

For:	Heritage Victoria
From:	GML Heritage
Date:	10 April 2025
Our Ref:	3345
Subject:	Buchan Caves Reserve (H1978) Heritage Permit application P39315, RFI response Heritage Impact Statement Addendum 01—Assessment of impact of proposed tree removal for BAL compliance
Submitted:	Via Heritage Desk

## Purpose

The purpose of this Addendum to the HIS prepared by GML Heritage for the initial permit application (dated 3 February 2025) is to assess the impacts arising from the requirement to reduce vegetation and trees in a defined area around the location of the proposed cabins to enable Bushfire Attack Level (BAL) compliance. The HIS addendum supersedes the discussion of the impact of BAL requirements in the HIS at Section 7.4.1.

As agreed, this response comprises drawings and an addendum to the original submission. This response comprises the following documents:

- Addendum 1 to Arboricultural Inspection Report Buchan Caves Reserve, North Arm Tree Inspection Survey, 2023 - Impact Analysis of Proposed Buildings on Trees. Prepared by Arboriculture Pty Ltd, Updated 01/04/2025
- Tree Retention, Removal & Planting Plan – North Arm Redevelopment Plan (full length) Buchan Caves Reserve. Dwg No. ARB-01 B. Revision B 8/4/2025. Prepared by Arboriculture Pty Ltd
- Tree Retention, Removal & Planting Plan – North Arm Redevelopment Plan (BAL zones) Buchan Caves Reserve. Dwg No. ARB-01 A. Revision B 8/4/2025. Prepared by Arboriculture Pty Ltd
- Heritage Impact Statement – Addendum 01. GML Heritage (this document)

The HIS Addendum makes reference to the Gunaikurnai and Victorian Government Joint Management Plan, which is publicly accessible.<sup>1</sup>

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<sup>1</sup> [Gunaikurnai and Victorian Government Joint Management Plan, Buchan Caves Reserve – Krauatungalung Country](#)



### **Roofed accommodation - reason and purpose:**

The 2019/2020 bushfires heavily impacted Buchan Caves Reserve. The damage included the destruction of existing cabins and wilderness retreats, camp kitchen tent and other infrastructure. The proposed location for the cabins in North Arm was selected as the most suitable location nominated in the 2022 Buchan Caves Reserve Visitor Precinct Site Concept Plan (Aspect, 2022), having housed the wilderness retreats and being the widest section of North Arm.<sup>2</sup>

The roofed accommodation units are to replace built assets that were lost in the bushfire and to provide roofed accommodation facilities that are resilient and available for use by visitors of all abilities to the Buchan Caves Reserve. Insurance requirements also dictate that the replacement roofed accommodation be built in the vicinity of those lost in the bushfires.

Provision of serviced camping and roofed accommodation for all abilities in the Reserve is one of the goals and visitor strategies for attracting visitors to Buchan Caves Reserve all year round. This is stated in the Buchan Caves Reserve—Krauatungalong Country Gunaikurnai and Victorian Government Joint Management Plan, 2019 (see Section 5.3).

The BAL compliance will reduce the Bushfire Attack Level rating to BAL 29.

The works at the North Arm area of Buchan Caves Reserve aim to provide facilities with improved climate resilience. The projects are planned with safety of visitors as a priority and to enable the ongoing tourist use of North Arm by providing facilities for campers and day visitors. The Buchan Caves Heritage Action Plan Policy notes to “maintain tradition of cabin-style accommodation as part of the ongoing use of the reserve.”

The position and alignment of the buildings has been designed to deal with future flooding events, with an elevated floor and the ability to drain surface water in the event of inundation. North Arm is traditionally used for camping.

The position on the site for the accommodation units was carefully considered to ensure the least impact to the natural and heritage context, The alignment of each unit has been rotated by approximately 10 degrees between each unit so these are fanned out along the flat section of the bank so views from any angle will show articulation between each unit. The architects tested the linear arrangement of the units, which presented as a continuous wall and was not harmonious with the natural context. The siting of the units responds to the natural topography, which will allow an efficient construction methodology and components. Access would be provided by the existing North Arm track and pathway.



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<sup>2</sup> Aspect Studios, Buchan Caves Reserve Visitor Precinct Site Concept Plan, 2022





## Background

In order to ensure compliance with building in bushfire prone areas, and for the safety of cabin users, a BAL assessment report was prepared by Crowther & Sadler. The BAL Assessment report was included in the initial application documentation as Appendix F. However, an analysis of the heritage impact of any required tree removal and landscape management was not assessed as part of the original HIS (dated 2 February 2025).

