



Appendix AA

Climate Change & Sustainability Memorandum

5 February 2026

Sustainability and Climate Change Technical Memorandum

Wairakei South Development – Fast-track Approvals Act Application

1. Introduction & Summary

The Wairakei South Development (the Development) presents a rare opportunity to deliver a large-scale, climate-responsive urban community that meaningfully improves environmental outcomes while addressing critical housing and employment land shortages in the Western Bay of Plenty sub-region. Through its scale, integrated design approach, and reliance on robust technical assessments, the development is positioned to deliver substantial climate adaptation, mitigation, and wider sustainability benefits through design, construction and post-development operation over the long term.

A defining feature of the Development is the creation of an extensive, integrated wetland system for stormwater management and flood mitigation. These wetlands are designed to provide significant water storage capacity during extreme rainfall events, reduce downstream flood risk, and improve water quality through natural treatment processes. In addition to their hydraulic and water quality functions, the wetlands will deliver substantial ecological enhancement, recreational amenity, and cultural values, and are anticipated to become one of the largest constructed wetland networks in the Bay of Plenty region. This approach represents a shift away from traditional engineered stormwater solutions toward nature-based infrastructure that supports climate resilience and long-term environmental outcomes.

The Development delivers meaningful climate change mitigation benefits through the managed transition of the existing operation away from intensive agricultural use on peat soils. Technical assessments confirm that continued farming on drained peat soils results in ongoing subsidence and greenhouse gas emissions. The Development enables the peat layer to be capped and managed appropriately, with associated ground gas controls, effectively arresting further peat oxidation and avoiding ongoing emissions that would otherwise continue under current land uses. This represents a significant long-term reduction in greenhouse gas emissions relative to the baseline scenario and aligns with national climate change mitigation objectives.

Climate change adaptation is further embedded through comprehensive flood risk management and landform design, informed by detailed flood modelling and integrated with the wetland system.

The Development is designed to accommodate extreme rainfall events, protect people and property, and maintain critical infrastructure functionality under future climate scenarios. This proactive approach reduces long-term exposure to climate-related hazards and enhances the resilience of both the Site and the surrounding catchment.

Sustainability outcomes are supported by robust construction management practices. Construction activities will be governed by site-specific Construction Environmental Management Plans, including Waste Management Plans that prioritise waste minimisation, reuse, and recycling. These measures reduce construction-related environmental effects, minimise landfill disposal, and support more efficient use of materials and resources throughout the development lifecycle.

Looking forward, the masterplanned nature of Wairakei South creates clear opportunities to further enhance climate and sustainability performance over time. These could include the provision for rooftop solar generation, neighbourhood-scale battery storage, and other distributed energy solutions to support decarbonisation, energy resilience, and reduced operational emissions for homes and businesses. The integrated urban design approach supports efficient land use, reduced travel demand, and strong connections to existing transport and employment networks.

The integrated urban and landscape design approach also plays a critical climate adaptation role, particularly through mitigating potential urban heat island effects. Extensive use of green infrastructure including street trees, open space networks, wetlands, and vegetated corridors will provide shading, evapotranspiration cooling, and improved microclimates across the development. These landscape-led measures reduce ambient temperatures, improve thermal comfort for residents, and lessen heat-related health risks as temperatures increase under future climate scenarios. Collectively, the design supports efficient land use, reduced travel demand, strong connections to existing transport and employment networks, and a more liveable, climate-resilient urban environment.

2. Purpose of this Memorandum

This memorandum has been prepared to support the Fast-track Approvals Act 2024 (FTAA) substantive application for the Wairakei South Development. Its purpose is to identify, assess, and summarise key sustainability and climate change considerations, including climate change adaptation and mitigation, resource efficiency, circular economy principles, environmental, social, cultural, and economic outcomes, and alignment with relevant statutory and policy frameworks.

