

# Barwon Heads Association Inc.

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28 August 2020

## **PP 1459/2018 – 65-101 Lings Road Connewarre Barwon Heads Association Submission**

The Barwon Heads Association Inc. (the BHA) represents over 200 members who are residents and ratepayers of Barwon Heads. The BHA supports the principle of the Barwon Heads Structure Plan 2017 (BHSP) “to protect the surrounding natural environment of Barwon Heads and avoid development that impacts on significant biodiversity values and ecologically sensitive areas” and the Direction to “support public land managers and community groups in the ongoing management and protection of Murtnaghurt Lagoon.....”.

The BHSP states (at para 3.3.4) “The natural environment of Barwon Heads plays an important role for the township. It provides intrinsic habitat and biodiversity values that are environmentally significant; not just to the State; but also nationally and internationally. This includes the internationally recognised RAMSAR wetland area of the Murtnaghurt Lagoon” .

The BHA objects to this application for the reasons presented below.

### **Surface Water Management**

While we note that the revised proposal will result in a lesser increase in runoff (total as well as peak) we are not satisfied that it will not have an adverse impact on the environmental values of Murtnaghurt Lagoon, a RAMSAR Wetland that is subject to an ES02 overlay.

The Tract Town Planning report of 12 June 2020 refers to Section 5.7 of the “Surface Water Management Strategy for Barwon Heads Farm” (**the Strategy**) dated 2 June 2020 prepared by Water Technology states:

*The integration of rainwater tanks and the construction of unlined swales mitigate potential impacts on Murtnaghurt Lagoon from a hydrological and water quality perspective. As outlined in Section 5.7 of the “Surface Water Management Strategy” stormwater management techniques will provided the following environmental benefits:*

- *allow for diffuse inflow rather than a point outlet across the south boundary*
- *has negligible impacts on groundwater flows*
- *aids in the restoration of based flows*
- *are not limited by drainage grade*
- *do not have permanent open water body – providing mosquito proliferation*
- *rely in simple swales, allowing for easier maintenance*

The BHA’s comments on these matters are provided below. This follows a review of the applicant’s supporting documentation including the Strategy.

The Strategy uses the Model for Urban Stormwater Improvement Conceptualisation (MUSIC) v6.3 to estimate the hydrological and water quality performance of the proposed swale. MUSIC v6.3 has been developed by e-Water and is intended to help plan and design at a conceptual level urban stormwater management systems for catchments.

#### Allow for diffuse inflow rather than a point outlet across the south boundary

Although this is discussed in Section 4.3 of the Strategy, it is unclear as to how diffuse inflow will be achieved in practice. If it is achieved it is likely to increase the quantity of runoff to the lagoon. It is unlikely to promote infiltration as stated in the Strategy as the watertable adjacent the lagoon is at or near the surface. It is unlikely to promote runoff absorption, as stated in the Strategy, for the same reason.

#### Has negligible impacts on groundwater flows

The groundwater depth was measured in late April 2019 following a relatively dry period and was found to be 1.0 m to 1.54 m below ground surface.

Seepage to groundwater from the swale is likely to be low as:

- the groundwater depth in dry conditions is shallow
- the base of the swale is designed to be 0.7 m below the existing ground level and will be up to 1.4 m in depth (see below)
- the watertable will rise during wet periods
- local mounding under the swale will significantly reduce the hydraulic gradient

There is also a risk of groundwater interception on the swale (a loss of groundwater to the swale).

The MUSIC model has been used to estimate seepage to groundwater from the swale. The MUSIC model relies on a swale exfiltration rate of 1 mm/hr (Table 5.2) is high based upon the above and as a result would over-estimate seepage to groundwater (and baseflow).

The Strategy reports the developed conditions base flow is estimated to be 4.6 ML/yr increasing from 4.5 ML/yr in the existing condition (Sections 5.3.2 and Sections 5.3.1). The Strategy reports infiltration as 12.7 ML/a in the developed condition decreasing from 12.9 ML/a in the existing condition to (Sections 5.5.3 of the Strategy).

These minor changes are considered unrealistic the MUSIC model's overestimate of seepage from the proposed swale (see above) and given the reduction in the area of garden/pasture.

In conclusion the Strategy does not demonstrate that the development will result in negligible impacts on groundwater flows.

#### Aids in the restoration of base flows

The MUSIC guidance provided e-Water refers to vegetated swales as open channels that use vegetation to primarily remove suspended solids. Subject to high flows, they rely on shallow slopes and the density and height of vegetation, to work well.