The BAL report outlines the landscape conditions which would need to be implemented for low fuel conditions to be maintained in a separation zone radius around the proposed cabin locations of 25-35 metres, in order to provide site conditions which remain compliant with a BAL 29 rating.

To inform the assessment of the potential impact of tree and understory removal, Stephen Fitzgerald, arborist from Arboriculture Pty Ltd, re-visited the North Arm site in March 2025 and surveyed the landscape in the vicinity of the proposed cabins. The drawings and updated addendum report noted above were provided subsequent to this visit, and inform our analysis of the impact of the proposed tree and vegetation removal in the vicinity of the proposed roofed accommodation.

Arboriculture Pty Ltd's plans and report advise that some tree and shrub removal and groundcover management would be required on the eastern and western slopes, and areas surrounding the cabin locations. The area on the slope to the west of the cabins is noted as an area of naturally regenerating regrowth in the Crowther & Sadler report and in the Arboriculture Pty Ltd report.

Further to the proposed removal of a number of mapped trees and self-seeded groups of trees within the zone, an ongoing program of management of the landscape within the BAL zone by Parks Victoria staff, to maintain low fuel conditions in compliance with the BAL constraints, would be required.

## Understanding the BAL report

The BAL report assessed a zone of 100 metres from the proposed location, and noted that on the eastern side, canopy coverage of mature trees was sparse, with less than 10 percent coverage throughout the eastern aspect, this vegetation is considered to constitute *Grassland* (Crowther, 2024, p.3).

On the western aspect, the BAL report notes considerably more regrowth vegetation, but notes that these are quite young regenerating trees which are common after a bushfire event, and would be classified as scrub because of the existing characteristics, but that if retained and allowed to mature would constitute Forest. The 'regrowth' referenced in the BAL report refers to the largely self-seeded clusters of immature trees, on the western side which have likely self-seeded after the 2019-2020 bushfire event. The BAL report





notes 'the regenerating trees are quite young which is common to see after a bushfire event' (Crowther, p.5).

This aligns with the arborists assessment of the 'tree group areas' to the west of the proposed cabin site (Arboriculture Pty Ltd, 2025 p.3), and a February 2020 aerial view (Nearmap) that indicates that this zone was sparsely populated by trees with limited groundcover. The fuel load management zone for a BAL 29 rating would be within a 35 metre radius of the cabins. The 'Forest Upslope' noted in the BAL report is positioned further west upslope and therefore would not be impacted by the proposed vegetation clearance or tree removal within the 35 metre buffer zone.

### Existing conditions

The landscape character of North Arm is currently mixed, with an avenue of alternately planted deciduous exotic trees at the southern end, a more open valley area centrally at the subject site with lawn, picnic areas and scattered exotic trees on the valley floor with relatively open scrubby hillsides, with the northern end more enclosed with mixed native and exotic trees. Throughout, along the valley floor, trees are spaced to allow for camp sites in between.



Figure 1 View looking northwest towards the site of the new cabins.



Figure 2 View towards the amenities block, looking southeast (site of the new cabins).





Figure 3 View looking southwest to the amenities block with upslope in view.



Figure 4 View towards the picnic shelter (on left) amenities block (partially obscured on right), looking southwest (site of the new cabins).



Figure 5 View looking northeast to the amenities block (site of the new cabins).



Figure 6 View towards the amenities block, looking southwest (site of the new cabins).

## Proposed works due to cabin locations and BAL compliance

### Tree removals

We have attached the drawings prepared by Arboriculture Pty Ltd (ARB-01 A and ARB-01 B), which graphically represent the areas of shrub and tree removal, and the locations of proposed new plantings along North Arm.

The plans indicate the proposed necessary tree removal as follows:

- Estimated 227 in 'tree groups' for BAL 29 compliance (mainly regrowth in the areas shaded green on plan ARB-01 A).
- 42 individual mapped trees for BAL 29 compliance
- 7 trees required due to building impacts.
- 4 trees on the basis of health/structure.