This memo draws on a full suite of technical assessments and expert inputs prepared for the Wairakei South Development, including geotechnical, flooding and stormwater modelling, peat and ground gas management, construction management, landscape and urban design, transport

network impacts, construction, stormwater and ecological management, and cultural values assessments.

The memo incorporates Nyawi Sustainability Consulting's independent sustainability and climate change assessment, which integrates and synthesises these specialist inputs to provide a robust, coherent evaluation of environmental effects, mitigation measures, and long-term resilience in support of the FTAA application.

3. Project Overview and Strategic Context

The Wairakei South Development is a transformative, privately funded urban development project encompassing approximately 350 hectares within the high-growth Eastern Corridor between urban growth areas of Pāpāmoa, Te Tumu, and Te Puke.

The development is planning to deliver approximately 2,750 new homes, 54 hectares of employment land, commercial centres and a primary school over a 20-year period, forming a vibrant, integrated, and connected mixed land use project.

The Development responds directly to sustained population growth pressures in Tauranga City and the Western Bay of Plenty District, with the sub-region projected to grow to between 246,100 and 317,500 people over the next 30 years. In this context, Wairakei South represents a critical near-term response to the National Policy Statement on Urban Development (NPS-UD) requirement to provide sufficient development capacity, including a minimum 10-year housing supply.

Strategically located adjacent to the Tauranga Eastern Link, SH2 (TEL), the site benefits from strong regional connectivity to Tauranga, Mount Maunganui, Te Puke, the Port of Tauranga, and major employment hubs including the Rangiora Business Park, supporting a balanced live-work-play urban form.

4. Statutory and Policy Framework

4.1. Fast-track Approvals Act 2024

The Development is being advanced through the Fast-track Approvals Act 2024 (FTAA) process as a project of regional and national significance. This memorandum has been prepared to support the substantive application and to assist the Expert Panel in understanding the sustainability and climate change implications, outcomes, and mitigation measures associated with the Development.

Under the FTAA, substantive applications are required to provide sufficient information to enable the Expert Panel and relevant agencies to understand the nature of the proposed activity, the actual and potential effects on the environment, and the measures proposed to avoid, remedy, or mitigate

adverse effects. In this context, this memorandum synthesises the findings of the relevant technical assessments relating to climate change adaptation and mitigation, flood management, peat and ground gas management, wetlands, resource use, construction management, urban design, ecological enhancement, and broader sustainability outcomes.

The memorandum also supports consideration of the FTAA purpose, including facilitating the delivery of infrastructure and development projects with significant regional or national benefits, while ensuring that environmental effects are appropriately identified and managed. The Development responds directly to strategic growth pressures within the Western Bay of Plenty sub-region and incorporates a range of integrated sustainability and resilience measures intended to support long-term environmental, social, cultural, and economic wellbeing.

The assessment framework adopted throughout this memorandum is therefore intended to:

- identify actual and potential climate change and sustainability effects;
- outline mitigation and management measures proposed as part of the Development;
- demonstrate alignment with relevant statutory and policy frameworks; and
- support the Expert Panel's consideration of whether the Development promotes sustainable management outcomes in the context of the FTAA process.

4.2. Resource Management Act 1991

The sustainability and climate change considerations for Wairakei South are closely aligned with the purpose of the Resource Management Act 1991 (RMA), particularly section 5, which seeks to promote the sustainable management of natural and physical resources. This includes enabling people and communities to provide for their social, economic, and cultural wellbeing while:

- Sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations;
- Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
- Avoiding, remedying, or mitigating adverse effects of activities on the environment.

Climate change adaptation and mitigation measures outlined in this memorandum are directly relevant to achieving these outcomes.

4.3. Climate Change and Sustainability Legislation and Policy

Relevant legislation and policy considerations include, but are not limited to:

- Climate Change Response Act 2002, including national emissions reduction targets and adaptation planning;

- National Policy Statement for Freshwater Management (NPS-FM), particularly in relation to wetland restoration, water quality, and floodplain management;
- National Policy Statement on Urban Development (NPS-UD), including well-functioning urban environments and climate-responsive urban form;
- Regional Policy Statement for the Bay of Plenty and the Regional Natural Resources Plan, including provisions relating to climate change, land use, water quality, and natural hazard risk;
- Relevant district plan provisions and future development strategy documents.