Swales are intended to flow water rather than retain it limited the opportunity for baseflow.

See above.

In conclusion the Strategy does not demonstrate that the development will aid in the restoration of base flows.

### Are not limited by drainage grade

The design concept sets a grade of 0.5% (Table 5.2 of the Strategy). With this grade and a floor level of 2.4 m AHD in the north (3.1 m AHD ground surface) the maximum depth of the swale will be in the order of 1.4 m increasing the risk of groundwater interception. This would increase the swale width at the ground surface at this location to 10.5 m

### Do not have permanent open water body – providing mosquito proliferation

Unclear. Design shown in Figure 4-2 assumes the swale is not connected to lagoon. This is inconsistent with Figure C-2 which assumes an outflow from the site.

### Rely in simple swales, allowing for easier maintenance

There is no maintenance proposed nor maintenance measures are not specified.

### **Other surface water management matters**

The Strategy refers to the standard practice for new developments to detain stormwater on-site to predevelopment to ensure there is no detrimental off-site impact from increased imperviousness areas.

The Strategy considers that detention is not required upstream of Murtnaghurt Lagoon to mitigate potential downstream impact given changes to the peak flows are minimal, alternative measures are proposed to be implemented to mitigate any impact from the development on Murtnaghurt Lagoon and its environmental values, and multiple weir arrangements setback from the site south boundary will ensure a distributed flow distribution at the legal point. The Strategy note's Council Officers have previously indicated that Council would likely agree to a no-detention strategy given the site context.

The BHA notes that the development is expected to increase the annual runoff (see Table 5-4 of the Strategy) and given the development and the purpose of a swale drain is likely to increase the peak flow.

The BHA requests that the standard practice for new developments 'to detain stormwater on-site' be applied to this development as without this control there will be an increase in discharge of freshwater to a RAMSAR wetland.

The BHA does not accept the water quality modelling presented in the Strategy as it does not consider the increase in source loads within the development, it does not address the increase in fresh water into a more saline environment and it does not model suspended solids removal well (see paragraph below).

The e-Water web site provides the following MUSIC 6.3 user query 'When you run a grassed swale in MUSIC 6.3 it has 100% removal efficiency for gross pollutants. The performance of the swale is also the same, regardless of whether it is 2% grade or 15% grade. Is this fixed...?. The e-Water response is 'We recognise that there are opportunities to improve the way MUSICX represents a number of treatment options'

## **BHA Submission of 20 August 2019**

In our submission to Council of 20 August 2019 on the initial proposal we advised that the BHA is not satisfied that the application demonstrates that no detrimental impacts will occur for the following reasons:

- The storm water management objectives do not include the requirement to meet SEPP (*Water*) objectives which are also required by CSIRO (1999) and these have not been provided or assessed for the development
- The existing stormwater quality is unknown
- Water quality monitoring is not proposed to determine whether water quality objectives will be met and groundwater baseflows/loads to Murtnaghurt Lagoon are not impacted.

As these matters have not been addressed in the Strategy we advise that our position has not changed.

### **Environmental Issues**

It is noted that the café (existing structure) is located adjacent to the southern boundary of the property and abuts Murtnaghurt Lagoon.

The impact of the proposed development upon migratory and other birdlife subject to the RAMSAR Convention and other statutory protection has not been adequately considered. The Biodiversity Assessment fails to adequately consider the effect of the development on noise and the impact of human movement upon wildlife and the necessity of an adequate buffer zone. (The development will create noise and increase the number of humans in proximity to feeding and breeding endangered and other protected species).

### **Lings Road**

BHA considers that the increase of vehicle movements of about 200 vehicles per day will create an unreasonable increase in dust which will adversely impact residential landholders abutting Lings Road. As the proposed development will be the primary beneficiary of the road it is unreasonable to require Council to increase the frequency of grading to address this issue at its cost. The applicant should be responsible for ensuring it does not cause a nuisance or detriment to others.

### **Zoning**

It is arguable as to whether the proposed development is consistent with the Farming Zone under the Greater Geelong Planning Scheme (CI 35.07) and the Agriculture, Rural Dwellings and Subdivision Policy (CI 22.05) and Planning Framework for the Bellarine Peninsula (Ci 21.14).

Colin Bridges  
Secretary on behalf of the Committee  
Barwon Heads Association Inc.

28 August 2020