ATTACHMENT 2 – NATURAL ENVIRONMENT ASSESSMENT – VICTORIA CREEK

Planning Proposal Addendum – SP16097 – Apollo Fabrications (November 2021)

Natural Environment Assessment – Victoria Creek

By Ecological Consultants Australia Pty Ltd TA Kingfisher Urban Ecology and Wetlands

November 2021

About this document

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Statement of Authorship

This study and report was undertaken by Ecological Consultants Australia at Studio 1/33 Avalon Parade, Avalon. The author of the report is Geraldene Dalby-Ball with qualifications BSc. majoring in Ecology and Botany with over 20 years' experience in this field and Jack Hastings with qualifications B EnvSc.

Limitations Statement

Information presented in this report is based on an objective study undertaken in response to the brief provided by the client. Any opinions expressed in this report are the professional, objective opinions of the authors and are not intended to advocate any particular proposal or pre-determined position.

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Distribution:	Apollo Fabrication Group c/- EI Australia T (02) 9516 0722 | M 0435 759 966 E benjamin.aggar@eiaustralia.com.au Suite 6.01, 55 Miller Street Pyrmont, NSW 2009

Signed: Geraldene Dalby-Ball – Director of Ecological Consultants Australia

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1. Introduction

Hilltops Shire Council (Council) wrote to Apollo Fabrication Group on the 29th October 2021 requesting additional information regarding Apollo's Planning Proposal (PP).

Specifically, Council requested further information namely "an assessment of the impact of the PP on the natural environment particularly an assessment of the landscape-based conservation values of Victoria Creek and opportunities for enhancement and protection thereof".

This supplementary report prepared by EI Australia addresses Council's specific requirement.

2. Victoria Creek Location, Setbacks and Conditions

The following figures and commentary show and discuss:

1) The location, stream order and setbacks from Victoria Creek.
2) The condition of the riparian corridor and land between the corridor and the property Lot boundaries.
3) Recommended actions for rehabilitation

3. Scope

To provide information addressing the request, (#2) included below, in Hilltop Councils letter dated 29th Oct 2021.

> 2. An assessment of the impact of the Planning Proposal on the natural environment, particularly an assessment of the landscape based conservation values of Victoria Creek and opportunities for protection and enhancement thereof;

Along with additional clarifications requested from Council relating to biodiversity.

4. Victoria Creek Location, Setbacks

Victoria Creek is located on the southern side of the lots of the proposed development. The creek bed and banks are wholly outside the proposed development lots. Assuming a riparian corridor of 20m and 30m each side the proposed development is outside all core riparian areas.

With the most conservative approach, Victoria Creek would be classed as a 3rd order creek. As such, there is no development permissible within 15m of the top of bank and there is to be an average of a 30m wide riparian corridor on this side of the creek. However, Victoria Creek is more likely to fulfill the definition of a second order creek (due to the first order creeks shown here having no defined bed or bank). See Figures 1.1 and 1.6.

Thus, considering Victoria Creek as a 3rd order waterway, as has been done in this assessment, possibly overstates the riparian corridors required. See Figures 1.2 and 1.3.

Figure 1.1 Site location and Victoria Creek (image 2005 Near Map)

Figure 1.2 Site and waterway in broader landscape context. Victoria Creek in this location is a 2nd or possibly 3rd Order (at most) Creek.

