



24 August 2021

Knox City Council  
Town Planning Department  
Attention: [REDACTED]

Email: [REDACTED]

**PLANNING PERMIT APPLICATION P/2021/6170 UTILITY INSTALLATION  
609 to 621 Burwood Highway, Knoxfield  
Response to Request for Information**

Dear [REDACTED]

We write on behalf of Development Victoria (the applicant) in relation to planning permit application P/2021/6170 (utility installation) at 609 to 621 Burwood Highway, Knoxfield. The purpose of this correspondence is to provide a response to the information request issued (letter dated 14 July 2021) by Knox City Council (Council) in relation to the abovementioned planning permit application.

For ease of interpretation, we have listed your request item (from your letter dated 14 July 2021) below in **bold italics** and have provided the Development Victoria response directly following each item. The green highlighted items match those highlighted in green in your letter.

**PLANNING PERMIT P/2021/6170 (UTILITY INSTALLATION) COMMENTS**

***Sensitive biodiversity exists on the site and must be retained, protected, and enhanced. Ultimately, it is important that the existing biodiversity be retained, and that the biodiversity overlay controls need to ensure the preservation and enhancement of the biodiversity values of the site.***

***Council is concerned about the lack of detail in addressing the Blue Billed Duck and other flora and fauna, and how the design, construction and transition of the wetland will consider the presence of the local biodiversity, including the recent nesting and breeding of this the Blue Billed duck on this site.***

***It is important to note the proposed wetland site is covered by an Environmental Significance Overlay 2 and the environmental objectives must be considered.***

***In relation to Biodiversity Council the following further information is required:***

***1. A further ecological report or statement, prepared by a suitably qualified person, to include the following specific assessment and considerations:***

***a) Clarification of approvals required under the Flora and Fauna Guarantee Act 1988, along with copies of all relevant consultation with Authorities;***

Simon Denby of DELWP has advised by email (21 July 2021): "In regard to the need for an FFG permit, this is a little unclear as it will depend on the extent of impact on habitat for BBD. I would hold off on applying for such a permit until we can provide you with clearer advice on these potential impacts. My opinion is that the

development of a management plan agreement that ensures the long-term protection and enhancement of BBD habitat on the site will negate the need for an FFG permit. Note that should an FFG permit be necessary it is likely that we would be requiring such a management plan be developed ~~anyway~~.

**b) Depth comparison of the 'dam' and proposed 'wetland' waterbodies given the Blue Billed Ducks tendency to dive/forage in deep water; and assessment of suitability of any differing replacement habitat depth if proposed;**

The existing dam is largely approximately 2 metres deep although its southwest corner is up to 4 metres deep. There is capacity to include areas within the 'open water wetland' habitat with water depths of up to 4 metres however, the depth of the habitat wetland is proposed to vary generally from 1.5 to 2 metres.

Blue Billed Ducks (BBD) are observed 'duck-diving' for feeding purposes across the whole of the dam wherever Eel Grass (*Vallisneria australis*) is present, and do not show any notable preference for deeper water areas in the southwest corner of the dam. The average dive time for adult males and females is 26 to 27 seconds and it is noted that this dive period is fairly consistent across the whole of the dam, suggesting that the depth of water plays little or no part in the feeding habitat requirements of the BBD.

It is not possible to observe the actual depth of dives without significantly disturbing the BBD on site however, there is no reason to suggest that depths of greater than 2 metres are required by this species.

There are water quality risks associated with depth. A depth greater than 2 metres is not recommended in the design of shallow lake systems as it increases the risk of stratification of the water and resulting poor water quality outcomes. The design intention is to provide a more varied habitat than the existing dam, which will mean not having a flat base on the habitat wetland as is currently the case in the existing dam.

**c) Details of proposed continuity of habitat for the Blue Billed Duck within any new proposed habitat 'wetland' including, but not limited to;**

**Clarification of definitive timelines for construction of any new 'wetland'.**

Outlined below is the proposed timeline for the construction of the open water wetland habitat area and the sediment pond and WSUD reed-beds. Please note that this timeline is indicative only, and that the construction program(s) will be dependent on weather conditions and geologies encountered on site. Please also note that this timeline may have to be adjusted to accommodate BBD breeding activity if observed on site.

