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Hughes Developments Limited

Attention: Jake Hughes

Sent via email: s 9(2)(a)

Faringdon Oval: Ngai Tahu Subdivision and Development Guidelines Assessment

Dear Jake,

I have prepared an assessment of the Ngai Tahu Subdivision and Development Guidelines in response to the Mahaanui Kurataiao Limited submission for the Faringdon Oval development.

If you have any questions regarding the contents of this letter, please do not hesitate to contact me on (03) 379 0793 or via email: s 9(2)(a)

Kind Regards,
DAVIE LOVELL-SMITH LTD

Alice Burnett
Planner

Appendices:
A – Assessment of Ngai Tahu Subdivision and Development Guidelines
B – Proposed Stormwater Discharges

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Appendix A: Assessment of Ngai Tahu Subdivision and Development Guidelines

Ngai Tahu Subdivision and Development Guidelines	Compliance Comments
Cultural Landscapes	
1.1 A cultural landscape approach is the most appropriate means to identify, assess and manage the potential effects of subdivision and development on cultural values and significant sites [refer Section 5.8 Issue CL1].	Consultation to date has not identified any cultural values or sites of significance. It is intended any future applications will include a cultural impact assessment.
1.2 Subdivision and development that may impact on sites of significance is subject Ngāi Tahu policy on Wāhi tapu me wāhi taonga and Silent Files (Section 5.8, Issues CL3 and CL4).	Appendices 2, 4, 5 and 6 of the Mahaanui Iwi Management Plan illustrate the sites of significance to Ngai Tahu. There are no identified sites in relation to the development site.
1.3 Subdivision and development can provide opportunities to recognise Ngāi Tahu culture, history and identity associated with specific places, and affirm connections between tāngata whenua and place, including but not limited to: (i) Protecting and enhancing sites of cultural value, including waterways; (ii) Using traditional Ngāi Tahu names for street and neighborhood names, or name for developments; (iii) Use of indigenous species as street trees, in open space and reserves; (iv) Landscaping design that reflects cultural perspectives, ideas and materials; (v) Inclusion of interpretation materials, communicating the history and significance of places, resources and names to tāngata whenua; and (vi) Use of tāngata whenua inspired and designed artwork and structures.	Ngai Tahu culture can be appropriately recognised within the development.
Stormwater	
2.1 All new developments must have on-site solutions to stormwater management (i.e. zero stormwater discharge off site), based on a multi-tiered approach to stormwater management that utilises the natural ability of Papatūānuku to filter and cleanse stormwater and avoids the discharge of contaminated stormwater to water [refer to Section 5.4, Policy P6.1].	Roof stormwater is to be disposed of directly to ground via soak pits on individual sites in accordance with the Building Act. All other stormwater emanating from roads, berms and lot frontages will be collected by sumps and pipes and directed to boulder backfilled rapid soakage trenches. These rapid soakage trenches will be located in the road berms and will provide treatment of the stormwater. Please see further assessment in Appendix B.
2.2 Stormwater swales, wetlands and retention basins are appropriate land based stormwater management options. These must be planted with native species (not left as grass) that are appropriate to the specific use, recognising the ability of particular species to absorb water and filter waste.	
2.3 Stormwater management systems can be designed to provide for multiple uses. For example, stormwater management infrastructure as part of an open space network can provide amenity values, recreation, habitat for species that were once present on the site, and customary use.	
2.4 Appropriate and effective measures must be identified and implemented to manage stormwater run off during the construction phase, given the high sediment loads that stormwater may carry as a result of vegetation clearance and bare land.	Appropriate erosion and sediment control methods will be in place during construction to reduce erosion and sedimentation off the site.
2.5 Councils should require the upgrade and integration of existing stormwater discharges as part of stormwater management on land rezoned for development.	Stormwater will be discharged to Councils reticulated system which is managed in an integrated manner.
2.6 Developers should strive to enhance existing water quality standards in the catchment downstream of developments,	Stormwater discharged from the site is in accordance with current practices within Rolleston. Treatment of the stormwater