This memorandum is intended to complement and support compliance with these instruments within the FTAA process.

5. Climate Change Adaptation

5.1. Flood Risk and Extreme Rainfall

The Wairakei South site in its current state is known to be flood-prone, with climate change projected to increase the frequency and intensity of extreme rainfall events. Adaptation planning therefore prioritises flood-compatible land use and design, rather than reliance on exclusionary flood protection measures.

The flood modelling undertaken for the project (Maven, 2026) involved the development of hydrological and hydraulic models to assess flood risks under both pre-development and post-development scenarios for 5, 10, 50, 100, and 500-year ARI storm events, incorporating a current climate condition and 3.68°C climate change with 1.59m sea level adjustment in line with regional standards.

All newly developed areas have been designed to maintain freeboard above the expected water surface elevations for extreme events, including the 100-year, 2130 scenario with a 3.68 °C temperature increase and a sea level rise of 1.59 m. This ensures that habitable dwellings, farm buildings, and other critical assets are adequately protected from flooding, while stormwater is directed safely to designated storage and pasture areas.

Flood modelling results showing improved site and upstream flood levels are demonstrated in the Flood Modelling Report (Maven, 2026).

Key adaptation measures include:

- Extensive stormwater detention and attenuation systems;
- Designated overland flow paths;
- Flood-resilient infrastructure layouts;

- System resilience checks in flood modelling for pump stations to include the aforementioned climate change scenario; and
- Integration of floodplain-compatible open space and wetland areas.

These measures are intended to safely manage floodwaters, reduce downstream flood risk, and protect people, property, and infrastructure.

5.2. Urban Heat Island Effects

The scale of development creates potential for urban heat island effects, particularly during prolonged heat events. This risk is being addressed through:

- Large-scale green and blue infrastructure networks;
- Extensive wetlands and open space areas;
- Street tree planting and landscape shading;
- Water-sensitive urban design principles.

Detailed landscaping requirements, including requirements for landscape design for individual lots, are provided in the project Residential, Commercial and Industrial Design Guides (Boffa Miskell, 2026). These guides require urban planting and trees – which will mitigate urban heat impacts – throughout the proposed development

These measures are expected to improve microclimate conditions, reduce heat stress, and support public health outcomes.

6. Climate Change Mitigation

6.1. Peat Soils, Carbon Storage, and Ground Gas Management

A significant portion of the Wairakei South site is underlain by peat soils, which are recognised as major carbon stores. Drainage and intensive agricultural use of peat soils are known to contribute materially to greenhouse gas emissions through oxidation and subsidence.

Agricultural assessments confirm that:

- Drained peatlands contribute up to 8% of New Zealand's net greenhouse gas emissions;
- Subsidence rates of approximately 20 mm per year far exceed peat regrowth rates;
- Intensive farming and cultivation accelerate peat decomposition.

The proposed development includes a comprehensive approach to peat management, focusing on:

- Minimising disturbance of peat soils;
- Capping peat layers where appropriate;

- Managing groundwater levels to reduce oxidation;
- Implementing ground gas management systems.

These measures are expected to significantly reduce emissions relative to ongoing agricultural use.

6.2. Lower-Carbon Buildings and Infrastructure

The development provides opportunities to reduce both embodied and operational carbon through:

- Efficient infrastructure design;
- Material selection and construction methods;
- Compact and connected urban form; and
- Multi-modal forms of transport, including public transport.

These measures would further support emissions reduction and effective community outcomes.

6.3. Future Energy Opportunities

Additional mitigation opportunities not currently mandated but under consideration include:

- Rooftop solar opportunities or incentives for residential development;
- Provision of land and network capacity for a future neighbourhood-scale battery;
- EV-ready infrastructure across residential and employment areas.

