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Thursday, 26 October 2023

The Hon Tanya Plibersek
Minister for the Environment
Parliament House
CANBERRA ACT 2600

Dear Minister,

RE: Wallum Estate - Lot 13 DP 1251383 15 Torakina Road, Brunswick Heads

I am writing with significant concerns regarding the proposed subdivision at 15 Torakina Road, Brunswick Heads (Development) and request that the Development be called in for referral pursuant to section 70(1) of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The majority of the proposed urban footprint is on threatened species habitat, and the primary concern is that several matters of National Environmental Significance (MNES) have not been adequately considered in the Concept Plan Environmental Assessment (EA).

As the Director and Principal Ecologist of Wildsite Ecological Services for over 25 years, I have extensive experience in environmental impact assessment, conservation planning, management and restoration of native vegetation within coastal Byron Shire, and in particular have specialist expertise in the assessment and management of wallum vegetation and its associated biodiversity values.

2 Summary

In summary, my submission states that:

1) the Development should be called in for referral under the EPBC Act because the following matters of national environmental significance have not been adequately assessed and are likely to be subject to significant impacts as follows:

   a) Mitchell's Rainforest Snail (critically endangered) has not been subject to any assessment of impacts, despite areas to be cleared by the Development constituting likely habitat.

   b) Koala (endangered) feed trees, primary habitat and movement corridors will be cleared by the development (JWA, 2011, 2012a; OEH, 2011;BSC, 2015), leading to likely significant impacts including to: fragment an existing population into two or more populations; and interfere with the recovery of the species. The affected corridor value of the site is of elevated importance given recent wildfires (October 2023) have affected most of the habitat for the species in the adjacent Tyagarah Nature Reserve. Environmental assessment failed to adequately assess the impact of the population ecology, broader declines and the importance of connectivity of remaining habitat within the site and between other areas (OEH, 2011).

   c) Olongburra Frog (vulnerable) has not been subject to adequate assessment of impacts despite the Development: clearing most of the species' habitat on the site; and exacerbating the primary threatening processes for the species. The Concept plan EA severely understates impacts on this species to justify non-referral under the EPBC Act. The affected habitat is of elevated importance given recent wildfires have affected nearly all known populations in the locality.

d) Long-nosed Potoroo (vulnerable) has not been subject to adequate assessment of impacts, despite the Development clearing most of the species' known and potential habitat on the site. The affected habitat is of elevated importance given recent wildfires (October 2023)have affected most of the habitat for the species in the adjacent Tyagarah Nature Reserve.

e) Coastal Swamp Sclerophyll Forest (endangered) has not been subject to adequate impact assessment despite the Development clearing substantial areas of the community on the site. Significant impacts are a real possibility, given that the development will: reduce the extent of the ecological community; increase fragmentation of the ecological community; reduce the integrity of an occurrence of the ecological community via mobilisation of pollutants into the ecological community via urban stormwater runoff.

2) Potential impacts arising from the Development need to be rigorously assessed under the EPBC Act and include:

   a) more robust survey, site assessment and accurate documentation of MNES affected by the Development

   b) more rigorous analysis of the impact of the Development on all affected MNES in terms of population ecology, broader declines and the importance of connectivity of remaining habitat within the site and between other areas, with implications for the layout and scale of this proposal.

3 Background

The proposed Development is a residential subdivision of 127 residential lots over approx. 13.5 ha. The Development area comprises high conservation wallum vegetation dominated by wet and dry wallum heathland old-growth Scribbly Gum woodland and swamp sclerophyll forest.

The Concept Plan EA (JWA, 2012a, 2012b) repeatedly discounts the likely impacts of the Development on MNES and repeatedly overstates the value of related offsets and mitigation measures. Accordingly, the EA deceivingly concluded that the net impacts on each MNES were negligible, and therefore did not justify referral under the EPBC Act. The inadequacy of the EA was corroborated during public and agency consultation, which revealed significant flaws in the impact assessment for the proposal, including for a number of MNES, resulting in widespread calls for more stringent impact assessment (see Section 5.2). However, most of these recommendations were dismissed by the proponent and the Concept Plan subsequently approved by the NSW Department of Planning in the haste to release lands for housing subdivisions in the coastal zone.

4 MITCHELL'S RAINFOREST SNAIL (THERSITES MITCHELLAE) – CRITICALLY ENDANGERED

The Concept Plan EA failed to mention or assess impacts on Mitchell's Rainforest Snail (MRS) despite likely MRS habitat being cleared under the proposal.

The swamp forest habitat to be cleared by the Development is mapped as likely MRS habitat by Byron Shire Council, being swamp sclerophyll forest with rainforest understorey plants associated with the microhabitat requirements of MRS. While 'swamp forest on *alluvial* [river-deposited] soils' is listed as part of the preferred habitat for MRS (DAWE, 2016), swamp forest on the subject site occurs on non-alluvial soils of *aeolian* (Morand, 1994) and dunal *swamp* origin. Importantly however, MRS has been widely recorded in swamp forest on non-alluvial soils throughout the wider locality, including at Tyagarah, Belongil, Suffolk Park, Lennox Head and Kingscliff (c. 80 records; **Figure 1**).

MRS relies on particular microhabitats in which to retreat during the day, such as dense sedges (e.g. Gahnia clarkei), palm fronds of *Archontophoenix cunninghamiana* (Bangalow palm), coarse woody debris, and leaf litter (DAWE, 2016). These microhabitats all occur on the site, including those provided by a diversity of rainforest pioneer tree species and Bangalow Palms. Accordingly, the site constitutes likely MRS habitat and impacts should have been assessed under the EPBC

Act. In the absence of any assessment, it is unknown whether the Development will have a significant impact on this MNES.