Ngai Tahu Subdivision and Development Guidelines	Compliance Comments
through improved stormwater management.	is provided prior to entering ground water and therefore water quality will be retained.
Earthworks	
3.1 Earthworks associated with subdivision and development are subject to the general policy on Earthworks (Section 5.4 Issue P11) and Wāhi tapu me wāhi taonga (Section 5.8, Issue CL3), including the specific methods used in high and low risk scenarios for accidental finds and damage to sites of significance.	Accidental discovery protocol will be in place throughout the construction of the residential development. Appropriate erosion and sediment control methods will be in place during construction to reduce erosion and sedimentation off the site.
3.2 The area of land cleared and left bare at any time during development should be kept to a minimum to reduce erosion, minimise stormwater run-off and protect waterways from sedimentation.	Appropriate erosion and sediment control methods will be in place during construction to reduce erosion and sedimentation off the site.
3.3 Earthworks should not modify or damage beds and margins of waterways, except where such activity is for the purpose of naturalisation or enhancement.	No works will occur within the bed or margins of waterbodies.
3.4 Excess soil from sites should be used as much as possible on site, as opposed to moving it off site. Excess soil can be used to create relief in reserves or buffer zones.	There will be no fill brought into or be taken off the site.
Water supply and use	
4.1 New developments should incorporate measures to minimise pressure on existing water resources, community water supplies and infrastructure, including incentives or requirements for: (i) low water use appliances and low flush toilets; (ii) grey water recycling; and (iii) rainwater collection.	The development will be connected to the Councils reticulated water supply with each dwelling having its own water meter. Based on the infrastructure report there is no pressure on existing water resources.
4.2 Where residential land development is proposed for an area with existing community water supply or infrastructure, the existing supply or infrastructure must be proven to be able to accommodate the increased population prior to the granting of subdivision consent.	
4.3 Developments must recognise, and work to, existing limits on water supply. For example, where water supply is an issue, all new dwellings should be required to install rainwater collection systems.	
Waste treatment and disposal	
5.1 Developments should implement measures to reduce the volume of waste created within the development, including but not limited incentives or requirements for: (i) Low water use appliances and low flush toilets; (i) Grey water recycling; and (ii) Recycling and composting opportunities (e.g. supporting zero waste principles).	The development will be connected to Councils reticulated wastewater system. Based on the infrastructure report there is no pressure on the existing wastewater system.
5.2 Where a development is proposed for an area with existing wastewater infrastructure, the infrastructure must be proven to be able to accommodate the increased population prior to the granting of the subdivision consent.	
5.3 New rural residential or lifestyle block developments should connect to a reticulated sewage network if available.	N/A
5.4 Where new wastewater infrastructure is required for a development: (i) The preference is for community reticulated systems with local treatment and land based discharge rather than individual septic tanks; and	The development will be connected to Councils reticulated wastewater system.

