

**REVIEW OF ENVIRONMENTAL FACTORS (REF)
CURRAMBENE CREEK FALLS LOOKOUT CARPARK
SEDIMENT & EROSION CONTROL WORKS
VIDLER ROAD, FALLS CREEK**


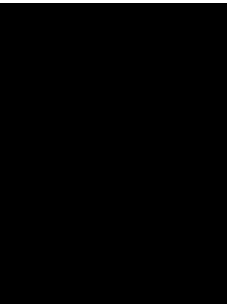
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Document control

Item	Details
Project	Review of Environmental Factors – Currumbene Falls Lookout Carpark – Sediment & Erosion Control Works
Client	Natural Areas, Environmental Services, Shoalhaven City Council
Prepared By	City Services, Shoalhaven City Council

Document status

Version	Author / Reviewer*	Name	Signed	Date
V1.0 (Council reference D21/324300)	Author	Jeff Bryant		29/05/2020
	Reviewer	-	-	-
V2.0	Version 2.0 includes new information regarding Aboriginal Heritage investigations and a general update of the REF to comply with current EP&A Regulation requirements and address current legislation			
	Author	Jeff Bryant		28/02/2023
	Reviewer	Geoff Young		03/03/2023
	Reviewer	Kerry Thompson		09/03/2023

*Review and endorsement statement:

"I certify that I have reviewed and endorsed the contents of this REF document and, to the best of my knowledge, it is in accordance with the EP&A Act, the EP&A Regulation and the Guidelines approved under clause 170 of the EP&A Regulation, and the information it contains is neither false nor misleading".

Assessment and approvals overview

Item	Details
Assessment type	Division 5.1 (EP&A Act) - Review of Environmental Factors (REF)
Proponent	Shoalhaven City Council
Determining authority / authorities	Shoalhaven City Council
Required approvals (consents, licences and permits)	Aboriginal Heritage Impact Permit (s.90 of the National Parks and Wildlife Act 1979)
Required publication	Yes: this REF must be published on the determining authority's (Council's) website or the NSW planning portal, in accordance with clause 171(4) EP&A Regulation 2021 (as a matter of "public interest" and requiring approval under Section 90 of the <i>National Parks and Wildlife Act 1974</i>).

1. PROPOSAL AND LOCATION

1.1 Proposed activity and background information

Currambene Creek is located on the south coast of New South Wales flowing from Parma in a south-easterly direction to Jervis Bay between Huskisson and Myola.

Currambene Creek is a significant point source of water, nutrients, sediments for Jervis Bay. The estuarine sections of the Creek are within Jervis Bay Marine Park and include a declared sanctuary zone. The South Coast Conservation Strategy (DECCW 2010) lists Currambene Creek as a 'vulnerable wetland'.

The Currambene Creek waterfall, adjacent to lot 7311 DP1148427 (Figure 1), is located approximately 16.6km upstream from Jervis Bay and is a local point of interest. Public access is available via unsealed access roads and informal parking areas.

There is significant observable surface erosion from an existing informal, unsealed car park and associated access roads which appear to also be channelling sediment from a power line easement upslope of the carpark (Photo 1, Photo 2, Photo 3). Accumulation of sediment from this erosion is visible on the rock platform above the waterfall of Currambene Creek.

The objective of the proposed activity is to divert storm water runoff from existing tracks and exposed areas to more stable vegetated areas, thereby reducing erosion and movement of sediment into the Creek. Proposed works would include the construction of diversion cross-banks and the closure of the vehicular access tracks with sandstone rock bollards or appropriate vehicle barriers (refer to Figure 2).

All works are to be undertaken by NSW Local Land Services (LLS) under a Land Management Deed (the Deed). LLS is responsible for delivering on-ground works and associated activities in parts of NSW under the Marine Estate Management Strategy (MEMS) – Initiative 1: "To improve water quality and reduce marine litter for the benefit of marine habitats, wildlife and the community."

Under the Deed, SCC agrees to provide access to the property to LLS and to carry out long-term maintenance and monitoring for a period of ten years (APPENDIX A).