Stage 1: Establishment of the open water wetland habitat area

Earthworks for open water wetland habitat area including:

- excavation works (approximately 12 months);
- stabilisation of batters and embankments using biodegradable geotextiles (approximately 4 months).

Water inundation and filling of the open water wetland:

- fill from existing dam ensuring dam levels do not drop significantly (approximately 4 months);
- enable waters to settle and temperatures to regulate (minimum 2 months).

Revegetation works (ideally to commence in early spring):

- revegetation of batters in stages including lowering of water levels to 200-300mm depth for each strata (approximately 5 months);
- netting of vegetation and infill planting (over a 12 months period).

Stage 2: Establishment of the sediment pond and WSUD reed-bed

Earthworks for sediment pond and WSUD reed-bed area including:

- excavation works (approximately 12 months);
- stabilisation of batters and embankments using biodegradable geotextiles (approximately 4 months).

Water inundation including:

- fill from open water wetland ensuring open water wetland levels do not drop below required levels (approximately 4 months);
- enable waters to settle and sediments to drop (minimum 2 months).

Revegetation including:

- revegetation of batters in stages (lowering of water levels to 200-300mm) for each strata (approximately 5 months);
- netting of vegetation and infill planting (over a 12 months period).

**It is noted that the Ecological Assessment submitted with this application recommends: to 'minimize disturbance on site during the pairing, mating and nesting period and, if Blue-billed Duck ducklings are observed, during the raising and fledging period also.... Monitoring for Blue-billed Duck pairing and breeding behaviour should therefore be sufficient to cover the period beginning October until late March annually'. This contradicts the Stormwater Management Strategy which commits that 'From an engineering perspective it would be easier if the earth moving stages of the construction could be timed to occur in summer or autumn when ground conditions will be easier to work with than in winter or early spring.'**

The Biodiversity Assessment (Section 5.1.2) identifies a BBD (and Hardhead) monitoring program that triggers restrictions if required, on the type of works that can be conducted on site if BBD are observed to be pairing, mating, nesting or raising young. In the event that BBD pairing behaviour is observed, then works within 50 metres of the dam are to be restricted to light work activity - works not involving the use of heavy machinery such as revegetation of the open water wetland and Swampy Woodland habitat areas, water filling and maintenance of erosion control geotextiles within wetland habitat areas, slashing / mowing of open space areas, and light works of this nature - unless such works are observed to be affecting Blue-billed Duck behaviour on the dam.

There is therefore, no contradiction in the two reports as it clearly would be "easier" if earth moving could be done in summer or autumn however, the biodiversity assessment provisions will apply around light work only at certain times.

**Further details and clarification of the proposed habitat 'wetland' establishment.**

See response above.

**A Management Plan to protect the Blue Billed duck and other local fauna.**

It is recommended that Council include a condition in the planning permit requiring the development of a flora and fauna environmental management plan (FFEMP), which must be included as part of a required construction environmental management plan (CEMP) for the project. The FFEMP would likely include mitigation measures as outlined in Section 5 of the Biodiversity Assessment including (but not limited to):

- monitoring for BBD pairing activity and modification of works as outlined in section 5.1.2 of the biodiversity assessment;
- aquatic fauna transfer to open water wetland habitat area;
- seed collection and transfer (where practicable to do so) of significant indigenous flora identified on site as being impacted by the proposed development;
- salvage and transfer of indigenous fauna from the dam to the open water wetland habitat area;
- identification of tree hollows and the salvage and transfer (if appropriate) of arboreal fauna to alternate habitat areas.

The CEMP would include also matters such as:

- identification of canopy trees to be retained on site and establishment of Tree Protection Zone (TPZ) fencing
- maintenance of 'conservation area' zones and management of works and access

- habitat revegetation programs, weed and sediment control
- stormwater management.

A CEMP is outlined in Section 5.3 of the Biodiversity Assessment.

The submitted Ecological Assessment recommends that any new habitat 'wetland' must be '*constructed and planted at least 12 months prior to any clearance of the current dam*'. Whilst the draft Stormwater Management Strategy suggests '*It is expected that the construction and establishment period for the habitat wetland will take approximately 12 months*'.