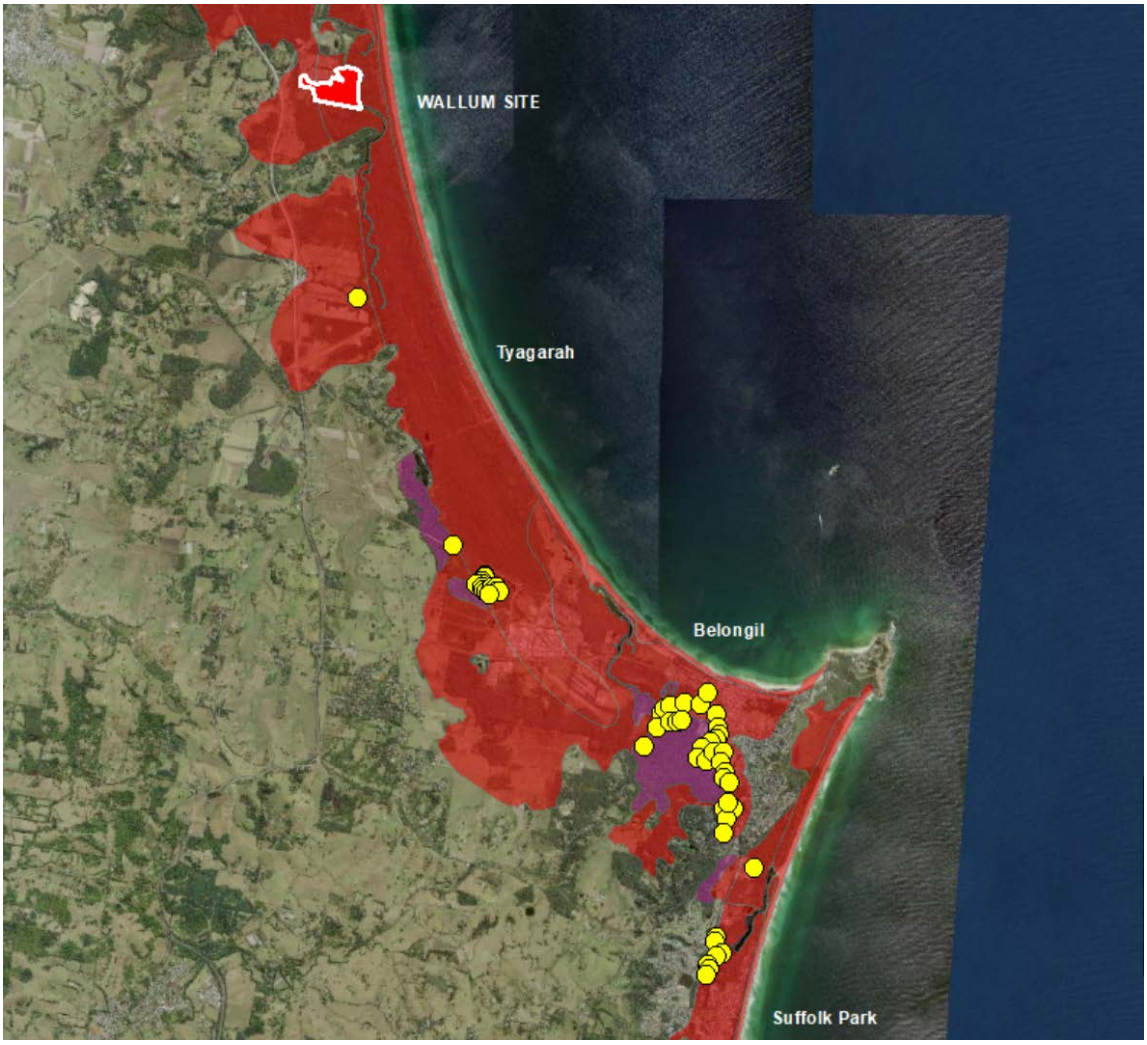

Figure 1. Examples of Mitchell's Rainforest Snail records (yellow points) on non-alluvial soils (aeolian soils – red; dunal swamp soils - purple) comparable to the subject site. Populations on similar non-alluvial soils at Lennox Head and Kingscliff are not shown (Source: Morand, 1994; CSIRO, 2023).

4.1 Grounds for referral

With regards to Mitchell's Rainforest Snail, the Development should be called in for referral under the EPBC Act on the grounds of **inadequate assessment (in this case non-existent) of whether the Development will have a significant impact**.

5 KOALA (PHASCOLARCTOS CINEREUS) – ENDANGERED

The proposal will remove primary habitat for koalas and also old growth feed trees known to be used by koalas (JWA, 2011, 2012a; OEH, 2011). The Development lies within a known koala corridor (BSC, 2015). Agency and public submissions to the EA identified numerous issues of inadequate impact assessment and the likely significance of impacts to koalas (see Jim Glazebrook & Associates, 2012; OEH, 2011). However, the agency recommendations were largely dismissed by the proponent, with no substantial modifications to the proposal or further impact assessment undertaken (**Table 1**).

Table 1. Agency issues and recommendations relating to the Development' impact on koalas.

Government Agency	Agency Recommendation	Developer Response
NSW Dept. Planning & Infrastructure (30.01.12)	Koala - Further assessment and redesign required.	**Recommendation dismissed** • 'Further assessment and redesign are considered unnecessary'.
Byron Shire Council (7.11.11)	Loss of significant old growth koala food trees (*Eucalyptus signata*) and resulting cumulative impact of development overall in this part of the site is not supported.	**Recommendation dismissed** • 'The loss of old growth koala food trees will be offset through revegetation.'
NSW Office of Environment & Heritage (28.10.11)	More attention should be given to the impact of the proposal on Koala in terms of population ecology, broader declines and the importance of connectivity of remaining habitat within the site and between other areas, with implications for the layout and scale of this proposal. The layout should be redesigned to ensure that key areas of Koala habitat and movement corridors in the north−west of the site, including primary Koala habitat, be maintained and re−established to ensure that direct, indirect and cumulative impacts on Koala are avoided.	**Recommendation dismissed** • The majority of Koala habitat in the north-west of the site is considered Secondary habitat. • The loss of old growth koala food trees will be offset through revegetation. • Connectivity throughout and in proximity to the site will not be affected.

5.1 Removal of important corridor habitat

Remnant patches of koala habitat and connectivity between patches of actual and potential habitat are crucial to this species viability in broader local and regional landscapes (DAWE, 2022; SECRC, 2011). The severance of movement corridors through urban development can have significant impacts on koala populations, including via the removal of remnant koala food and shelter trees which can often form part of a longer chain of trees to additional koala habitat further away (SECRC, 2011). SECRC (2011) also state that "the loss, degradation and fragmentation of koala habitat is the most significant cause of koala population declines and reductions in long−term population viability" in conjunction with other pressures such as road fatalities and dog attack, and that addressing habitat loss and fragmentation and degradation "is particularly critical to koala populations in Queensland and New South Wales".