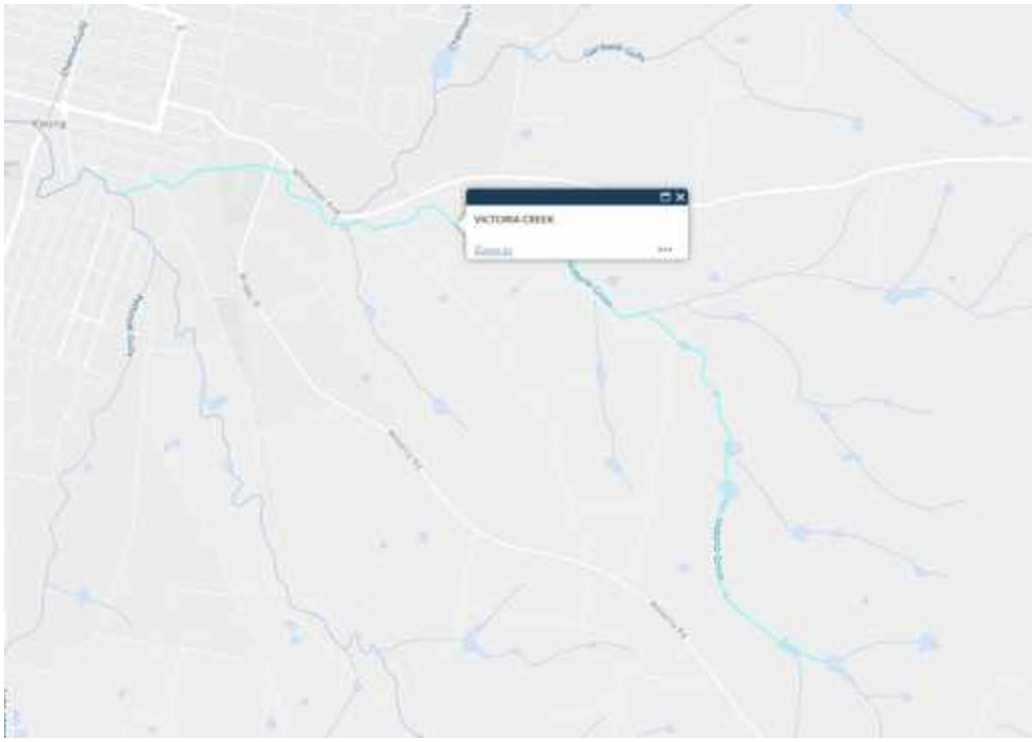

Figure 1.3 Victoria Creek. Source: Water Management (General) Regulation 2018 hydroline spatial data 1.0
https://trade.maps.arcgis.com/apps/webappviewer/index.html?id=07b967fd0bdc4b0099fc5be45b6d1392

Figure 1.4. Victoria Creek Hydroline. NB black dot is # 20 Telegraph Rd. Source: Water Management (General) Regulation 2018 hydroline spatial data 1.0
https://trade.maps.arcgis.com/apps/webappviewer/index.html?id=07b967fd0bdc4b0099fc5be45b6d1392

Figure 1.5 Site and Victoria Creek ~ centre line base on field work in 2020, 2005 mapping and the NSW Government hydroline.

As a 3rd order waterway, Victoria Creek requires a core 15m corridor and an average 30m corridor. This is the conservative approach. Proposed works are not within the 15m inner corridor. Proposed works are set back more than 30m from the top of bank of Victoria Creek. See Figures 1.5 – centre line of creek and Figure 1.6 distance from top of bank to lot boundary. Note that the proposed development is set back from the lot boundary therefore, distances are underestimated set-backs as they are to the lot boundary not the proposed building.

