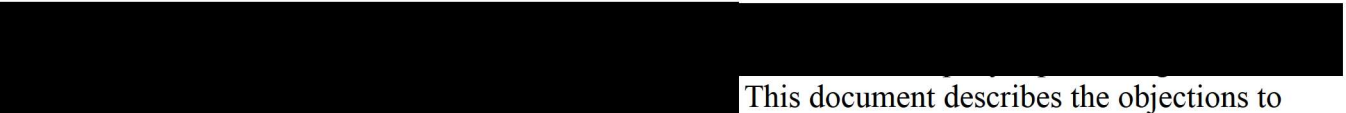


May 19, 2021

Department of Water and Environmental Regulation
Locked Bag 10
Joondalup DC WA 6919
info@dwer.wa.gov.au

SUBMISSION ON CLEARING PERMIT APPLICATION CPS 9252/1

Patane Farms Pty Ltd - Lots 6 and 8 on Diagram 78649, Myalup - 6.95ha -
[ftp://ftp.dwer.wa.gov.au/permit/9252/ CPS 9252/1](ftp://ftp.dwer.wa.gov.au/permit/9252/CPS_9252/1)



This document describes the objections to the proposed clearing of native vegetation west and south of the lake and provides objections to the proposal by Patane Farms to extend their market gardening operations closer to the private homes contained within the Freshwater Lake and Kookaburra Close subdivisions.

Because this submission covers objections to vegetation clearing and to market garden (horticultural) expansion, it will also be presented to the Shire of Harvey as we understand they have powers under their planning laws to manage and restrict or prevent potentially impacting activities such as market gardening/horticulture.

1. OBJECTIONS TO GRANT OF CLEARING PERMIT

- A. As stated by the proponent's consultant Stream Environment and Water Pty Ltd in their report "Old Coast Road Myalup Structural Vegetation Survey", a total of 11.45 hectares of the Threatened Ecological Community EgCcEmAg containing Tuart *Eucalyptus gomphocephala* is proposed to be cleared. This vegetation association has high intrinsic conservation value and its listing as a TEC implies that there is a general presumption against clearing. On this basis, with the proponent not offering to provide an offset to the loss of this vegetation either by purchase of similar or better quality Tuart TEC or by revegetating a much larger area with Tuart, the justification for clearing this area of TEC has not been provided.

- B. As stated by the proponent’s consultant SW Environmental (pages 9 and 10 of their report entitled “Level 1 and Targeted Fauna Survey”), the Tuart TEC provides breeding, roosting and feeding habitat for endangered and vulnerable black cockatoos:
“There were a total of 381 suitable DBH trees (i.e., Dead, Jarrah, Marri, Flooded Gum or Tuart >50cm DBH) within the study areas (Appendix G). The Tuart trees were nearly all located within Lot 6 and Marri trees within Lot 8 (Appendix A Figure 3).....

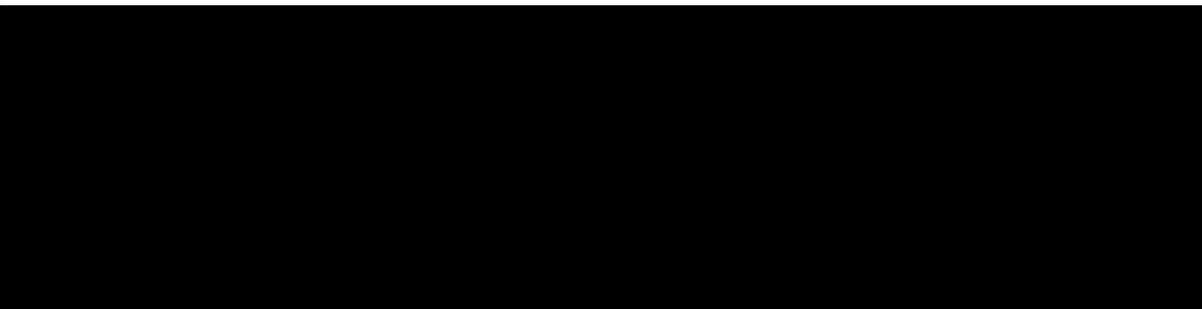
Initial ground surveys identified 37 trees with 46 hollows greater than 10cm in size. These included one dead tree, two Jarrah, 8 Marri and 26 Tuart trees. Additionally, there were numerous small hollows (<10cm) with limited access for most target fauna.Follow up surveys (drone and breeding survey) identified 15 trees, mostly Tuarts, that contained medium to large hollows.”