This site is known koala habitat that represents part of the range of Koala locally, serving as a refuge site and corridor important in the dispersal of Koalas to other 'core areas' (BSC, 2015) (**Figure 2**). The *Byron Coast Comprehensive Koala Plan of Management* (BSC, 2015) states that 'development within koala corridors should be sited, designed and carried out to maintain or enhance landscape connectivity to ensure negative impacts, such as the fragmentation of koala habitat or severance of movement of koalas is avoided.' However, the EA has not adequately taken into account the impact of the proposal on the movement of Koalas across the site which, in a post development scenario, would include fences, roads/vehicles, lights, noise, pools, predatory domestic animals and cumulative food tree losses (OEH, 2011). In light of the above information, and noting the very limited consideration of the impact of this proposal upon Koala, OEH (2011) recommended that the layout be redesigned to ensure that key areas of Koala habitat and movement corridors be maintained. This recommendation was dismissed by the proponent (see **Table 1**).

The corridor value of the site is further heightened due to the recent (October 2023) extensive wildfires that affected the majority of Koala habitat in the Tyagarah Nature Reserve (**Figure 2**). Koalas are known to persist in the post-fire landscape by dispersal to unburnt forest areas and subsequent recolonisation of burnt habitat following post-fire habitat recovery (Matthews et al., 2016).

Clearing of these remaining unburnt corridors will, in my opinion, likely have a significant negative impact on the persistence of remaining populations of the Koala. Therefore, in my opinion, clearing of the Wallum Estate development site is highly likely to have significant negative effects on both the landscape-level persistence of the species in the broader area and also will impair the recovery of the species following the recent fires. In general, landscapes that have been subject to extensive disturbance (such as the landscape around the Wallum Estate site), should not be exposed to yet further disturbance. This is because the cumulative effects of compounding disturbances can drive the losses of disturbance-sensitive species (Lindenmayer & Taylor, 2020).

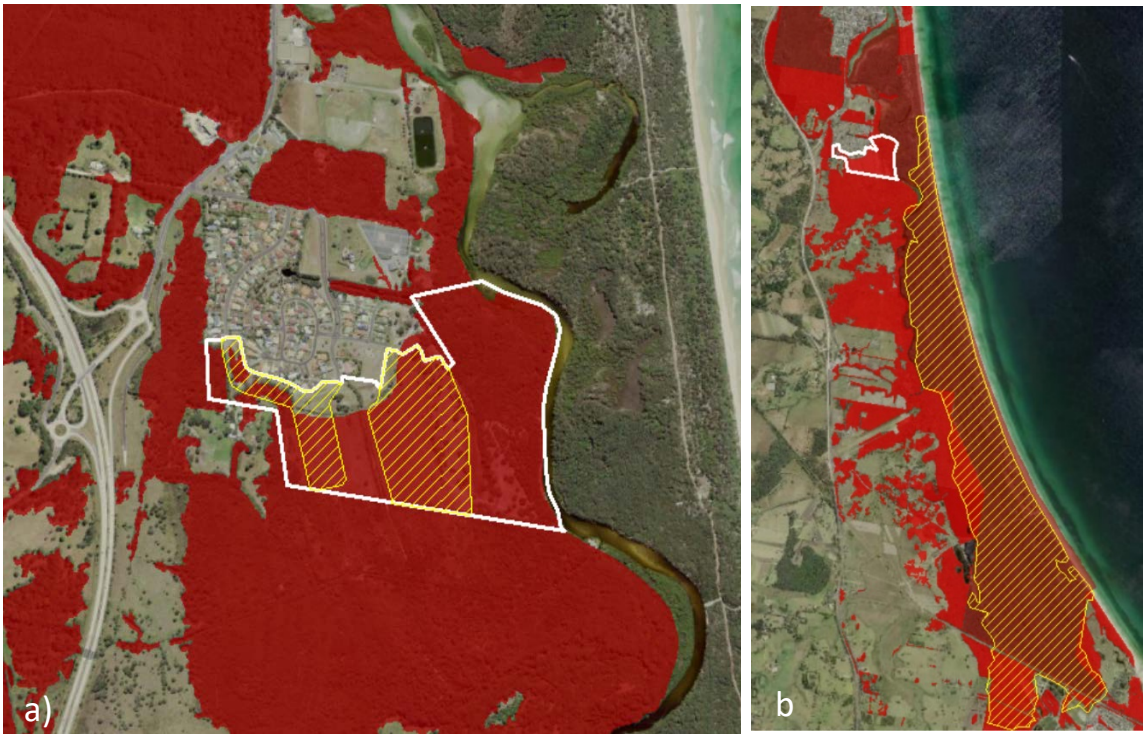

Figure 2. Extent of a) mapped koala habitat (red) to be cleared (yellow hatching) by the proposal; and b) of recent 'Bayshore Drive Fire (October 2023; yellow hatching) that affected most of the koala habitat in Tyagarah Nature Reserve. This has increased the importance of the site (white outline) for koala movement to unburnt foraging habitat while their home ranges recover. The proposal will severely reduce connectivity in an important north-south coastal corridor.

5.2 Inadequate Assessment

The inadequacy of the Concept Plan EA regarding impacts on koalas have been previously identified by agencies (**Table 1**) and relevant experts (e.g. Ecologist David Milledge, Friends of the Koala). However, recommendations to address these deficiencies were largely ignored by the proponent. Assessment inadequacies include:

- Inadequate assessment of impact of the proposal on Koala population ecology, broader declines and connectivity of remaining habitat (OEH, 2011)
- The koala habitat on the site is of higher conservation significance (primary and secondary) than that reported in EA (potential)
- The classification of koala habitat overlooks a number of stands containing Swamp Mahogany
- The classification of koala habitat ignores the fact that all records of Koala scats by James Warren and Associates (2011) are from around the bases of Scribbly Gums not Swamp Mahoganies.
- Additional koala records, other than from surveys conducted by the consultants (James Warren and Associates), have been overlooked.

5.3 Grounds for referral

With regards to the Koala, the Development should be called in for referral under the EPBC Act on the following grounds:

1. inadequate assessment of whether the Development will have a significant impact
2. likely significant impact as there is a real possibility that the development will:
    a) fragment an existing population into two or more populations
    b) interfere with the recovery of the species.

Additionally, the Department's 'Referral Guidelines for the endangered koala' (DCCEEW, 2023) state:

'It is the department's expectation that you refer any proposed project that is likely to impact the koala and/or its habitat. This includes disturbance and/or creation of barriers on areas of land that either contains locally important koala trees, or is land that is provides the means for koalas to move between patches of habitat.