**Accessibility to, and for, the habitat 'wetland' and any proposed restrictions on access to it.**

As indicated on the landscape masterplan but to be expanded in the detailed landscape plans to be provided in accordance with a planning permit condition.

**Details of any and all proposed fencing and other treatments like planting and vegetation to restrict and manage access to the proposed habitat 'wetland'.**

As above but the intention (other than in terms of temporary fencing to enable safe vegetation establishment) is to minimise permanent fencing with appropriate design and vegetation planting.

**d) Confirmation that any habitat 'wetland' is offline from the stormwater treatment 'wetland' to allow for identical depths and function to the existing 'dam':**

The habitat wetland is online to the stormwater treatment wetland but flows are treated by the stormwater treatment wetland before entering the habitat wetland. A control structure with capacity to halt water flow will be included in the design in order to accommodate maintenance of the waterbodies. The habitat wetland needs to be online to this system in order to receive sufficient inflows to maintain water levels and keep residence times as low as possible.

The design intention is not to maintain depths and function identical to the existing dam as the existing depths and function are not optimal to support a wide range of wetland habitat. The habitat wetland will have similar depths but will for example, remove areas that would currently be at risk of stratification due to the depth (localised in the southwest corner of the existing dam).

The three waterbodies will be vegetated with indigenous species where appropriate, in order to integrate aquatic habitats with woodland habitat areas.

**e) The effect the proposed changes to the extent conditions of the existing dam, including the reduction in total surface area of open water in the new 'wetland' (from around 15,000 sqm to approximately 11,000 sqm), may have on the Blue Billed Duck immediately and in the future.**

It is not possible to predict with any certainty whether the reduction of total 'open-water' foraging habitat at the site will have an appreciable or significant impact on BBD. We note however, that the provision of a more diverse suite of habitat which meets not only the foraging requirements of this species but also its breeding habitat requirements will benefit BBD, as well as Hardhead and other reed-nesting species.

**2. Detailed design plans (including detailed cross sections) of the proposed sediment basin, treatment wetland and habitat 'wetlands':**

Detailed engineering plans will be provided and submitted for approval in accordance with an appropriately worded planning permit condition.

**Ecocentric, Engeny and MDG Landscape Architects, have completed significant work on the planning for the wetlands system and the biodiversity proposals. This work is reflected in the reports and plans provided with the planning permit application. These reports and plans are entirely consistent with the comprehensive development plan incorporated in the Scheme.**

It is too early to complete detailed design work when a planning permit is yet to be issued - a permit with appropriate conditions will ensure such detail is provided.

**3. Detailed design plans and sections for existing and proposed finished conditions, for all works associated with the removal of the on-site dam, and remediation/re-instatement/re-establishment of the site.**

Refer response above.

**4. Council also notes that limited fauna assessment has been due of the aquatic system within the 'existing dam'. Therefore an EDNA test of species such as dwarf galaxias and eels must be undertaken to understand the full impact of the removal of the system.**

Aquatica Environmental Pty Ltd (Aquatica) was engaged and has conducted an eDNA assessment of the presence of Eastern Dwarf Galaxias (*Galaxiella pusilla*). Aquatica has also conducted a dip-net and light-trap assessment within the dam to identify the presence of aquatic fauna. The findings from the surveys are:

- Dwarf Galaxias were not recorded;
- the habitat is marginal at best and Aquatica advises that it has never recorded Dwarf Galaxia in a similar dam (or any dam);
- Short-finned Eel (c. 20), Goldfish (1 juvenile) and freshwater shrimp, were recorded;
- aquatic invertebrate numbers (shrimp, damselfly larvae and such) were in very low abundance;
- no other small-bodied native fish were recorded, which Aquatica advised would have been found if present, based on the sampling methods used.

Aquatica noted that any indigenous aquatic fauna identified within the dam would be transferred to the open water wetland habitat area where practicable to do so.

***In the event that the renewal of the Wetlands occurs, it is likely that Council will require a covenant on the Wetland site and its surroundings or protection into perpetuity, including a management plan embedded as part of the process.***

It is unclear what "renewal of the Wetlands . ." means as there are presently no wetlands but merely a farm dam nonetheless, the site will be transferred to Council as a reserve and thus such measures as listed above will be a matter for Council.