Ngai Tahu Subdivision and Development Guidelines	Compliance Comments
(ii) Where individual septic tanks are used, the preference is a wastewater treatment system rather than septic tanks.	
Design guidelines	
6.1 New developments should incorporate low impact urban design and sustainability options to reduce the development footprint on existing infrastructure and the environment, including sustainable housing design and low impact and self sufficient solutions for water, waste, energy such as: (i) Position of houses to maximise passive solar gain; (ii) Rainwater collection and greywater recycling; (iii) Low energy and water use appliances; (iv) Insulation and double glazing; and (v) Use of solar energy generation for hot water.	The development has been carefully designed to enable dwellings to be positioned on site to provide passive solar gain, particularly for outdoor and indoor living areas.
6.2 Developers should provide incentives for homeowners to adopt sustainability and self sufficient solutions as per 6.1 above.	
6.3 Urban and landscape design should encourage and support a sense of community within developments, including the position of houses, appropriately designed fencing, sufficient open spaces, and provisions for community gardens.	The development includes an extensive open space network including reserves along the boulevard. The development will include a number of covenants relating to fencing and gardens. Faringdon has a large social media presence with a community Facebook page for owners within the development. Faringdon has an existing community garden.
6.4 Show homes within residential land developments can be used to showcase solar hot water, greywater recycling and other sustainability options, and raise the profile of low impact urban design options.	The development has been carefully designed to enable dwellings to be positioned on site to provide passive solar gain, particularly for outdoor and indoor living areas.
Landscaping and open space	
7.1 Sufficient open space is essential to community and cultural well being, and the realization of indigenous biodiversity objectives, and effective stormwater management.	Sites within the development meet the relevant site areas to enable open space around dwellings as well as providing for public open spaces.
7.2 Indigenous biodiversity objectives should be incorporated into development plans, consistent with the restoration and enhancement of indigenous biodiversity on the landscape.	Landscaping of reserves will include native vegetation that aligns with Selwyn District Council requests.
7.3 Indigenous biodiversity objectives to include provisions to use indigenous species for: (i) street trees; (ii) open space and reserves; (iii) native ground cover species for swales; (iv) stormwater management network; and (v) home gardens.	
7.4 Indigenous species used in planting and landscaping should be appropriate to the local environment, and where possible from locally sourced seed supplies.	
7.5 Options and opportunities to incorporate cultural and/or mahinga kai themed gardens in open and reserve space can be considered in development planning (e.g. pā harakeke as a source of weaving materials; reserves planted with tree species such as mātai, kahikatea and tōtara could be established with the long term view of having mature trees available for customary use).	
7.6 Developers should offer incentives for homeowners to use native species in gardens, including the provision of lists of recommended plants to avoid, discounts at local nursery, and landscaping ideas using native species.	

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Appendix B: Proposed Stormwater Discharges

Roof stormwater is to be disposed of directly to ground via soak pits on individual sites in accordance with the Building Act. All other stormwater emanating from roads, berms and lot frontages will be collected by sumps and pipes and directed to boulder backfilled rapid soakage trenches. Pre-treatment will occur prior to discharge through the use of trapped sumps. These will add an additional factor of safety for both hydrocarbon and heavy metal contamination. This is a result of the low solubility of heavy metals and their tendency to leach to solid particles. A large proportion of metallic contamination will be removed with suspended solids as the stormwater moves through the sump system and travels through at least 3m of undisturbed material (based on the depth to groundwater and depth of soakpits) before dispersion into the water table.

First flush stormwater discharges, which are considered to have the highest concentration of contaminants, have been researched and analysed within Rolleston. This research has determined that contaminants within first flush stormwater discharges were below the Maximum Acceptable Value (MAV guidelines) with the exception of E.coli. Given this, it can be considered that the proposed stormwater discharge methods will also be below MAV guidelines as there is a pre treatment proposed prior to discharging to ground.

E-Coli contamination is not unusual in stormwater runoff. However due to the nature of the contaminant it is difficult to quantify and the level of contamination follows no observable trend. It has been shown that E-Coli levels in stormwater can exceed MAV guideline values at the point of discharge, but due to the rapid rate of decay of E-Coli (T90 of 2 – 6 days) and the dilution of the contaminant as it is added to groundwater it is very unlikely these levels will remain above guideline concentration of <1cfu/100ml by the time the discharge reaches a point of water take for human consumption. The bores closest to the site are primarily used for stockwater or irrigation purposes. However there a couple used for domestic drinking water, these tend to be between 12.8m and 65.8m below ground level. Assuming the closest domestic drinking water bore is 250m downgradient of the stormwater discharge location the following has been determined. Assuming a typical groundwater velocity of <5m/day it will take >46 days to potentially reach this point of water take. Conservatively using T90 of 6 days, the amount of E-Coli will have decayed by an order of magnitude of 7.6 (46 days / 6 days). If the initial concentration of E-Coli is 240 cfu / 100ml (data from PDP Briefing Paper, 2011), using the worst case T90 decay factor of 6 days, the concentration will be at the allowable level of <1 cfu / 100ml in 18 days after discharge. This calculation does not take into account dilution.

The soil profile from the site is silts and sandy gravels several meters deep which will filter out typical stormwater contaminants.

From the information presented above the conclusion can be drawn that there will be no cumulative effects on groundwater quality (overall water quality being the top priority under the NPS -F), and downstream water users (second priority under the NPS -F). from the discharge proposed in the application for stormwater discharge.