Further, on page 28, the report states:

“Based on the breeding surveys, the Tuarts on Lot 6 provide breeding habitat for Carnaby’s (white-tailed black cockatoo) and FRTBC (forest red-tailed black cockatoo).”

Recognising that the Carnaby’s Cockatoo is listed as an endangered species under state and federal legislation and that the FRTBC is listed as vulnerable, the intrinsic value of Lot 6 to the conservation of these two species of black cockatoo is not in dispute. Accordingly, with the proponent not offering to provide offset replacement land nor to revegetate a suitable area with Tuart (and commit to managing such land for the 150+ years needed for hollows to form), the proponent has not provided sufficient justification to further clear habitat of value to at-risk species endemic to the south west of WA.

C.



The consultants Stream Environment and Water Pty Ltd describe the vegetation condition of the remnant Tuart woodland as **‘Completely Degraded’** (Figure 3). This statement fundamentally misunderstands the basis on which the EgCcEmAg Tuart vegetation association has been listed as a TEC and on which its conservation values are based. **It is the trees – specifically, the Tuart trees – which determine the TEC status of a site carrying Tuart, not the understorey.** The presence of some 100 healthy Tuart trees within Lot 6 defines the area as being of significant conservation value.

Further, the relatively higher nutrient status of soils generally found beneath the Tuart vegetation ecosystem rendered them attractive to agriculture, initially the grazing of stock and more recently for horticulture. Today, after some 200 years of fertiliser addition, grazing and the introduction of exotic pasture plants, most areas of Tuart in the south west have a degraded to completely degraded understorey similar to that found within Lot 6. However, since the primary conservation value of the Tuart ecosystem is today determined by the presence or absence of Tuart trees and not of understorey species, **it is simply not correct to describe Lot 6 as ‘Completely Degraded’ when its overstorey Tuart trees provide significant conservation values to a range of faunal species at the same time as the trees themselves are of conservation value.**

The condition of the remnant Tuart on Lot 6 is therefore not ‘Completely Degraded’ and the conclusion of the Old Coast Road Myalup Structural Vegetation Survey report should be completely rejected.

As stated on page 2 of the report from Stream Environment and Water Pty Ltd: **“All patches of 5ha or greater are part of the nationally protected ecologically community regardless of its condition”**.

- D. The presence of WA Peppermint *Agonis flexuosa* vegetation that is in **‘good’** condition within the southern extension of the Freshwater Lake swale area on Lot 8 and the recording of a Western Ringtail Possum *Pseudocheirus occidentalis* – a critically endangered species unique to the south west of Western Australia – confirms the high conservation value of the vegetation in the eastern half of Lot 8.

The Stream Environment and Water Pty Ltd report shows that almost all of Lot 8 contains WA Peppermint trees. Similar to the misunderstanding of why the Tuart TEC is of intrinsic high conservation value, the presence of WA Peppermint trees that have canopy connections between the trees (which allows possums to move from tree to tree without having to climb to the base of a tree and cross to another tree along the ground where they would be exposed to predators such as foxes and feral cats), together with a record of a Western Ringtail Possum foraging and breeding within this Peppermint ecosystem, confirms **the high intrinsic conservation value of these remnant trees, regardless of the ‘completely degraded’ condition of the understorey.**

CONCLUSIONS ON OBJECTIONS TO GRANT OF CLEARING PERMIT

As stated in the Stream Environment and Water Pty Ltd report: **“Impacts to these vegetation communities should be avoided....”**. Although this statement was made in reference to the Tuart vegetation associations within Lot 6, a similar statement can and should be made in relation to the WA Peppermint vegetation association on Lot 8.