## Landscape

**The type of Park furniture and equipment and play space should be specified in the Landscape Masterplan and Concepts Wetlands Plan along with any proposed BBQ areas.**

The matters listed will be addressed as is normal practise in response to an appropriate permit condition requiring a detailed landscape plan.

**All existing trees being removed or retained must be shown on the Landscape Masterplan for the Wetlands.**

Separate tree removal and retention plans have been provided with the planning permit application package. This was a deliberate choice as overlaying of this information on the landscape masterplan would have resulted in illegible plans.

**A proposed plant schedule must be provided. The Landscape Masterplan and Concepts Wetlands Plan should acknowledge that the northern end of the site is a Site of Biological significance (Site 33. Blind Creek Corridor), covered by an ESO2 and that proposed revegetation in this area should be indigenous, predominately come from the appropriate EVC's and the plants must be of local provenance.**

Plant schedules will be developed once a detailed landscape plan is finalised in accordance with a planning permit condition, and will include predominantly taxa that are indigenous to the Knox area, appropriate to the site Swampy Woodland EVC and aquatic habitats where appropriate, and propagated from local provenance seed sources if possible.

A revegetation template for the establishment of appropriate Swampy Woodland canopy habitat is provided in Section 5.2.5 (Table 12) of the Biodiversity Assessment report, and revegetation templates for the establishment of five wetland habitat types are provided in Section 5.1.

**Please note that further referral comments from Council' Stormwater and Parks and Open Space teams are still pending and will be forwarded when received. It is also advised that other issues may be identified at the time of further assessment.**

We are surprised that given over 135 days have elapsed since the planning permit application was lodged, there is still no response from these two Council departments.

- **The proposed stormwater management plan supporting the proposed residential subdivision appears to be reasonable and in-keeping with current best practises. However, as the stormwater management of the site is almost entirely reliant on treatment and detention assets which reside outside of the residential component, it is not possible to split the stormwater comments neatly between the residential and wetland/habitat components.**

The Stormwater management plan by Engeny (as submitted with the planning permit application) demonstrates that the proposal is meeting the stormwater quality objectives for the site and contains the results modelling. This has been reviewed by the engineering team at Knox City Council but perhaps has not been seen by the ESD team.

Engeny has not assessed a "myriad of design systems" in detail, as it was determined that the most efficient solution was an integrated wetland system that also provides co-benefits for the environment, amenity and for recreation. It is the integrated wetland system that was modelled. Engeny believes for example, that an alternative of small raingardens throughout the development would have been unacceptable to Council due to the increased maintenance requirements for Council.

- **As noted in the previous set of comments back to the developer, due to the sensitivity of the site it is imperative the developer provides a high level of detail in relation to the wetland and habitat components early. This includes details which would normally be resolved through detailed design such as rock placement, bed meander and general finessing of the design contours to ensure a naturalised aesthetic and promote quality habitat outcomes. Council are in support of all the comments provided by Melbourne Water in addition to those provided by Council previously.**

Development Victoria is aware of the biodiversity issues at the site and in relation to the existing dam and has commissioned significant expert work in this area. This work has been combined with stormwater engineering studies to ensure an appropriate and improved wetland system to meet biodiversity and stormwater treatment.

- **The subdivision outfalls directly to a Melbourne Water asset (Blind Creek) which results in the detention/retardation requirements for the subdivision are set by Melbourne Water. As such it is unclear to Council how, and more importantly where, the required flood storage is being accommodated.**

Flood storage is to be accommodated above the normal operating levels of the sedimentation pond, stormwater treatment wetland and habitat wetland. The peak outflow rate will be controlled via a weir pit and pipe.

It is common practice to co-locate wetlands within retarding basins. It is noted for example, that the nearby Lewis Park redevelopment masterplan proposes to introduce wetlands into an existing retarding basin. The depths of flooding in the Lewis Park retarding basin above the wetland will be significantly greater than the peak depths expected within the retarding basin on the development site.