Shoalhaven City Council (SCC) is the proponent and the determining authority under Part 5 of the EP&A Act. The environmental assessment of the proposed activity and associated environmental impacts has been undertaken in the context of Clause 171 of the *Environmental Planning and Assessment Regulation 2021*. In doing so, this Review of Environmental Factors (REF) helps to fulfil the requirements of Section 5.5 of the Act that SCC examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

1.2 Location

The location of the proposed activity (Figure 2) is wholly within Crown Reserve Lot 7311 DP 1148427 for which Shoalhaven City Council is the Land Manager appointed under the Crown Land Management Act 2016 (Figure 1). The reserve is managed by SCC as a Natural Area.

Photos 1, 2 and 3 below show the unsealed carpark, existing steps and erosion occurring within the site.

Figure 1. Site location and approximate works location (blue circle)

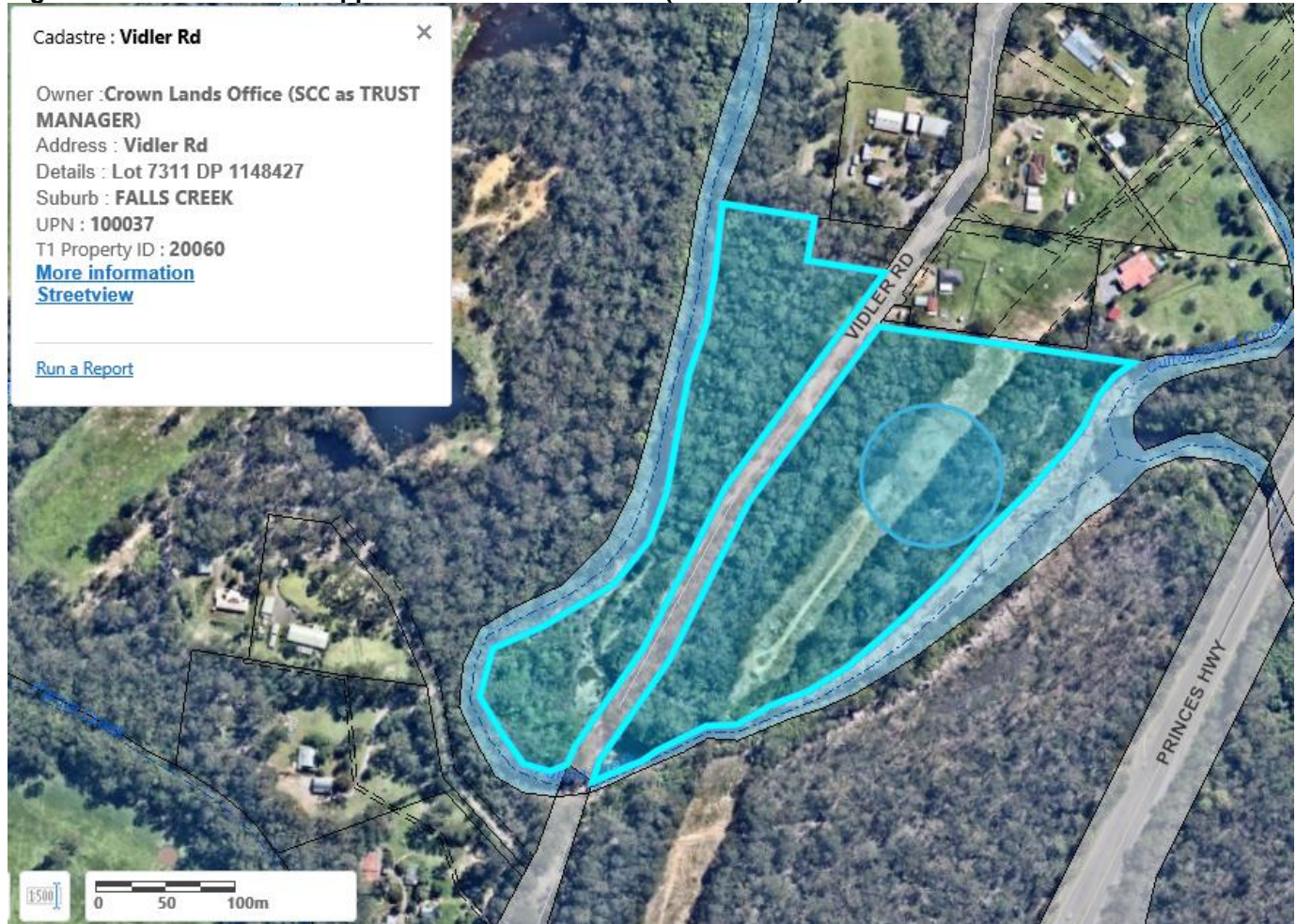


Figure 2. Site showing proposed works within Lot 7311 DP1148427



Photo 1. Existing informal carpark – roads to be closed to prevent access of vehicles into this area



Photo 2. Existing steps from carpark and sediment movement towards Currumbene Creek



Photo 3. Sediment trail from steps to the lip of Currambene Falls in the background



2. EXISTING ENVIRONMENT

2.1 Habitat and vegetation assessment

The site was surveyed by Council Environmental Officers on Monday 4 May 2020 and Thursday 28 May 2020. The surveys involved inspecting a nearby reference site (for *Pterostylis ventricosa*) prior to inspecting all areas likely to be directly and indirectly impacted on by the proposed activity (refer to Figure 4).

Prior to undertaking the site inspection, the records of threatened species and mapping for threatened ecological communities was reviewed to determine the potential for threatened species occurring on site and the requirement for targeted surveys (refer to Likelihood of Occurrence Table in Appendix A). Six threatened flora records representing three threatened flora species are recorded within approximately 5 kilometres of the site along with 239 threatened fauna records for 29 different species. No endangered ecological community is recorded as occurring within 1km of the site.