It should also be pointed out that the existing 300+ trees on Lots 6 and 8, many of which contain hollows of varying sizes and cavities under exfoliating bark, provide habitat for a wide range of faunal species that, in combination, provide significant conservation values within the proposed clearing area. For example, the Regent Parrot *Polytelis anthopeplus* is a bird of the dryer woodlands of southern Australia. While its conservation status in Victoria is listed as vulnerable, it is elsewhere listed as being secure. However, extensive clearing of native vegetation in WA’s wheatbelt area has seen a significant reduction in its population size in that area. However, the establishment of linear linkages through the once impenetrable jarrah forest of the Darling Ranges – roads, powerlines, railway lines – has allowed this and other species to migrate to new habitat on the Swan Coastal Plain where it is now breeding in the Ludlow Tuart Forest National Park for example.

Looking into the future of the south west of WA with a reduction in rainfall as predicted by climate change and ongoing loss of native vegetation through soil salinization, industrial development and agricultural expansions such as is proposed here by Patane Farms, the conservation importance of remnant Tuart woodland as is found on Lot 6 can only increase into the future. It is therefore important to protect Tuart remnants such as these wherever possible to ensure we leave a sustainable environmental legacy for future generations.

2. OBJECTIONS TO HORTICULTURAL EXPANSION

- A. The WA Department of Health has issued guidelines on the separation distances to be maintained between certain land uses and urban development – see https://ww2.health.wa.gov.au/Articles/F_1/Guidelines-for-separation-of-agricultural-and-residential-land-uses

For Market Gardens, the separation or buffer distance is to be 300 to 500 metres. If the 300 metre separation distance is applied to the subject area, then the amount of land potentially able to be developed for this purpose is restricted to the two hatched areas shown in Figure 1 below.

The hatched area shown within Lot 8 excludes the eastern portion of the property where market gardening would require the use of fertilisers, herbicides and pesticides in close proximity to the north-south wetland chain in the eastern portion of the Lot. This wetland area includes Freshwater Lake which is of high amenity value and is being managed [REDACTED] to protect existing natural values and to enhance conservation values through various management actions outlined in the 2020 Freshwater Lake Environmental and Nutrient Management Plan – see appendix A.