Dense groups of young and semi mature saplings and shrubby trees (mainly Bursaria and Tree Violet), and some weedy species, mostly on the western upslope were estimated to comprise of approximately 237 specimens. Of these, approximately 227 would need to be removed for BAL compliance, with 10 individual specimens retained in positions compliant with BAL spacing specifications. The main 'tree group' area is an area of mainly regrowth, positioned on the western slope side of the cabins. Within this area, all trees and shrubs classified as regrowth would be removed, apart from a selected single specimen as marked on the plan. It is envisaged that these would regenerate as groups of vegetation which would become part of a managed landscape. The balance of the 227 would not be replaced, as they largely represent sapling trees or regrowth which will continue to naturally regenerate throughout the reserve.

In addition to the tree group specimens being retained, 37 mapped trees within the 35 metre zone would be retained.

The following trees would be removed, because of the cabin footprints or to meet the BAL 29 requirements. The discussion that follows notes the retention value of the trees from an arboricultural perspective.<sup>3</sup>

The **7** trees to be removed due to building impacts comprise 1 low retention, 5 medium retention and 1 high retention trees. Additionally, tree 580, a 'very high' retention value eucalypt may require a small amount of pruning so its canopy does not overhang the southernmost accommodation unit. The arborist's report (Addendum 1) does not flag concern in relation to the potential pruning.

Of the 42 trees that would need removal to meet the BAL 29 requirements in the vicinity of the cabins, twelve are low retention value, 27 are medium retention value and 3 are high retention value.

Some of the trees already noted as impacted by the swale construction also fall within the BAL zone (total of 7). As these have already been assessed under the Swale impacts, they have not been included in this total but are taken into consideration in the overall impact assessment.

An additional four trees of 'low retention value' were identified by the Arborist on site to be in poor condition, and their removal is recommended. These trees would not be replaced.

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<sup>3</sup> Assessment of retention value comprises a matrix of factors; among them tree origin, age, significance, habitat value, species suitability, and condition (health and structure). (Retention value is defined by the arborist, Stephen Fitzgerald in the initial Arboricultural Inspection Report, Buchan Caves Reserve, North Arm Tree Inspection Survey 2023, updated 9/05/2024 pp.58-59 of 60—provided with the initial HIS for P39315).





Two trees of high retention value—Tree 594 (*Eucalyptus viminalis*) and Tree 623 (*Eucalyptus viminalis*)—that the civil works were designed around to avoid physical impacts (and noted in the HIS at section 7.2.1 as being retained) are located in the BAL zone. These two high retention value trees will still be retained.

Of the 49 trees noted above for removal due to the impact of cabin footprints (7 trees) and BAL buffer zone (42 trees), 52 trees are recommended to be replanted by the arborist, to offset the balance of the trees removed, but outside of North Arm.

The trees that are proposed to be planted to replace those removed due to the construction of the Swale, will also assist in integrating the cabins into the landscape, three of these trees will be positioned in front of the cabins on the east side and one on the north side and others will provide visual screening on the north and south approaches.

### **Management protocols**

The area within the BAL zone will be a managed landscape. In order to establish and then maintain low fuel conditions, the constraints of the BAL on the landscape in the buffer zone around the cabins will require careful maintenance and ongoing management by Parks Victoria staff in line with BAL constraints and recommendations as follows:

- Grass must be short cropped and maintained during the declared fire danger period
- All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period
- Plants greater than 10 centimetres in height must not be placed within 3 metres of a window or glass feature of the building
- Shrubs must not be located under the canopy of trees
- Individual and clumps of shrubs must not exceed 5 square metres in area and must be separated by at least 5 metres
- Trees must not overhang or touch any elements of the building
- The canopy of trees must be separated by at least 5 metres
- There must be a clearance of at least 2 metres between the lowest tree branches and ground level.

A maintenance regime would be required to maintain compliance with the required landscape conditions, which Parks Victoria has committed to undertaking with their on-site maintenance staff.

The landscape within the BAL zone will therefore be allowed to regenerate naturally, but within the constraints of the BAL requirements; that is, in 5 metre square clumps, clumps separated by 5 metres, grass between short cropped in fire danger seasons, no shrubs under tree canopies, and tree canopies separated by at least 5 metres.





## Analysis of impacts on heritage

We have reviewed the updated arborist's plans and report and the related information in relation to the following points:

- The cabins are sited in an area of North Arm which already has some clear areas.
- Landscape areas around the cabins will require modification, including tree removal, management of low branches, selective understorey clearance, selective shrub retention and ongoing management and maintenance regimes.
- The location of the roofed accommodation cabins makes use of the existing access track and pathway, and an elevated area of North Arm, to an extent already cleared, and with access to services already connected to the extant toilet/laundry building.
- Whether there are any changes to the assessed impacts in the HIS.