Vegetation mapping (Biometric) was also reviewed for the site. The site occurs near the boundary of two mapped vegetation communities being Biometric Vegetation types SR642 (Spotted Gum – Grey Ironbark – Woollybutt grassy open forest on coastal flats) and SR594 (Red Bloodwood – Hard-leaved Scribbly Gum – Silvertop Ash heathy open forest on sandstone plateaux of the lower Shoalhaven Valley).

Given the scale of the proposed activity and the extent of the direct and indirect impacts within the existing landscape, the Biodiversity Assessment survey was limited to threatened biota that could be potentially “harmed” (BC Act) during and post construction. Surveys for threatened orchids were undertaken, based on the proximity to a known reference site for *Pterostylis ventricosa* and an assessment of the potential for other threatened orchids with consideration of the habitat present. Vegetation communities and other habitat features were noted for the purposes of mitigation measures.

A visual assessment of the site confirmed the site for the works was within an area of Spotted Gum – Grey Ironbark – Woollybutt grassy open forest (SR642) with spotted gums (*Corymbia maculata*) visually dominant across the site. The forest was in reasonable condition with areas of sediment from existing tracks having accumulated and spread into the forest on the lower side of the tracks. Other signs of disturbance were also observed such as historical earthworks (drainage culvert running off the track), rubbish dumping and vehicle wheel ruts.

An assessment of the potential for NSW threatened flora and fauna species occurring on-site or otherwise being impacted on by the proposed activity was undertaken (see Appendix B: NSW Threatened Species Likelihood of Occurrence Table).

2.2 Threatened species, habitat resources and targeted surveys

Habitat assessment and targeted surveys were undertaken for *Pterostylis ventricosa* and other potentially occurring threatened flora (including *Eucalyptus langleyi* and *Syzygium paniculatum*) on 4th and 28th May 2020. *P.ventricosa* was observed to be flowering and detectable at a nearby reference site (**Photo 4.** and

Figure 3) but was not detected in areas to be directly and indirectly impacted on by the proposed activity. Two orchid species (not listed as threatened) were detected, being *Pterostylis nutans* and *Acianthus fornicatus*. The survey track and known reference site are depicted in Figure 3.