These measures would further support emissions reduction and grid resilience.

7. Wetlands and Nature-Based Solutions

The Development proposes extensive wetland systems for stormwater and flood management. These wetlands are expected to be among the largest in the Bay of Plenty region and will deliver:

- Floodwater storage and attenuation;
- Water quality treatment;
- Ecological restoration and habitat creation;
- Recreational and amenity benefits;
- Long-term climate resilience through nature-based solutions.

The proposed 134 ha of planted stormwater conveyance and constructed wetlands are estimated to provide carbon sequestration in the order of 470–1,000 tCO₂-e per year, with a central estimate of approximately 700 tCO₂-e per year. This excludes any separate avoided emissions benefit from stopping continued peat oxidation and will be refined once wetland typologies, planting design, peat extent, open-water areas, and hydrological conditions are confirmed.

8. Agricultural Transition Outcomes

Independent agricultural assessment undertaken by AgFirst confirms that the existing agricultural use of the Wairakei South site is significantly constrained by soil, drainage, and land capability limitations. A large proportion of the site is underlain by poorly drained soils, including extensive areas of peat, which severely restrict productive efficiency and result in elevated environmental risks under both dairy and arable farming systems.

8.1. Environmental Outcomes

AgFirst's assessment concludes that the transition away from dairy and arable farming will deliver clear and measurable environmental benefits, particularly in relation to water quality, greenhouse gas emissions, and soil integrity.

Under existing dairy operations, nitrogen losses to shallow groundwater are elevated due to urine patch leaching, effluent application, and fertiliser use. These risks are exacerbated by the site's poor drainage characteristics, which increase the likelihood of surface runoff during wet periods and the transfer of nutrients and sediment to adjacent waterways. Pugging damage on wet soils further contributes to sediment mobilisation and degradation of soil structure.

Similarly, arable cropping systems on these soils present high environmental risks. AgFirst notes that arable systems typically have very high nitrogen fertiliser requirements, with leaching rates often exceeding 100 kgN/ha. Cultivation practices also generate significant nitrogen mineralisation spikes and increase sediment and phosphorus runoff, particularly where soils are left fallow between crops.

At Wairakei South, maize cropping associated with pasture renewal has historically resulted in periods of exposed soil, further increasing nutrient loss pathways.

The proposed cessation of dairy and arable farming will therefore:

- Reduce nitrogen and sediment losses to both surface water and groundwater systems;
- Eliminate pugging-related soil degradation and runoff risks;
- Reduce nutrient loading during wet periods;
- Improve overall water quality outcomes at a catchment scale.

8.2. Peat Soils and Greenhouse Gas Emissions

A particularly significant environmental benefit identified by AgFirst relates to the management of peat soils. Drawing on research from Manaaki Whenua – Landcare Research, AgFirst highlights that drained peatlands are major sources of carbon emissions, contributing up to 8% of New Zealand's net greenhouse gas emissions. Drainage for agriculture lowers water tables, accelerates peat

oxidation, and leads to long-term subsidence and CO₂ emissions, with subsidence rates far exceeding natural peat regeneration.

At Wairakei South, ongoing agricultural use, and particularly cultivation, has the potential to accelerate peat decomposition and carbon loss. The proposed urban development enables a fundamentally different management approach. Through capping of peat layers, reduced soil disturbance, controlled drainage, and re-establishment of wetland systems, the development will significantly limit further peat oxidation and associated greenhouse gas emissions.

The Ministry for the Environment technical note on peatland restoration estimates that stopping CO₂ and N₂O emissions from drained peatlands avoids about 21.4 tCO₂-e/ha/yr. The proposed development enables the capping and management of peat layers and associated ground gas, substantially reducing emissions that would otherwise continue under dairy and arable farming. This represents a material long-term reduction in baseline emissions.