There would be an impact on the landscape aesthetic of North Arm in the defensible space from the tree and vegetation removal required to achieve the BAL 29 ratings, and from the areas that correlate with the footprints of the cabins.

From a heritage perspective, the trees required to be removed because they are in the footprint of the cabins or for the BAL 29 requirements are not of individual heritage significance. They were not planted as part of the 1929 Linaker plan. The North Arm area was not included in the 1929 Linaker plan.

Collectively, however, they contribute to the overall landscape character of the reserve and to the recreational experience for visitors to the reserve and in particular the North Arm area. The 2004 Heritage Action Plan recognises later planting of trees in the reserve, including in the North Arm area, as having Contributory value (not Primary value) to the cultural significance of Buchan Caves Reserve (against the historic, aesthetic, social/spiritual, and scientific criteria).

The seven exotic trees to be removed from the area of defensible space reflect the aesthetic ideals of the Linaker plan as exotic trees with showy Autumn foliage (trees 2316, 2321, 2509, 2510, 2511, 2549) or dark foliaged conifers (tree 579), but all are quite young trees (either young or semi mature) indicating relatively recent plantings or planting post-1976 in association with the development of the Northern Arm area for camping. The one mature tree (tree 2549), a *Fraxinus angustifolia*, is a weedy species.

The balance of the trees are Victorian native species; a mix of mature and semi mature trees, and small to medium trees—Acacias (trees 2340, 2526, 2528, 2556, 2557, 2574), Bursaria (trees 607, 2548, 2552, 2555, 2558, 2560, 2561, 2568, 2582), and Cassinia (tree 2565)—and larger trees or with potential to become large trees—eucalypts (trees 582, 583, 598, 599, 600, 2335, 2501, 2505, 2507, 2508, 2519, 2529, 2541\*, 2542\*, 2543\*, 2544\*), casuarina (trees 601), and Brachychiton (trees 581, 602). Four of the Victorian native trees are planted specimens (indicated with an asterisk).





In developing the tree retention, removal and planting plan for the North Arm in the BAL zone, attempts to minimise impacts from tree removal have been made by starting with the few dead trees and endeavouring, insofar as possible, to retain 'High' and 'Very high' retention value trees. Even so, three of the 42 trees to be removed have High retention value. These are mature Victorian native trees 2340 (*Acacia caerulea*, 15-19m x 7m), 2505 (*Eucalyptus viminalis*, 20-24m x 5m), and 2548 (*Bursaria spinosa*, 6m x 4m).

The *E. viminalis* (2505) is located upslope of the cabins and among 3 other mature and semi-mature *E. viminalis* trees of the same or greater height and with more expansive canopies (trees 2504, 2527 and 2521). Trees 2504, 2527 and 2521 will be retained. The *Bursaria spinosa* (2548) sits very close to another *Bursaria spinosa* (2547) of similar dimensions and estimated age in a vegetation group. In line with the BAL requirements, only one could be retained. The Acacia is situated downslope and in very close proximity of the southern-most cabin. The removal of trees 2505 and 2548 reflect the attempt to minimise the impacts from tree removal by endeavouring to retain as many high retention value trees as possible.

The removal of the specified individual trees, the clearing of tree/vegetation groupings, and the requirement for a managed landscape will result in a more open, and more sparsely vegetated area in the defendable BAL 29 zone of North Arm relative to what is there presently.

The resulting overall aesthetic of the landscape surrounding the cabins would appear as a larger clearing midway up the North Arm track with scattered (about 34) Victorian native specimen trees and a managed understorey comprising cropped grasses and small clumps of shrubs and additional specimens retained within groups.

On three sides of the cabins (the walls with glazing) will be a 3 metre buffer where there will only be plants of less than 10cm in height (so, groundcover or cropped grass).

The cabins would be visible in the landscape, because the opportunities to integrate or screen them with additional planting are limited; but through their high quality design and materiality and neutral colour scheme, the cabins are not considered to result in overly intrusive elements. They align with the recommendations of the HAP that new elements adopt a complementary but neutral colour scheme.