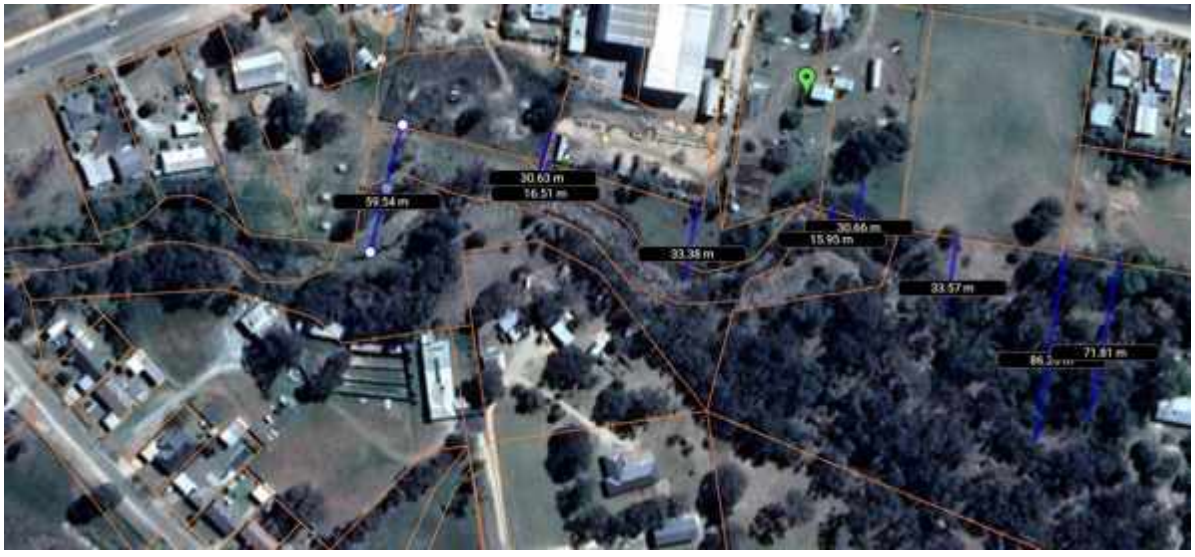

Figure 1.6 distance of lot boundaries to the creekline.

The bank of Victoria Creek is over 30m from the boundary fence and over 40m to the proposed works for over 85% of the proposed works area. (Source: Near Map accessed Nov 13th 2021).

The only location where the lot boundary is close to the development area is in Lot 1171. This retained lot, has a steep embankment leading to the bank of Victoria Creek (~16m from the retained lot boundary). Proposed works in this location are still over 20m from the top of bank.

5. LEP Riparian and Sensitive lands

It is noted that mapping in the Council LEP includes a riparian layer. This can be seen in Figure 1.7a. Comparing this map layer to on-ground experience suggests that the riparian mapping is significantly poor in places and has the zones lower edge on, or close to, the water-way centre rather than having the waterway in the centre of the riparian zone. An accurate topographic map will show the waterway bed location. Figure 1.7b, Sensitive Land mapping, looks to be derived directly from the riparian layer. Growth truthing confirms that areas of the yellow are flat, raised cleared paddocks over 10m above the bed of the waterway and with no signs of water flow.

Figure 1.7a. B Riparian Lands. Source: Council LEP mapping.

Figure 1.7b. Sensitive Lands. Source: Council LEP mapping.

6. LEP biodiversity lands

The biodiversity mapping is closely accurate and the development is 95% outside of these zones. Where it does overlap with pink mapped areas it can be seen that these are cleared paddocks and from ground truthing these are exotic grass areas. See 1.7c and 1.7d (proposed development foot print). Biodiversity will be enhanced with the planting recommend for the riparian area where there is no/low change of natural regeneration as well as removal of weed shrubs and their replacement with natives of a similar structure to retain and increase bird habitat.

Figure 1.7c.Biodiversity. Source: Council LEP mapping.

Figure 1.7d. Indicative Building Footprint.

7. Victoria Creek Condition

Victoria Creek, the riparian zone and the land between the outer edge of the riparian zone and the development lot boundaries is a mix of native and exotic vegetation. The canopy layer is comprised of native canopy trees, as well as exotic pines. Mid-story is dominated by exotic shrub species with a low cover (~10%) of native species present. Ground vegetation is a mixture of environmental weeds and natives with weeds making up around 70%.

The water-way has native edge species such as *Persicaria decipiens* as well as a mix of native and exotic in-stream plants including *Cumbungi, Typha orientalis* and *Typha domingensis*. Exotic edge species are pasture grasses and mint.

At the time of inspection, the creek was slow moving, in the narrow area, to still in the densely vegetated marsh areas (*Typha*). The creek has natural snags (fallen logs) and a diversity of aquatic habitats. It was however low on flows where observed.