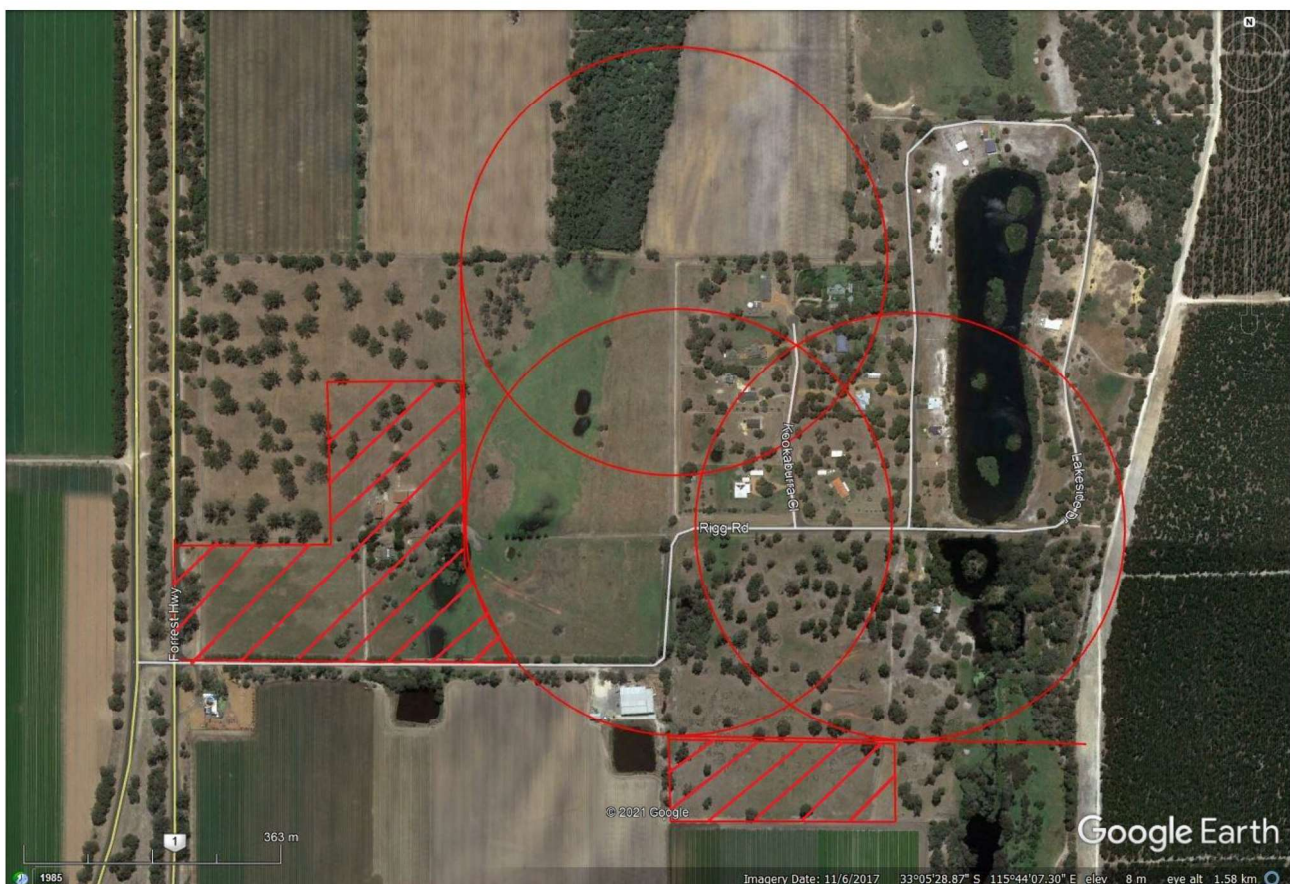


Figure 1 – the circles have a radius of 300 metre and show the minimum separation distance allowed by the Department of Health guidelines for market gardens in close proximity to existing urban development.

Figure 2 is a topographic map of Lot 8, the urban development areas and Freshwater Lake. It shows that, while gradients are subdued, nonetheless a ridgeline runs in a north-south direction in the western side of the Freshwater Lake wetland and its southern extension on Lot 8. Any market gardening activities west of the centre line of the ridge – as shown by the thick black line – would be likely to pollute the groundwater beneath the ridge, allowing it to flow eastwards into the wetland chain.

Because the soils of the subject area are predominantly free-flowing sand with low clay, high porosity and high permeability – ideal for market gardening – the potential exists for polluted water within, beneath and adjoining the wetland on Lot 8 to travel north into Freshwater Lake, threatening its amenity and conservation values.