No hollow-bearing trees, habitat features or areas of habitat critical to the survival of threatened biota in **Error! Reference source not found.** or potentially occurring in the area would be directly impacted on or indirectly impacted on beyond the existing disturbances of passing traffic on occasions.

Figure 3. *Pterostylis ventricosa* 4 May 2020 survey track and reference site

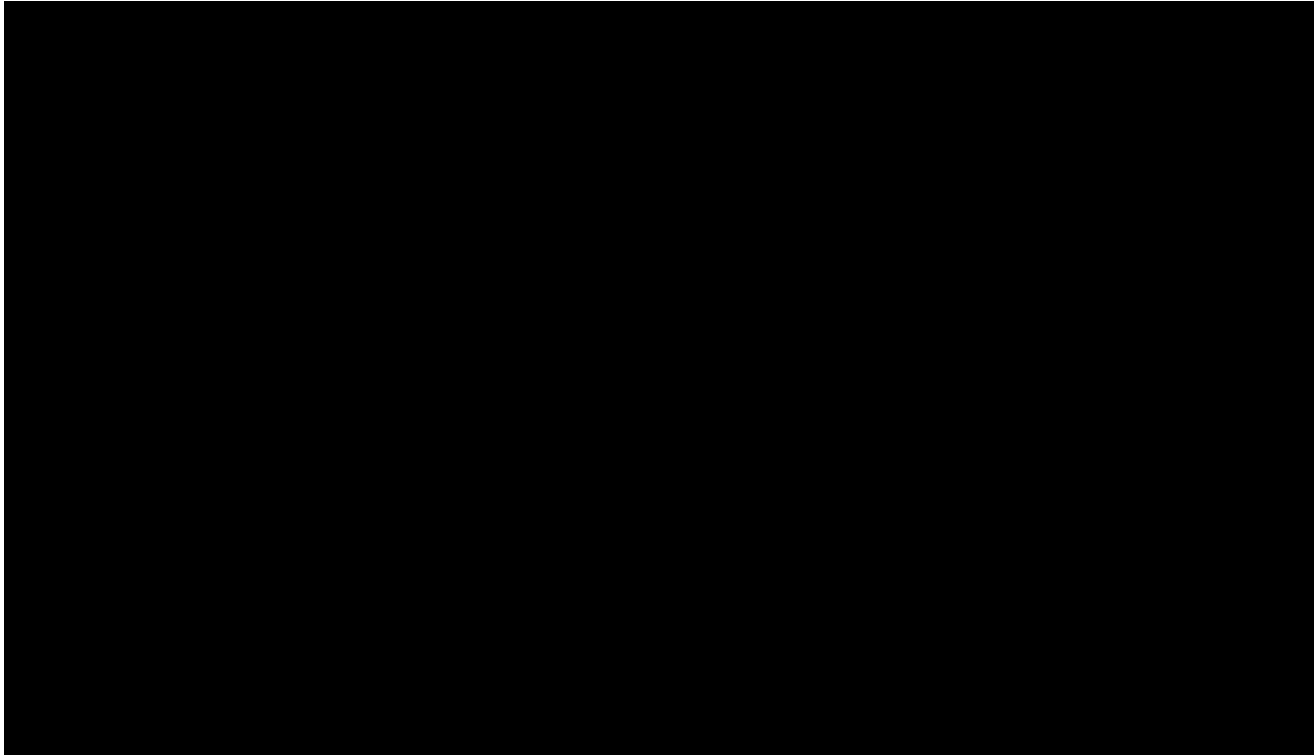
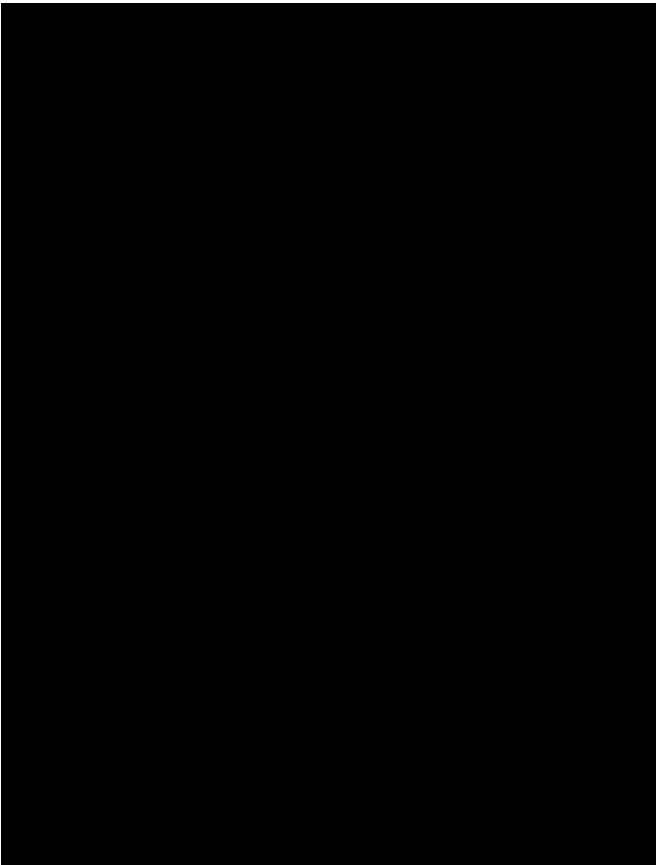