Finally, the koala has recently been identified by Minster Plibersek as a priority species under the *Threatened Species Action Plan: Towards Zero Extinctions (2022-2032)*. Accordingly, the koala should be subject to the highest level of impact assessment.

6 OLONGBURRA FROG (LITORIA OLONGBURENSIS) - VULNERABLE

The proposal will clear c. 10.7 ha of *Wallum Sedge Frog* (WSF) *Habitat* (**Figure 3**), however the Concept Plan EA grossly understates impacts on WSF, claiming only 0.5 ha will be cleared. Based on these erroneous figures, the EA deceivingly concluded that the impacts on WSF were negligible, so their potential significance have not been assessed under the EPBC Act.

Evidence for WSF and its habitat occurring on subject site include:

- WSF has been recorded on the site (5 individuals; AWC, 2022)
- The EA recognises the wallum vegetation on the site as likely WSF habitat, including areas identified as Wallum Froglet habitat, a sympatric frog species which was widely recorded across the site (JWA, 2012a)
- The site is mapped as 'Species Known/Likely to Occur' (DSEWPC, 2011b)
- The site supports essential habitat for the species, being: 'wallum swamps and surrounding vegetation types in coastal south-east Queensland and north-east New South Wales

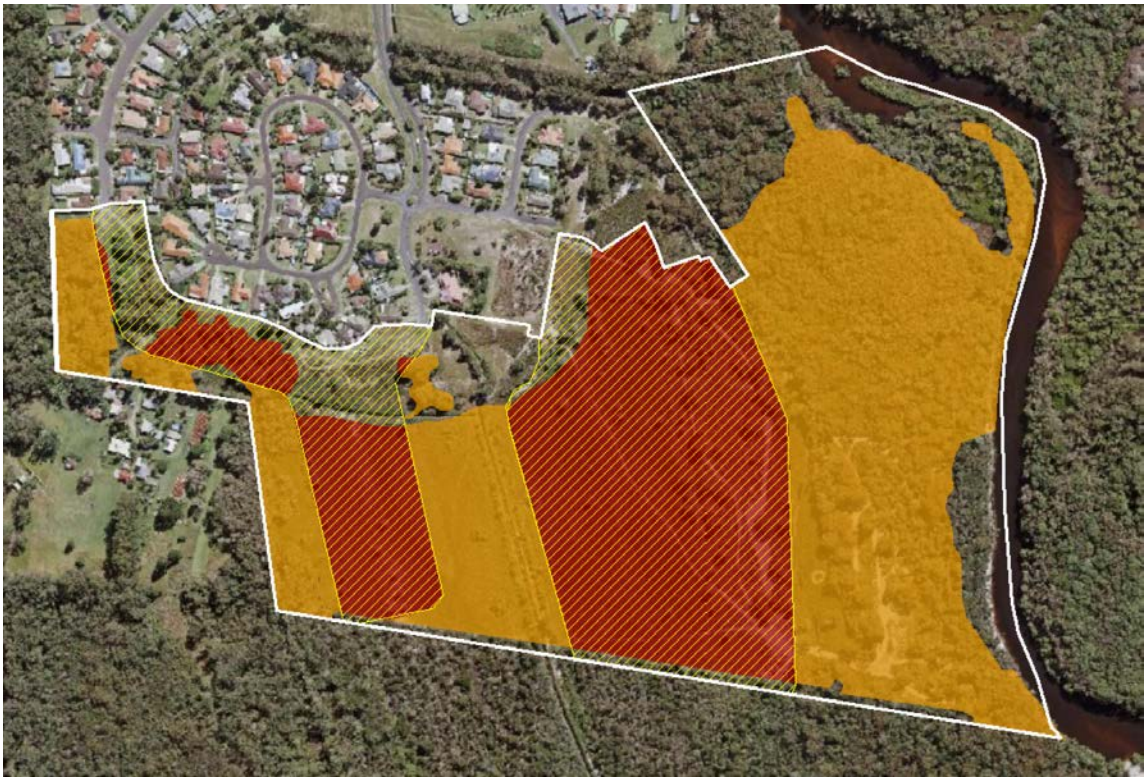

Figure 3. Extent of likely *Wallum Sedge Frog Habitat* (red) to be cleared under the proposal (yellow hatching). Retained *Wallum Sedge Frog Habitat* is shown in orange.

6.1 Significant Loss of Wallum Habitat

Approx. 10.7 ha. of Wallum Vegetation, representing over half of all Wallum vegetation on the site, will be removed for the Development (JWA, 2012a). Importantly, all areas of Wallum vegetation proposed for removal are known habitat for the Wallum Froglet and thus likely habitat for the Wallum Sedge Frog (JWA, 2012a). Despite this significant loss, the EA (JWA, 2012b) states *'There will be no net impact on the threatened species or the native vegetation within the Subject site'* (p. 41, Section 2.2). This sentiment is repeated throughout the EA documents without adequate justification and demonstrates the inadequacy of impact assessment on MNES and the failure to refer the Development under the EPBC Act.

6.1.1 High Conservation Significance of Slashed Heathland

The areas of slashed heathland (Vegetation Types 3b & 3c in JWA 2012a) (**Figure 4**) are of high conservation significance and have retained key habitat features of WSF habitat, including an abundance of sedges in areas prone to periodic inundation. Although the structural composition of this vegetation has been modified through slashing, the vegetation is considered to have very high conservation significance given:

- it retains a diverse floristic composition and contains a significant proportion of species representative of adjacent areas of undisturbed wallum heathland;
- many additional species, which are not present above-ground, are likely to persist on the site as soil-stored seed;
- the original structural and floristic composition would likely return to the site following cessation of slashing (**Figure 5**) ;
- the vast majority of the vegetation is virtually free of environmental weeds; and
- it is known **habitat for Wallum Sedge Frog** and Wallum Froglet.

Despite ongoing slashing, the vegetation of the site has largely persisted on the site intact. And despite a modified structural composition and the reduced abundance of some larger species (e.g. *Xanthorrhoea fulva, Banksia ericifolia*), the vegetation has retained a high degree of resilience and is likely to recover rapidly if freed from the suppression of the slashing regime.