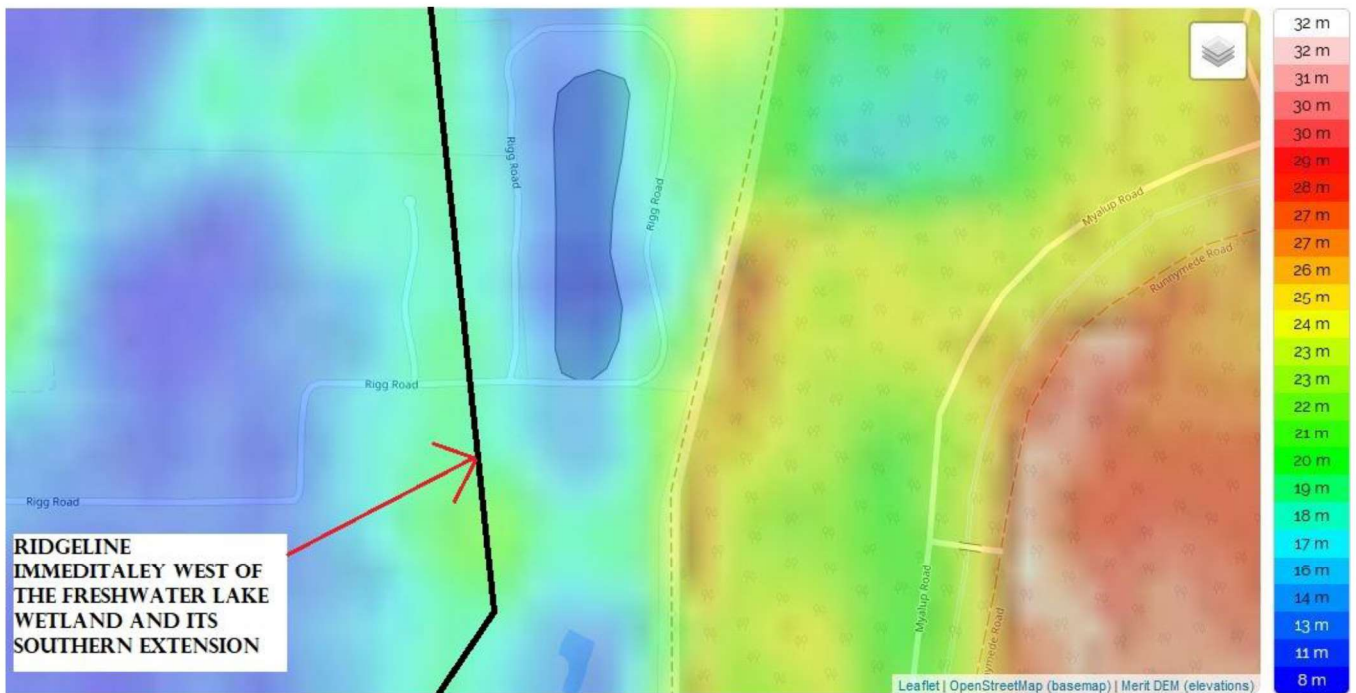


Figure 2 – topographic map of the subject area sourced from <https://en-au.topographic-map.com/maps/oe/Western-Australia/>

Figure 3 shows an algal bloom in the northern-most body of water on Lot 8 which is separated by less than 20 metres of low clay sand from the southern end of Freshwater Lake. Continued nutrient enrichment of this body of water has the potential to cause nutrients to enter Freshwater Lake and, in time, to lead to similar algal blooms as seen in Figure 3. Analysis of the bloom was not carried out to assess whether the alga was a toxic blue-green species. However, the reduction in amenity and aesthetic values within Freshwater Lake, should similar algal blooms occur there, would be a serious adverse outcome [REDACTED]

The risks posed to Freshwater Lake’s water quality from excess nutrients sourced from Lot 8 was recognised several years ago when the open channel connecting the two bodies of water was permanently closed as part of repairs to the traffic bridge on Lakeside Drive. Water sampling of Freshwater Lake at the time did not show any movements of nutrients from south to north. However, market gardening in the eastern section of Lot 8 will include artificial watering of horticultural crops, the consequence of which will be a rise in the groundwater level beneath the market gardening operations, together with an increase in nutrients and biocides. The risk of contaminated

groundwater moving northwards from Lot 8 into Freshwater Lake is real and should be prevented.



Figure 3 – algal bloom in waterbody on the south side of Lakeside Drive, April 13, 2018

- B. The WA Department of Health guidelines on the separation distances to be maintained between certain land uses and urban development allow for the potential expansion of market gardens to within 40 metres of urban development if a vegetative buffer has been implemented and maintained in accordance with the guidelines. This reduction of the 300 metre separation distance down to 40 metres is strongly objected to for the following reasons:
- i. The vegetative buffer will create a bushfire hazard and will be a source of burning embers during catastrophic bushfire events. Since burning embers can travel via strong winds for several kilometres from the fire front, as was shown during the 2016 Yarloop bushfire which destroyed 160 homes and took two lives, embers from forested bushland to the east of the town attacked the town's infrastructure over an extended period of time. Under similar weather conditions, it is not unreasonable to believe that burning embers from the east will attack any vegetation buffer created along the boundary between market gardening activities and urban development. In turn, should the vegetation buffer be set alight under such adverse weather conditions, the ability of the buffer to itself generate burning embers close to housing and to create a short-lived fire front able to expose nearby houses to high levels of radiant heat needs to be recognised.
 - ii. [REDACTED] have no confidence in Patane Farms to comply with the guidelines, should they seek permission to establish a vegetation buffer to allow market gardening within 40

metres of urban development. Patane Farms have failed to return phone calls and to respond to emails on at least 5 occasions over the past 2 years when [REDACTED] attempted to open discussions on issues affecting both parties. Since market gardening activities would be a long term business activity on Lots 6 and 8, Patane Farms would need to establish and maintain the vegetative buffer for the foreseeable long-term future and the company's credibility to meet the guidelines' requirements on an on-going basis is questionable, based upon past dealings between the strata company and Patane Farms.

iii. Should the decision be made to allow Patane Farms to use some or all of Lots 6 and 8 for market gardening and to establish a vegetation buffer to allow its activities to take place within 40 metres of urban development, it is strongly recommended that use of their land within 300 metres of existing urban development be deferred until the successful establishment of the vegetation buffer is proven to have met all the conditions contained in the Department of Health guidelines.