Proposed development land at time of inspection

Closest point of creek to property – Blackberry dominated

8. Summary and Recommendations

1. The proposed works are wholly outside a 15m core riparian area. 95% of works are outside the full 30m riparian zone. The averaging of at least a 30m wide zone and no encroachments into the 15m core is achieved with ease.
2. The Council mapping has the riparian lands and sensitive lands slightly off accurate (based on ground truthing). This is expected for works at a high-level and this report seeks to provide location specific accuracy.
3. The riparian zone and lots contained in the creek have a high weed abundance. Canopy is native and should be supplemented with tube-stock. Mid-storey is weed dominated (including Privet and Willows) and selective weed removal is to occur so that the lots being developed, those owned by the same land owner and containing the creek have no more than 50% shrub-layer weed with at least 50% shrub-cover.
4. Removal of invasive weeds such as Horthorn and exotic vines on land owned by the owner of the lots being developed.
5. Planting of locally native canopy trees (x 50 tube-stock and protect these with tree guards and water until at least 3 feet high), planting of locally native shrub species x 50 (after weed removal).
6. Marking the 15m core riparian zone and the line of 30m from the top of the creek bank (where these fall within the boundary lots to be developed).
7. On-going exclusion of livestock from the creek (from the proposed development lots).
8. Collection of surplus clean stormwater (e.g. from roof) and directing surplus into a natural filtration system (rain garden) with overflow of clean water to the creek to maximise environmental flows.
9. Impact of the planning proposal on the natural environment (including Victoria Creek) is minimal/negligible.

Geraldene Dalby-Ball

DIRECTOR

With over 25 years wetland and urban ecology experience, a great passion for what she does, and extensive technical and on-ground knowledge make Geraldene a valuable contribution to any project.

Geraldene has over 8 years local government experience as manager of environment and education for Pittwater Council. Geraldene presented papers on the topic at the NSW Coastal Conference, Sydney CMA and Hawkesbury Nepean forums. Geraldene is a Technical Advisor Sydney Olympic Park Wetland Education and Training (WET) panel. Geraldene has up to date knowledge of environmental policies and frequently provides input to such works. Geraldene was a key contributor to the recent set of Guidelines commissioned by South East Queensland Healthy Waterways Water Sensitive Urban Design Guidelines. Geraldene's role included significant contributions and review of the Guideline for Maintaining WSUD Assets and the Guideline for Rectifying WSUD Assets.

Geraldene is a frequent contributor to many community and professional workshops on ecological matters particularly relating to environmental management. She is an excellent Project Manager.

Geraldene is a joint author on the popular book Burnum Burnum's Wildthings published by Sainty and Associates. Author of the Saltmarsh Restoration Chapter Estuary Plants of East Coast Australia published by Sainty and Associates (2013). Geraldene's early work included 5 years with Wetland Expert Geoff Sainty of Sainty and Associates. Geraldene is an expert in creating and enhancing urban biodiversity habitat and linking People with Place.

SPECIALISATIONS

- Urban Ecology – and habitat rehabilitation and re-creation.
- Urban waterway management – assessing, designing and supervising rehabilitation works
- Saltmarsh and Wetland re-creation and restoration – assessment, design and monitoring
- Engaging others in the area of environmental care and connection
- Technical Advisor – environmental design, guidelines and policies
- Sound knowledge and practical application of experimental design and statistics
- Project management and supervision
- Grant writing and grant assessment
- Budget estimates and tender selection
- Expert witness in the Land and Environment Court

CAREER SUMMARY

- **Director and Ecologist**, Ecological Consultants Australia. 2014-*present*
- **Director and Ecologist**, Dragonfly Environmental. 1998-*present*
- **Manager** Natural Resources and Education, Pittwater Council 2002-2010
- **Wetland Ecologist** Sainty and Associates 1995-2002

QUALIFICATIONS AND MEMBERSHIPS

- **Bachelor of Science with 1st Class Honors**, Sydney University
- WorkCover WHS General Induction of Construction Industry NSW White Card.
- Senior First Aid Certificate.
- **Practicing member and vice president** Ecological Consultants Association of NSW
- **Accredited Biobank Assessor**