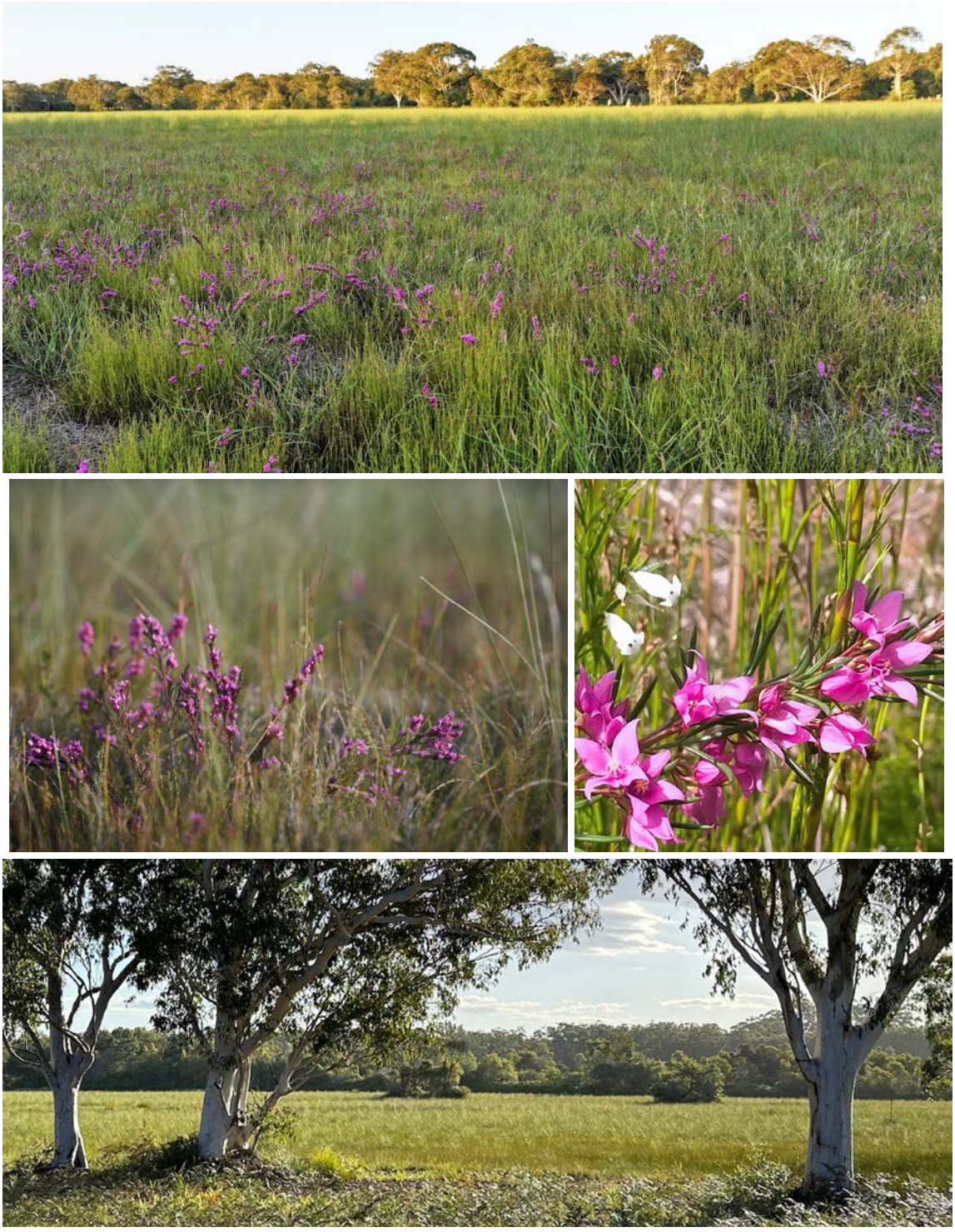

Figure 4. Photographs of the slashed heathland to be cleared by the Development, illustrating the retention of high floristic diversity and an abundance of sedges that are key habitat features for Wallum Sedge Frog (source: Save Wallum, Andy Baker, October 2023). The capacity for this slashed heathland to recovery to ideal Wallum Sedge Frog habitat if slashing is halted is shown in Figure 5.

Importantly, within ecological literature, legislation and government policy, the high conservation significance of a vegetation community is considered to be maintained following structural modification where:

- significant floristic components of the community remain; and
- the site retains a good potential for natural regeneration.

This applies strongly to the slashed wallum heathland proposed for removal. Additionally, recognition of the high conservation value of this modified vegetation consistent with the identification of EECs by the NSW Office of Environment and Heritage (OEH), where the following disturbance variants are still considered to be of high conservation significance and part of the respective EEC:

- low structure due to grazing or slashing;
- occurrence of regrowth of native understorey species along with herbaceous and/or woody weeds due to prior clearing or fire
- some characteristic canopy species not present due to past selective clearing;
- tree canopy absent due to prior clearing, grazing or fire, occurrence of regrowth of native understorey species along with herbaceous and/or woody weeds; or
- species present with canopy cover reduced due to disturbance (i.e. storms; clearing).

Figure 5. An area of previously slashed heath that has been allowed to regrow on the site and now provides known Wallum Sedge Frog habitat (AWC, 2022) .

6.1.2 Inadequate Avoidance, Offset and Mitigation Measures

The EA overstates the value of avoidance, mitigation and offset measures (Table 2).

Table 2. Comments relating overstated avoidance, mitigation and offset measures (JWA, 2012a).

Statement in JWA (2011)	Comments
The development footprint avoids wallum vegetation communities as much as possible by utilising land that is zoned 2(a) residential (p. 21)	Residential zoning 2(a) does not reflect conservation significance, with the 2(a) area being primarily dominated by Wallum Vegetation
The development footprint avoids wallum vegetation communities as much as possible by	Despite slashing, the vegetation is of very high conservation significance due to persistence of

Statement in JWA (2011)	Comments
utilising land that... has been previously disturbed (p.21)	high floristic diversity, habitat value for threatened species, and potential for natural restoration
Implies only alternative to development is continued degradation through ongoing slashing (p.21)	Ignores option for cessation of slashing and allowing natural regeneration.
Only undisturbed Wallum vegetation will be offset (Table 2, p. 23)	Grossly inadequate offset given extent and conservation significance of slashed Wallum vegetation
Implies proposal will result in net increase in Wallum vegetation (Table 2, p. 23)	Discounts remaining 13 ha. of mapped Wallum vegetation which will be removed.
Approximately 4.08 ha of revegetation work will be completed	The vast majority of areas proposed for 'revegetation' are already dominated by Wallum vegetation and therefore activity does not represent real offset

6.2 Exacerbating primary threatening processes

The Development is highly likely to exacerbate a range of primary threatening processes related to habitat removal, fragmentation and clearing as outlined in **Table 4**.

