

1. Rural Zoned Land – Accessed for Taupo, South Waikato & Rotorua Lakes from the Waikato Open Data Portal - <https://data-waikato.class.opendata.arcgis.com/>
2. Geothermal Field – Accessed from the GNS WFS data service - <https://data.gns.cri.nz/webmaps/gns/ggw/wms>
3. DOC land – Accessed from ArcGIS Online - <https://arcgis.com/home/item.html?id=72354ba9bf7a4706af3fdfe60f86eea1>
4. Wetlands – Accessed from the Freshwater Ecosystems New Zealand (FENZ) dataset - <https://www.doc.govt.nz/our-work/freshwater-ecosystems-of-new-zealand/>
5. Developable Land – Accessed from the Landcare Research (LCDB v5) dataset - <https://iris.scinfo.org.nz/layer/104400-lcdb-v50-land-cover-database-version-50-mainland-newzealand/>
6. Flat Land – Slope of 5 degrees and under considered flat. Slope data generated from 8m National DEM 2012 - <https://data.linz.govt.nz/layer/51768-nz-8m-digital-elevation-model-2012/>
7. Travel Time -
 - a. Settlement Data adapted from LCDB v5 (see 5 above)
 - b. Supermarket Distribution centres from:
 - i. Foodstuffs - <https://www.foodstuffs-exchange.co.nz/processes-andguides/wholesale-distribution-and-procurement/>
 - ii. Woolworths - <https://partnerhub.woolworthsgroup.com.au/s/article/NationalLogistics-DC-Contact-List>

4 Summary

- Approximately 97,500ha (**9%**) of the project area shown in Figure 1 is made up of Highly Productive Land
- Approximately 32,000ha (**3%**) of the project area shown in Figure 1 is suitable for locating a greenhouse of a representative size (1ha)
- Of the 32,000ha of suitable land, approximately 11,500ha (**36%**) is highly productive.

Table 1 - Project Area LUC Statistics

Total Project Area			
LUC Class	Area (ha)	Percent of Area	Summary
1	2,149.1	0%	9%
2	6,342.7	1%	
3	88,925.4	8%	
4	263,309.9	25%	91%
5	90.6	0%	
6	379,144.7	36%	
7	188,864.5	18%	
8	118,153.3	11%	

Table 2 - Greenhouse Suitable Land LUC Statistics

Greenhouse Suitable Land			
LUC Class	Area (ha)	Percent of Area	Summary
2	201.6	1%	36%
3	11,443.3	36%	
4	7,909.2	25%	64%
6	10,167.7	32%	
7	1,787.8	6%	
8	535.5	2%	

Appendix F: Connections to the Aotearoa Horticulture Action Plan (AHAP)⁵⁹

AHAP Key Priority	Outcome	Connection to greenhouses on HPL
1.6: Optimise Land-Use Adaptation	“Settings allow the right crops to be grown in the right places to maximise profitability, environmental care, food security and climate adaptation and mitigation.”	Greenhouses are a form of climate adaptation, protecting part of our food supply from adverse weather events. A consenting pathway for greenhouses in the NPS-HPL will help achieve enabling the right crop in the right place.
2.2: Build the Domestic Market	“New Zealanders have a food-secure future and Aotearoa New Zealand is treated as a key market by growers.”	Greenhouses primarily supply vegetables for the domestic market including tomatoes, courgettes, capsicum, etc. They contribute to domestic food security.
2.3: Optimise Production and Value Chain Innovation	“Tier 2 crops meet requirements to successfully compete in the market, reducing product loss and improving quality for better consumer outcomes.”	Indoor growing systems reduce crop loss and crop damage from weather events.
2.4: Breed Cultivars that Meet Future Growing Needs	“New Zealand’s existing cultivars grown in new production platforms are meeting global demand.”	Greenhouses can fit into peri-urban farming production platforms.

⁵⁹ Horticulture NZ. “Growing Together 2035: Aotearoa Horticulture Action Plan – Strategy”. February 2023. Accessed online <https://www.mpi.govt.nz/dmsdocument/55309/>.

Appendix G: Alignment with the National Adaptation Plan⁶⁰

Adaptation goals	Connection to greenhouses on HPL
"reduce vulnerability to the impacts of climate change"	Greenhouses reduce our food system vulnerability to intensifying adverse weather events which can wipe out outdoor food crops. Crops grown in greenhouses are primarily sold in the domestic market to feed New Zealanders.
"strengthen resilience"	Greenhouses build resilience into our food system by providing a redundant supply of food to outdoor crops.
Principles for adaptation action	Connection to greenhouses on HPL
1. Be proactive	The NPS-HPL has only been operative since 2022 and the greenhouse industry is small, so not many consenting challenges based on the NPS-HPL have already occurred. Foreseeing the problem and making a change to assist the greenhouse sector is proactive planning.
3. Maximise co-benefits	This policy will have co-benefits for climate adaptation, climate mitigation, water quality and domestic food supply, as outlined throughout this submission.
4. Promote equity	Pathways for greenhouses will allow another form of growing for growers who have slim margins and are extremely vulnerable to weather events. The National Adaptation Plan recognises primary producers as especially vulnerable to the impacts of climate change.
5. Collaborate	This policy is a partnership between industry and government.

⁶⁰ Ministry for the Environment. *National Adaptation Plan*. August 2022. Accessed online [Aotearoa New Zealand's first national adaptation plan | Ministry for the Environment](#).

6. Adjust as we go	Amending this policy to further adaptation goals is part of a responsive policy process.
7. Mainstream adaptation	Amending this policy to allow for greenhouses and intensive indoor primary production is an act of incorporating climate resilience into the NPS-HPL.
Priorities	Connection to greenhouses on HPL
Priority 4: Embedding climate resilience in all government strategies and policies	Providing a clear pathway for greenhouses and intensive indoor primary production on HPL will embed food system resilience to climate change into the NPS-HPL.
Objectives	Connection to greenhouses on HPL
C1 Enable communities to adapt	Greenhouses are a form of climate adaptation. They often supply their local communities with fresh, healthy food. Community members are the ones establishing, running, and working at these businesses.
EF1 Sectors, businesses and regional economies can adapt. Participants can identify risks and take action	Breaking down planning hurdles to building greenhouses will reduce the barriers to adaptation and innovation in the horticulture sector. It also enables the primary production sector, which is recognised as vulnerable to significant change, to take action now to reduce costs from weather events over time.
Actions	Connection to greenhouses on HPL
Action 10.19 Enhance industry partnership networks	Changing this policy shows responsiveness to solving sector problems. It recognises the complexity and interrelatedness of climate adaptation, innovation and food systems.