C. While a vegetated buffer may allow the drift of biocide sprays and dust from fertiliser or soil additives to be effectively contained within land owned by Patane Farms, the noise created by market gardening activities will not be so constrained. In rural areas, ambient noise levels are extremely low – generally at or below 35 dB. Even with the vegetation buffer fully complying with Department of Health guidelines to allow capture of spray droplets, the buffer cannot prevent excessive noise levels to pass through the buffer and impact on private residences. The use by Main Roads WA of solid earth or cement/limestone block walls to reduce noise levels from traffic on major roads confirms the inability of vegetation, regardless of its density, to constrain the passage of noise.

Further, the Department of Health guidelines require the vegetation buffer to have a porosity of 0.5 so that air can pass through it, allowing air to come into contact with vegetation so that spray particles are absorb by plant material and removed. A 50% air space within the vegetation screen will clearly allow noise from horticultural machinery to pass through and impinge on the amenity of urban residents. This will be of particular concern at night when urban residents are attempting to sleep.

CONCLUDING COMMENTS

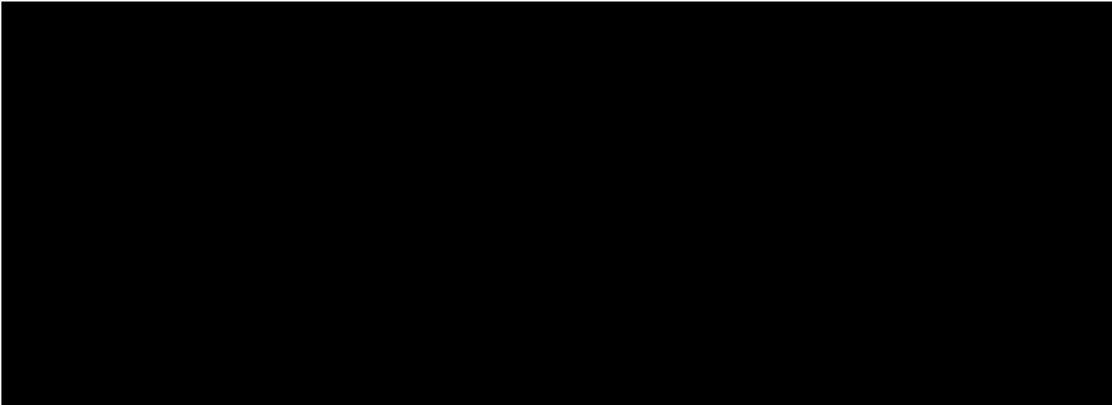
The [REDACTED] place a high value on maintaining and enhancing the naturalness of the lake. To this end, in 2020, the Environmental and Nutrient Management Plan contained in appendix A was produced and distributed [REDACTED] to guarantee as best as possible the long-term integrity of the wetland and its surrounds. The risk posed by market gardening on Lot 8 south of Freshwater Lake puts this management plan and past actions [REDACTED] to protect water quality and establish native vegetation within and surrounding the lake at serious risk.

Hence, the proposal by Patane Farms to extend market gardening activities closer than 300 metres to existing urban development is unacceptable and should be rejected.

Should the clearing proposal be approved, it will cause the loss of high conservation value Tuart and WA Peppermint woodland. Accordingly, if market gardening is to be allowed to expand, only

those portions of Lot 6 and 8 as shown in Figure 1 of this submission should be approved for horticulture.

Yours sincerely



Appendix A

Freshwater Lake

LOT 100 RIGG ROAD, MYALUP

Environmental & Nutrient Management Plan

Freshwater Lake was created as part of the rural residential development of land on Lot 11, Rigg Road, Myalup, As described in a consultant's report dated 15/11/1995, a degraded area of dampland was modified to create a permanent waterbody that was designed to provide a wetland with useful environmental values. These values include:

- A permanent waterbody attractive to a range of waterbirds and aquatic fauna
- High visual amenity that would be attractive to landowners within the subdivision
- A restricted range of recreational opportunities for landowners consistent with the need to protect natural values.