Table 3. Primary threatening processes for WSF (DSEWPC, 2011a) and their likelihood of occurrence under the Development.

Impact	**Threatening process** (DSEWPC, 2011a)	**Likelihood under the Development**
Habitat removal	• Direct - through vegetation clearing or the flooding, infilling or draining of wetlands • Indirect - through changes to the hydrology of a wetland or its catchment including channel alterations and water extraction, or decreasing water quality	**High** – wetland habitat will be cleared and infilled **High** – wetland infilling and urban stormwater are likely to change hydrology and decrease water quality
Habitat fragmentation	• Construction of physical barriers which limit movement between water bodies (e.g. roads or buildings) • Removal or alteration of available terrestrial or aquatic habitat corridors (including alteration of connectivity during flood events)	**High** – core habitat on the site will be divided into three small remnants by urban development **High** – open habitats prone to flooding will be separated by elevated areas of urban subdivision into isolated areas, with connectivity during flood events being limited to densely treed areas with very limited sedges habitat (on neighboring lands to the south)
Habitat degradation	• Alteration of existing catchment hydrology (e.g.	**High** – likely increase in freshwater stormwater runoff (rainfall and water used for

Impact	**Threatening process** (DSEWPC, 2011a)	**Likelihood under the Development**
	increased freshwater inflows to wetlands, changes in timing, duration or frequency of flood events, increased sedimentation from stormwater and surface water runoff) • A change in the duration of surface water inundation of ephemeral or semipermanent wetlands • Alteration of surface or groundwater quality (e.g. salinity, acidity, nutrient levels and toxicity, dissolved oxygen, temperature and turbidity) • Degradation of terrestrial habitats immediately adjacent and/or linking wetland areas • Extensive trampling of wallum sedge frog habitat (including reed beds) by humans • Alteration of the existing fire regime of ecosystems forming habitat or habitat corridors for the species	irrigating gardens, washing cars etc.) **High** – infilling of core habitat will likely affect inundation patterns through increased runoff and reduction of wetland basin volume **High** – Urban stormwater runoff will likely affect surface and ground water quality through increased loads of detergents, fertilisers and companion animal excrement **High** – terrestrial habitats immediately adjacent and linking wetland areas will be cleared for urban development **High** – retained habitat will be maintained as very low open vegetation and therefore likely to be used as open space for recreation **High** – wallum habitats are fire-dependent, but retained habitats here will be managed so as to exclude fire in perpetuity.

6.3 Importance of Development site to Wallum Sedge Frog

The site provides important habitat for a population of WSF between Brunswick Heads and Byron Bay. Given the recent wildfire (October 2023) that affected all but one known population of WSF in Tyagarah Nature Reserve (**Figure 6**), this Development site is now of elevated significance for the persistence of WSF in the locality.

Clearing of these remaining unburnt habitat areas will, in my opinion, likely have a significant negative impact on the persistence of remaining populations of WSF. Therefore, in my opinion, clearing of the Development site is highly likely to have significant negative effects on both the landscape-level persistence of the species in the broader area and also will impair the recovery of the species following the recent fires. In general, landscapes that have been subject to extensive disturbance (such as the landscape around the Wallum Estate site), should not be exposed to yet further disturbance. This is because the cumulative effects of compounding disturbances can drive the losses of disturbance-sensitive species (Lindenmayer & Taylor, 2020).