- ***Being a linked system and looking at the scale of the treatment wetland relative to the development catchment it is assumed the habitat wetland would form part of the detention system. This would not be acceptable from Council's perspective as it would result in a fluctuating water level within the habitat wetland would impact on the fauna's (including the blue billed duck) ability to nest and breed effectively in the proposed asset.***

Fluctuating water levels are a necessary part of a healthy wetland system. It allows for the regular wetting and drying of the ephemeral vegetation and promotes diversity of plant species within the wetland. The existing dam on the site would also have fluctuation in water levels, with lower levels being experienced in summer and higher levels in winter. As stated in the report, based on the MUSIC depth spells analysis a depth of 300 mm above the normal water level occurred only 13 times in a ten-year period.

Both the existing dam and the proposed habitat wetland are within the floodplain of Blind Creek and are inundated in a 1 per cent AEP event and also likely in more frequent flood events, although the exact AEP of inundation from Blind Creek has not been quantified. It would not be possible to exclude this flooding from the proposed habitat wetland as it would reduce the available floodplain storage of Blind Creek and likely increase flooding upstream and downstream of the development. It was a condition set by Melbourne Water that floodplain storage be maintained or enhanced on the site.

The function of the proposed wetland system as a retarding basin will mean that water levels rise above the extended detention operating level of the wetland in rare storm events. This is also true in the existing dam, which in rare storm events would have increased water depths above its normal water level. The vegetation within the wetland will be able to survive the short periods of increased inundation that are associated with flooding as the increase in water level is only temporary and rare.

By utilising the entire wetland area (habitat wetland and stormwater treatment wetland), the total increase in depth as a result of rare storm events is reduced significantly compared with containing the retardation aspect to the stormwater treatment wetland only. It is also important to note that the stormwater treatment wetland will provide additional reed-bed habitat for waterbird nesting (Blue-billed Duck and other species) which will complement the vegetated margins of the adjacent open water wetland. It is expected that Blue-billed Duck, and other threatened species, will utilise both areas for their provision of macrophyte habitat value.

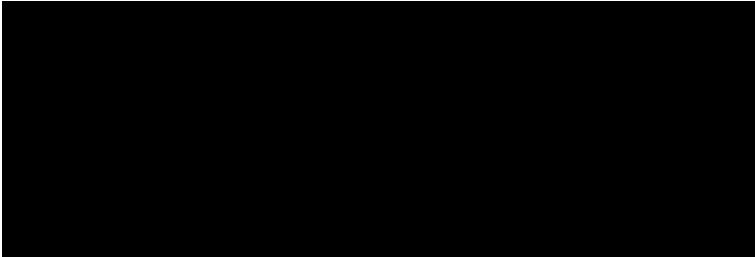
The peak 1 per cent AEP flood level is 230 mm above the extended detention depth of the wetland, assuming that the wetland is full to the extended detention level at the time the storm occurs. If the wetland was at normal water level or below when this storm occurred, a lower level of inundation would be experienced. In the 20 per cent AEP, the peak water level is 10 mm above the extended detention depth of the wetland, assuming that the wetland is full to the extended detention level at the time the storm occurs. These levels are based on the functional design and may change slightly however, they indicate that only very small increases in water levels are likely as a result of rare storm events.

The Blue-billed Duck has an average incubation period of 24 to 26 days and, while a flood event during this time may render the breeding unsuccessful, this species, if disrupted early in the nesting period, is known to attempt a second breeding cycle. To interrupt the breeding cycle a sufficiently large storm event would need to occur during the egg incubation period therefore, which would be a statistically rare occurrence. Water bird nests are also not constructed at the normal water level of a waterbody but are generally elevated to account for seasonal level fluctuations. In the case of Blue-billed Duck for example, nests are supported by a compacted platform of dead leaves 15-30 centimetres above water within reed-bed habitat areas. The likelihood of water level fluctuations impacting Blue-billed Duck and other reed nesting waterfowl is therefore, both statistically and physically unlikely.



We trust that the above and enclosed information is to your satisfaction and look forward to Council finalising its assessment of the application. Please contact [REDACTED] this office should you have any queries.

Yours sincerely,



**Collie Pty Ltd**

Copy [REDACTED] Development Victoria  
Enclosure: As listed above.