To ensure the retention of these values over the long term, an environmental and nutrient management plan (ENMP) was produced to address key issues which, based upon experience gained from other land developments that surrounded natural or constructed wetlands. This ENMP addressed the following important issues:

- Actions by the Body Corporate to ensure integrated and coordinated management of the site's environment
- Monitoring of the wetland's health by regular water quality analysis to warn of changing water quality parameters
- A commitment to taking effective action to counter any adverse water quality issues, especially if the growth of algae was found to be impacting upon the health and natural values of the wetland
- A commitment to taking effective action should the wetland experience:
 - unacceptable odours
 - high insect numbers (midges, mosquitoes)
 - excessive plant growth within the wetland.
- Installation and operation of a fountain to aerate the wetland's water column

To protect and enhance natural values, commitments were made to a number of actions designed to protect water quality from excess nutrients and other adverse outcomes arising from the urbanisation of land surrounding the wetland. This updated ENMP revises and expands on the commitments made in the original document, based upon some 20 years of experience since Freshwater lake was first constructed.

NUTRIENT MANAGEMENT

Wetlands generally occur in a low topographic position within the landscape. By definition, water accumulates within this low point to create a waterbody but surface water and groundwater entering a wetland carries nutrients, sediments and pollutants which can accumulate within the waterbody. Human development around the edges of a wetland and within the surface and groundwater catchments feeding water into the wetland can significantly increase the inflow rates of these physical and chemical materials.

To ensure minimal impact on ground water and lake water quality, the following actions will be undertaken to reduce nutrient loading rates for the development:

1. Encourage owners, through this EMP and the 2018 brochure 'PROTECTING THE ENVIRONMENTAL VALUES OF FRESHWATER LAKE', to minimise fertiliser applications on their properties
2. Encourage the use of slow release and/or low or no phosphorous fertilisers.
3. No chemicals including garden fertilisers, sump oil or organic wastes to be used or disposed of within 50 metres of the edge of the wetland.
4. Fertilisers should not be applied to lawns or gardens in winter when rainfall is likely to leach nutrients into the groundwater and then into the wetland. When used at other times of the year, they should not be applied if rain is forecast within 3 days.
5. Provision of interpretative signs to inform visitors/occupiers of the value of wetland processes and conservation of fauna habitats.
6. Maintaining and servicing domestic wastewater treatment systems, including regular servicing of Aerobic Treatment Units (ATUs) and, if applicable, regular emptying of septic tanks.
7. While allowing for views over the wetland to be enjoyed from surrounding properties, as much deep-rooted vegetation around the edge of the lake should be retained as possible, especially within 5 metres of the winter high water mark.
8. Regular (every one to three years) water quality monitoring will be carried out to determine if nutrient or other pollutant levels are increasing at a rate likely to pose problems with algal blooms or nuisance levels of aquatic insects.
9. If water quality is shown to be deteriorating, the Strata Manager will investigate alternative methods of reducing nutrient levels such as alum dosing within the water column, the use of phosphorous-adsorbing chemicals around the lake or within the lake, or the use of sawdust and limestone trenches upstream of the lake to intercept groundwater flow.

IRRIGATION MANAGEMENT

Recognising that groundwater abstraction from bores on properties adjoining and within the surface and groundwater catchment of the wetland can reduce water levels within the wetland during summer and autumn, the following actions will be undertaken:

1. Landowners will be asked to advise the Body Corporate if water levels within Freshwater Lake are seen to be lower than expected
2. If necessary, requests will be made to landowners to restrict their groundwater abstraction in summer and autumn if water levels in the wetland are considered to be unacceptably low
3. Landowners are encouraged to water their lawns and gardens at dawn or dusk to minimise evaporation during the hotter times of the day over summer and autumn.

AQUATIC INSECT MANAGEMENT

A wetland containing high water quality and a high level of biodiversity should not breed unacceptable levels of aquatic insects such as non-biting midgies or mosquitoes. While there may be low densities of such insects present at times, the presence of suitable fish to eat the larval stages of these insects and frogs, birds and bats to eat the adult stages should create a balanced wetland ecosystem where insect numbers rarely if ever reach unacceptable levels.