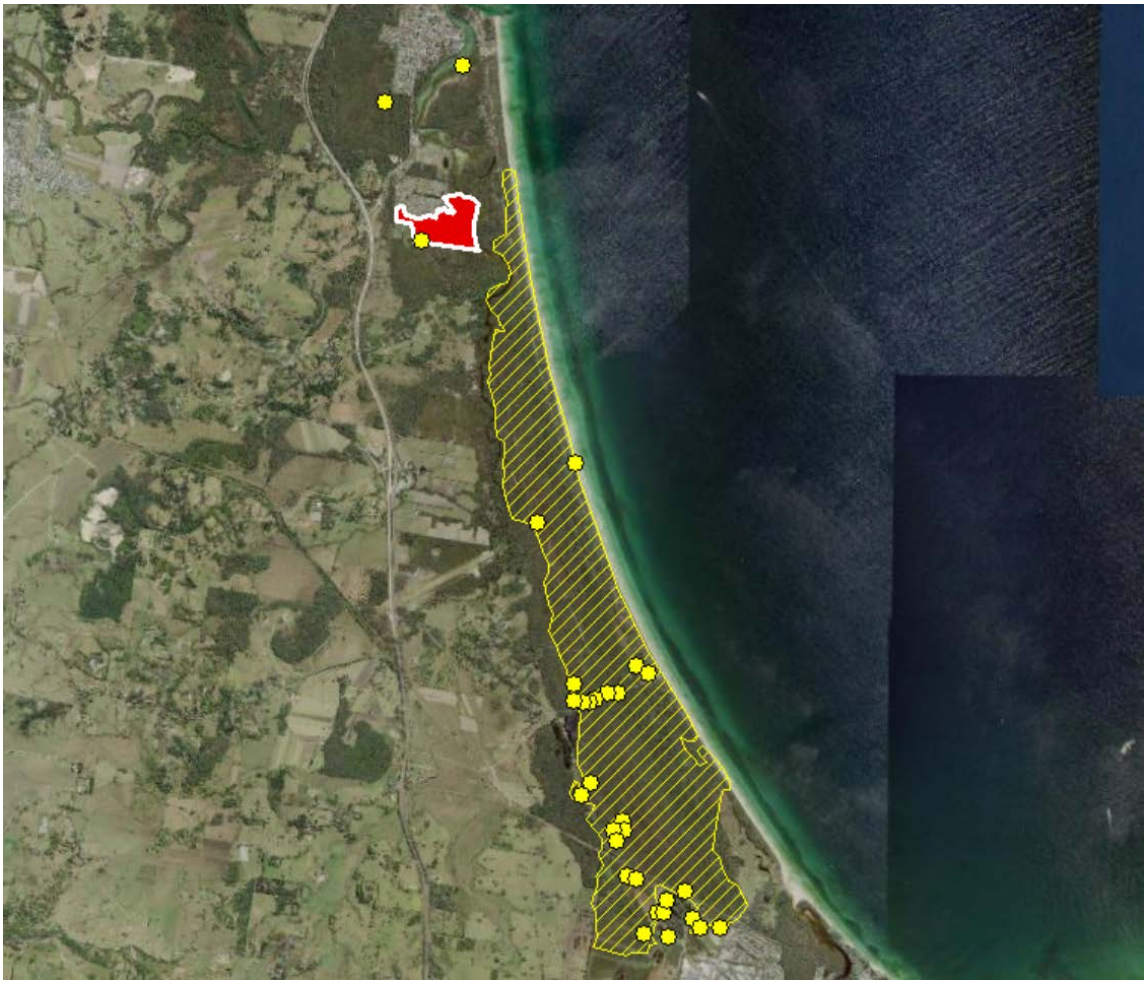

Figure 6. Location of Wallum Sedge Frog populations (yellow points) in relation to the recent 'Bayshore Drive Fire (October 2023; yellow hatching).

6.4 Grounds for referral

With regards to the Wallum Sedge Frog, the Development should be called in for referral under the EPBC Act on the grounds of inadequate assessment of whether the Development will have a significant impact.

7 Long-nosed Potoroo (Potorous tridactylus) – Vulnerable

The proposal will remove 0.3 ha of typical dry sclerophyll habitat for Long-nosed Potoroo (LNP), and 0.5 ha of marginal dry sclerophyll habitat, dominated by Scribbly Gum (*Eucalyptus signata*) but also co-dominated by Swamp Mahogany (*E. robusta*). The proposal will also clear 6.8 ha of marginal heathland habitat, which would develop into high quality habitat if the proponent stopped slashing the remnant heathland.

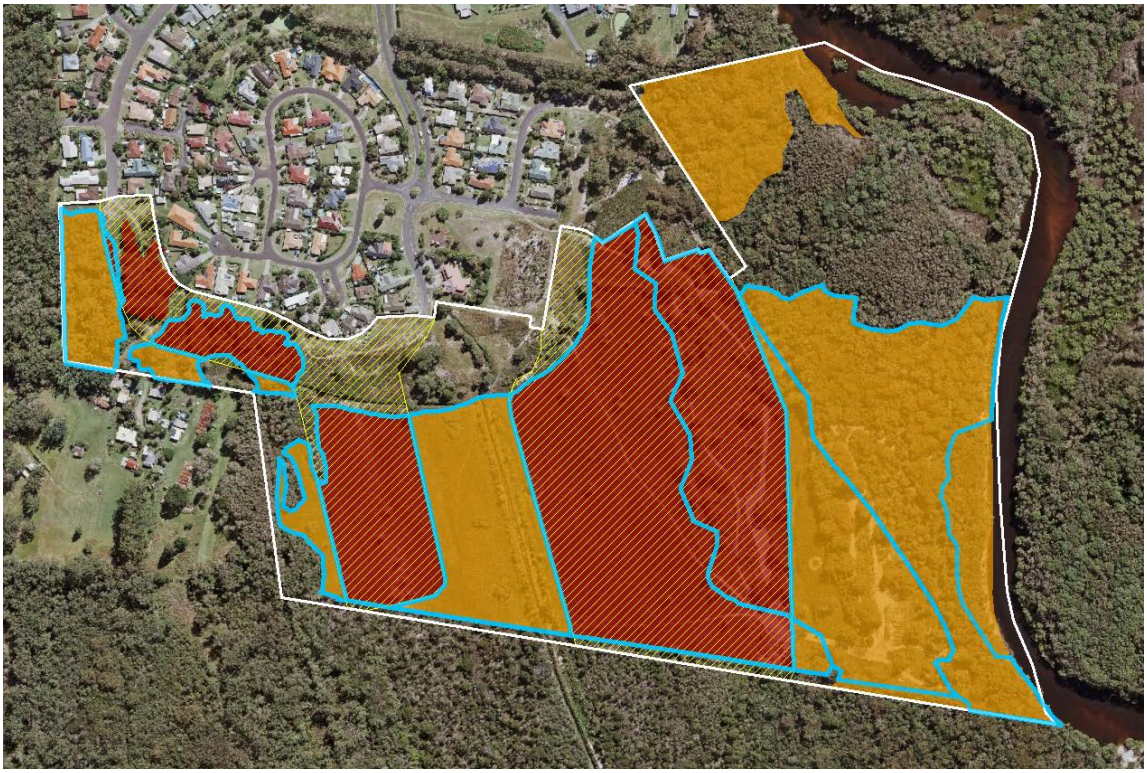

Figure 7. Extent of *Long-nosed Potoroo Habitat* (red) to be cleared under the proposal (yellow hatching) Marginal habitat is shown with a blue outline. Retained *Long-nosed Potoroo Habitat* is shown in orange.

Clearing for urban development removes essential vegetation and understory habitats for LNP causing landscape fragmentation and subsequent isolation of populations and increasing risk of predation (TSSC, 2019).

The site forms part of an important corridor linking two important LNP populations each occurring in Tyagarah and Brunswick Heads Nature Reserves (Andren et al., 2018). Given the recent wildfire (October 2023) that affected in most of the LNP habitat in Tyagarah Nature Reserve, this site and corridor are now of elevated significance for the persistence of LNP in the locality.

Clearing of these remaining unburnt habitat areas and corridors will, in my opinion, likely have a significant negative impact on the persistence of remaining populations of LNP. Therefore, in my opinion, clearing of the Wallum Estate development site is highly likely to have significant negative effects on both the landscape-level persistence of the species in the broader area and also will impair the recovery of the species following the recent fires. In general, landscapes that have been subject to extensive disturbance (such as the landscape around the Wallum Estate site), should not be exposed to yet further disturbance. This is because the cumulative effects of compounding disturbances can drive the losses of disturbance-sensitive species (Lindenmayer & Taylor, 2020).

7.1 Grounds for referral

With regards to the Long-nosed Potoroo, the Development should be called in for referral under the EPBC Act on the grounds of inadequate assessment of whether the Development will have a significant impact.