In this context, the Development represents a climate mitigation opportunity, avoiding long-term emissions that would otherwise continue under agricultural use and aligning with national objectives to reduce land-based greenhouse gas emissions.

8.3. Social, Cultural, and Economic Outcomes

From a social and economic perspective, AgFirst confirms that current land-based primary production supports limited employment and is not economically viable in the long term.

The proposed Development will generate substantial employment during construction and ongoing operational phases, provide a significant supply of housing and business land, and deliver extensive recreational and open space networks, as described in the Economic Assessment prepared by Urban Economics. Overall, the Development would generate a total GDP contribution during construction of \$1,147.0 million and 8,570 FTEs, and ongoing GDP contribution of \$95.3 million and 883 FTE jobs every year.

Culturally, while no recorded sites of significance are located within the development footprint, the improvement in environmental conditions including reduced nutrient discharges and the large-scale restoration of wetlands has the potential to support broader cultural values such as mahinga kai and the health of waterways. These outcomes will be further informed through ongoing engagement and cultural impact assessment with mana whenua.

8.4. Overall Assessment

AgFirst concludes that, given the severe productive constraints of the land and the environmental risks associated with continued agricultural use, the transition to an integrated urban development represents a net environmental, social, cultural, and economic benefit. When combined with comprehensive stormwater management, wetland restoration, peat management, and sustainable urban design, Wairakei South provides a long-term land use outcome that is more resilient, lower risk, and better aligned with regional growth and climate objectives.

9. Broader Sustainability Considerations

9.1. Waste and Circular Economy

Construction and operational waste will be managed through site-specific plans (for example the Draft Construction Management Plan) prepared by contractors for each stage of development. These plans will prioritise waste minimisation, reuse, and recycling, with measures including:

- On-site and off-site waste segregation;
- Recycling of cardboard, paper, and suitable construction materials;
- Reuse of vegetation waste where practicable;
- Appropriate disposal of contaminated or invasive plant material;
- Secure storage of liquid wastes in bunded facilities.

No waste will be disposed of on-site.

9.2. Resource Efficiency and Materials

Resource efficiency will be supported through:

- Optimised earthworks and cut-and-fill balancing;
- Integration with nearby quarry resources to reduce transport emissions;
- Efficient infrastructure and urban design.

9.3. Water Use and Management

Water sustainability considerations include:

- Potable water supply for homes and businesses;
- On site water use for construction dust suppression;
- Long-term water efficiency measures;
- Integration of stormwater reuse where feasible.

10. Cultural Considerations

The Cultural Impact Assessment (CIA) prepared by Te Kapu ō Waitaha (TKOW) reinforces that Wairakei South sits within an interconnected system of whenua, wai (including subsurface and geothermal systems), and ecological processes, where maintaining mauri (environmental health) is fundamental. This aligns strongly with climate change and sustainability objectives, particularly the need to protect hydrological systems, manage cumulative environmental effects, and enhance ecosystem resilience.

The CIA supports the development in principle, provided it is delivered in partnership with mana whenua and incorporates environmentally responsive design, cultural monitoring, and restoration initiatives. In this context, the proposed wetland restoration, waterway enhancement, and indigenous planting are particularly significant, contributing to flood management, water quality improvement, carbon outcomes, and long-term climate resilience.

The CIA also highlights the importance of carefully managing earthworks, peat soils, and subsurface systems, recognising their sensitivity and role in long-term environmental stability. Overall, the CIA strengthens the position that Wairakei South can deliver positive climate and sustainability outcomes where natural systems are protected, restored, and embedded within the design of the development.

11. Conclusion

Wairakei South demonstrates a comprehensive and integrated response to sustainability and climate change challenges, consistent with the purpose of the RMA and relevant national and regional policy. The Development integrates climate adaptation, emissions mitigation, resource efficiency, and social and economic wellbeing at scale, while providing a critical response to regional growth pressures. Further technical detail will strengthen and refine this position as specialist inputs are finalised.

12. References

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