The inclusion of two new proposed tree plantings in front of the cabins would to an extent help to soften the appearance of the cabins in the landscape. Trees retained on the west side of the North Arm track and proposed to be replaced on the east side of the North Arm track would help to screen views of the cabins on approach from the south and from the main camping area.

Integration of the roofed accommodation into the landscape, through additional planting and screening vegetation, would ordinarily be desirable in the context of the registered place and the landscape setting of North Arm.





Further, when trees are proposed to be removed from a heritage place, generally the same number of trees as proposed to be removed would be replaced in the same or similar location using the same or similar species. Within the defendable zone required for achieving the BAL 29 rating, such an approach is limited.

Without the proposed cabins, the changes for the BAL 29 rating would not be required. The identified impacts are, however, considered acceptable from a heritage perspective and reasonable for the following reasons:

- The requirement for tree and vegetation clearing, and landscape management to achieve BAL 29 compliance will allow for the ongoing and enhanced use of the North Arm for tourism and accommodation. This use is consistent with the significance of the Reserve and with the goals of the reserve's joint owners.
- If construction of the roofed accommodation was refused, on the basis of avoiding the impacts arising from changes associated with achieving BAL compliance, this would have an impact on the cultural heritage significance of the Buchan Caves Reserve by limiting the use of the reserve for camping and tourism; the longstanding use of the reserve for tourism is recognised in the Statement of Significance as contributing to the reserve's state level significance.
- If construction of the roofed accommodation was refused it would affect the reasonable and economic use of the registered place, as discussed in the HIS at Section 8.1.2. Provision of serviced camping and roofed accommodation for all abilities in the Reserve is one of the goals and visitor strategies for attracting visitors to Buchan Caves Reserve all year round. Interior provisions for all abilities would be provided in stage 2 of the roofed accommodation building program. A DDA compliant (wheelchair accessible) path of travel is provided to the front door of the cabins. This is stated in the Buchan Caves Reserve—Krauatungalung Country Gunaikurnai and Victorian Government Joint Management Plan, 2019 (see Section 5.3 of the Joint Management Plan). There is currently no other accessible accommodation in the reserve. New accommodation located in the vicinity of the accommodation lost in the bushfires will be partially funded by insurance.
- From a historic heritage perspective, the North Arm area is a preferable location for roofed accommodation for all abilities relative to other areas in the reserve earmarked as a Recreational Development Zone, because it is outside of the planted areas that correspond with the 1929 Linaker plan.

Replanting in the BAL zone of four *Eucalyptus polyanthemus*, as opposed to replanting the same or similar exotic species as removed from the North Arm track edge, is considered an acceptable impact because this species is consistent with the expressed desire of GLaWAC for the North Arm area overall to reflect a more indigenous landscape. This overall direction for North Arm was discussed on site walk-through with





representatives of Heritage Victoria, Parks Victoria, GLaWAC and GML on 16 February 2024.

## Conclusion

As a result of the BAL requirements, there will be an impact on the existing landscape of the North Arm. However, the primary heritage values of the Reserve related to the caves, early tourism infrastructure and the parts of the landscape that correlate with and reflect the 1929 Linaker plan, will not be physically or visually impacted as a result of implementing the BAL requirements in the North Arm.

The impact is considered acceptable and reasonable from a heritage perspective. The relative significance of this part of this part of the reserve means the area is better placed than other areas of the reserve's historic landscape to tolerate such change.

## Recommendation

- Further planting in North Arm, on the valley floor or the bushland areas on either side could adversely affect the historic, practical and safe use of this area for camping and tourism.
- Due to limited space for new tree planting within North Arm, and as a mitigative measure, a further 56 trees could be replanted in another bushland area of the reserve, outside of North Arm, under native vegetation offsets (to be calculated by an ecologist).

## Attachments

### Arboriculture Pty Ltd

- Tree Retention, Removal & Planting Plan - North Arm Redevelopment Plan (full length) Buchan Caves Reserve. Dwg No. ARB-01 B, Revision B 8/4/2025
- Tree Retention, Removal & Planting Plan - North Arm Redevelopment Plan (BAL zones) Buchan Caves Reserve. Dwg No. ARB-01 A, Revision B 8/4/2025
- Addendum 1 to Arboricultural Inspection Report Buchan Caves Reserve, North Arm Tree Inspection Survey, 2023 Impact Analysis of Proposed Buildings on Trees Updated 01.04.2025.