8 Coastal Swamp Sclerophyll Forest – Endangered (Threatened Ecological Community)

The proposal will clear c. 3.5 ha of *Coastal Swamp Sclerophyll Forest* (**Figure 8**), however the Concept Plan EA grossly understates impacts claiming only 0.08 ha will be cleared. Based on these erroneous figures, the EA wrongly calculated a requirement for only 1.4 ha resulting in a supposed 1.33 ha net gain. Based on this supposed gain, the impacts on CSSF were deemed negligible by the proponent. However, a more rigorous assessment finds a net loss of 2.1 ha (i.e. 3.5 – 1.4 ha). All patches mapped as CSSF in **Figure 8** below meet the key diagnostic characteristics of the TEC as outlined in **Table 4**. The Development is also likely to:

- alter the hydrological regime of retained and neighbouring areas of the TEC due infilling of the wetland basin and alteration of surface water drainage patterns
- causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community via increased urban stormwater runoff

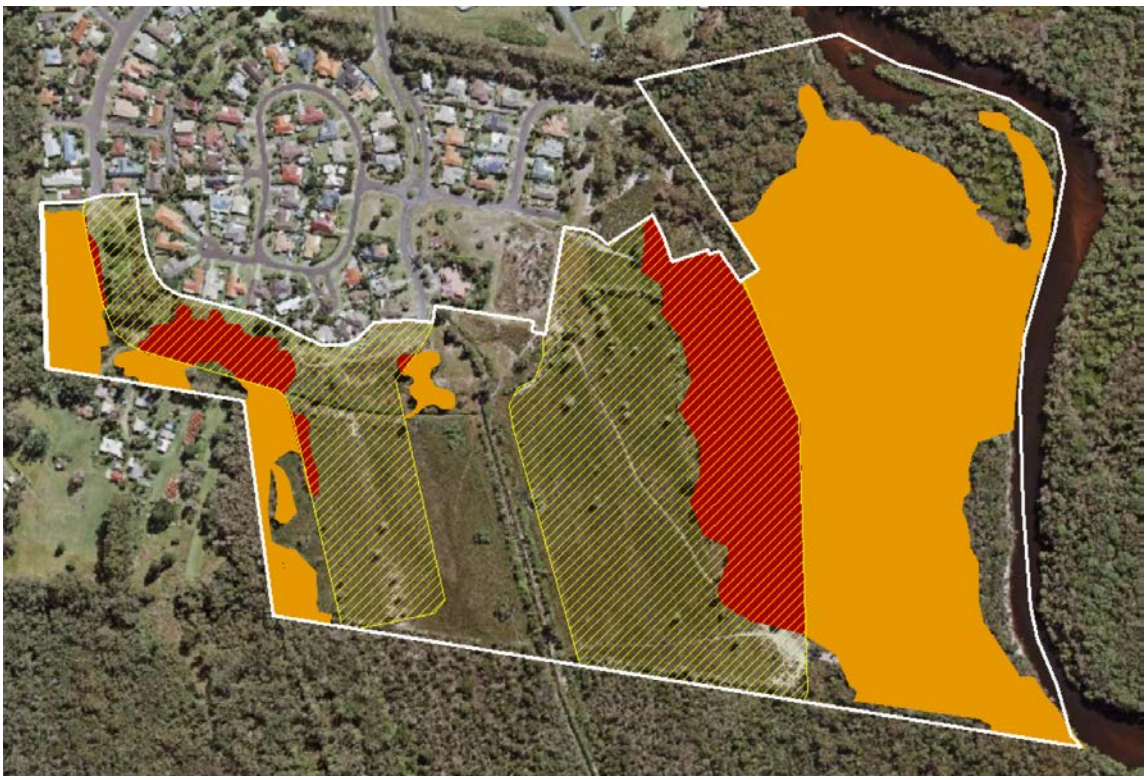

Figure 8. Extent of *Coastal Swamp Sclerophyll Forest* (red) to be cleared under the proposal (yellow hatching). Retained *Coastal Swamp Sclerophyll Forest* is shown in orange.

Table 4. Comparison of key diagnostic features with on-ground patch characteristics to support identification to CSSF.

Key diagnostic characteristics (DAWE, 2021)	**Patch characteristics on subject site**
Occurs on the mainland and islands near to the coast (within 20 km) from South East Queensland to south-eastern NSW	Occurs with 20 km of the coast in north-east NSW
Occurs in coastal catchments typically below 20m ASL	Occurs in coastal catchments below 5m ASL
Occurs on hydric soils with inundation patterns ranging from intermittent to episodic	All patches fall with lands mapped as flood prone by Byron Shire Council
The vegetation structure varies from tall closed to open forest to woodland, to dense (closed) shrubland or scrub forest.	Open forest to woodland

Key diagnostic characteristics (DAWE, 2021)	Patch characteristics on subject site
Canopy is typically dominated or co-dominated by *Melaleuca quinquenervia* [Broad-leaved Paperbark] and/or *Eucalyptus robusta* [Swamp Mahogany]	All patches either dominated or co-dominated by Paperbark or Swamp Mahogany including the following associations (Paperbark, Swamp Mahogany, Scribbly Gum-Swamp Mahogany) (BSC, 2021)

8.1 Grounds for referral

With regards to Coastal Swamp Sclerophyll Forest, the Development should be called in for referral under the EPBC Act on the following grounds:

1. inadequate assessment of whether the Development will have a significant impact
2. likely significant impact as there is a real possibility that the development will:
    a) reduce the extent of the ecological community
    b) fragment or increase fragmentation of the ecological community
    c) cause a substantial reduction in the quality or integrity of an occurrence of the ecological community by causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community [via urban stormwater] which kill or inhibit the growth of species in the ecological community

9 Conclusion and Recommendations

In light of the information above, it is my opinion that the likely impacts arising from the Development have not been adequately assessed under the EPBC Act for several MNES and that it is likely that impacts will be significant for at least some of the identified MNES.

Accordingly, I urge you to call this development proposal in for referral under the EPBC Act and to ensure that rigorous impact assessments are undertaken for all MNES. In particular, assessments must include more robust survey, site assessment and documentation of values affected by the Development, and more attention should be given to the impact of the Development on all affected MNES in terms of population ecology, broader declines and the importance of connectivity of remaining habitat within the site and between other areas, with implications for the layout and scale of this proposal.

Regards,

Dr. Andrew G. Baker
Director / Principle Ecologist
Wildsite Ecological Services

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