However, adverse water quality such as excess nutrients can both stimulate the production of undesirable insects and adversely impact on the numbers of other wildlife which normally consumes insects and keeps their numbers low. Accordingly, the following actions are available for implementation if insect numbers begin to increase:

1. Insect-eating fish will be introduced into the wetland, with native species such as Western Pygmy Perch preferred, although exotic trout can also consume aquatic insects.
2. To create habitat suitable for these fish, some areas of dense emergent vegetation need to be maintained around the edge of the wetland. In addition, coarse woody debris such as fallen trees or bushes should be retained within the wetland to provide additional fish- and frog-friendly habitat where birds such as cormorants would find it difficult to access.
3. Should insect numbers increase such that they affect amenity values around the wetland, then the use of hormone-based, non-toxic larvicide such as S-methoprene (also called Atlosid) will be applied by the Strata Manager during early spring or as directed by the Shire of Harvey.

VEGETATION MANAGEMENT

Plants provide numerous benefits to nature and people. In a wetland setting such as Freshwater Lake, appropriate plant species growing in the right areas can enhance amenity, attract wildlife and reduce nutrients entering the wetland via the groundwater.

However, inappropriate plant species can also have adverse impacts on a wetland, including the ability to become an environmental weed, increase fuel loads and hence increase fire risks, attract undesirable wildlife (such as foxes or rabbits) and increase nutrient input into the water column. For example, European willows shed their leaves every winter and these leaves quickly degrade once surrounded by water, whereas the leaves from eucalypts take much longer to break down, providing habitat for insects and other invertebrates for an extended period.

While recognising the not unreasonable need for lot owners to enjoy views of the lake, retention of native vegetation around the lake's edge provides significant environmental impacts to water quality. These include increased shading of the lake water in summer, reducing the higher water temperatures favoured by some of the nuisance algae that grow when excess nutrients are present; reducing the amount of sunlight entering the water column, reducing the ability of algae to photosynthesize and reproduce; and native wetland plants such as paperbarks add tannins to the lake as they decompose, with the resulting tea-coloured water reducing algal growth, even when nutrient levels are higher than normal.

Accordingly, the following actions are recommended to enhance amenity and natural values:

1. Revegetation will only use appropriate native species
2. Non-native plant species will be actively discouraged from being planted on private land and, on common land under managed by the Body Corporate, non-native species will be controlled and, where appropriate, removed.
3. The strata manager will arrange for monitoring of vegetation and fauna habitats on the lake's islands and foreshore to ensure their continued health and will take appropriate steps to maintain the site's natural amenity.
4. Declared noxious and environmental weeds should be controlled and preferably eliminated from around the lake edge, with African Love Grass *Eragrostis curvula* and kikuyu being the primary target species for control.

OTHER MANAGEMENT ISSUES

1. Public access to islands within Freshwater Lake is to be discouraged to minimise disturbance to wildlife, especially nesting birds in spring and to reduce physical damage to native vegetation.
2. While recognising that landowners have a not unreasonable desire to enjoy views of the lake, removal of fringing vegetation is discouraged as this often results in regrowth creating denser vegetation from rootstock which impedes views even more. As well, such regrowth increases the fire hazard. Residents are therefore encouraged to retain existing fringing vegetation but, if lake views

- are desired, to prune and dispose of lower branches to a height of 3 to 4 metres, thereby creating enhanced views and reducing the fuel load which can contribute to the risk of bushfires.
3. Bulrush or Typha is a native plant which is slowly but steadily expanding its coverage within the shallow water (less than one metre deep) sections of the lake. Prior to European settlement, Typha was harvested by Aboriginal people every autumn as a food source but, without such management, Typha is now a significant invasive plant in many wetlands. Starting in 2020, the spread of Typha within Freshwater Lake will be surveyed and, if required, control measures will be applied.
 4. Feeding of native birds is to be discouraged unless natural food materials are used (processed foods such as bread pose serious health risks to birds and to water quality). In addition, to avoid birds and other wildlife becoming dependent on food provided by humans, artificial feeding should occur no more than one each week.
 5. For aesthetic and water quality reasons, human and animal wastes should be disposed of away from properties surrounding the wetland.
 6. Landowners are encouraged to grow native plants rather than exotic species, especially plants that do not require the use of phosphorus-based fertilisers.
 7. Landowners should not dispose of surplus or unwanted aquarium fish within Freshwater Lake as several fish species commonly used in aquaria can become environmental pests in natural wetlands and waterways.

BKM

May 21, 2020