Photo 4. *Pterostylis ventricosa* with flower spike at [redacted] reference site (4/5/2020)



3. ASSESSMENT OF LIKELY IMPACTS ON THE ENVIRONMENT

3.1 Impacts associated with the proposed activity

The proposed activity would reduce flow rate and divert surface water, by constructing five (5) “crossbanks” and blocking vehicular access at locations depicted in **Figure 2**. Direct impacts would be limited to earthworks within the existing tracks and immediate exposed track edges where sediment would be captured. The works are designed to ensure sediment would not spread into the naturally vegetated areas beside the track but be captured in pools at the lower ends of the “crossbanks”. This work would involve the use of machinery to excavate and reshape the track surface and existing disturbed areas. Disturbance to native vegetation during construction would be minimal and limited to understorey shrubs and grasses (*Bursaria spinosa*, *Lomandra longifolia* and *Cymbopogon refractus*). Sediment would be redirected just off the existing track (**and Photo**) and away from Currumbene Falls. All works would be carried out in accordance with relevant requirements of the “Blue Book”.

Photo 5. Bushland where sediment would be diverted – primary track would be closed to vehicular access



Photo 6. Secondary track to be closed to vehicular access and bushland where sediment would be diverted



Other potential impacts on the environment, including indirect impacts have been considered, including:

- Impacts on threatened species;
- Impacts on indigenous and non-indigenous heritage;
- Impacts on water quality, the riparian zone and key fish habitat;

Each of these is discussed below.

3.2 Threatened species impact assessment (NSW)

Section 1.7 of the EP&A Act 1979 applies the provisions of Part 7 of the NSW *Biodiversity Conservation Act 2016* and Part 7A of the *NSW Fisheries Management Act 1994* that relate to the operation of the Act in connection with the terrestrial and aquatic environment. Each are addressed below.

3.2.1 Part 7A Fisheries Management Act 1994

Part 7A relates to threatened species conservation.

There are no threatened species listed under the Act which are mapped as occurring in proximity to the site¹, or likely to occur in proximity to the site.

No works or vehicle movement would occur on or near waterways or riparian corridors, and works are unlikely to result in erosion of sediment or other pollution affecting waterways.

No marine vegetation or threatened marine fauna would be directly impacted on by the proposed activity.

The proposed activity is therefore unlikely to result in any impact on threatened entities or their habitat; or contribute significantly to key threatening processes, as listed under Part 7A of the Act.

3.2.2 Part 7 Biodiversity Conservation Act 2016

An assessment of the potential for NSW threatened flora and fauna species occurring on-site or otherwise being impacted on by the proposed activity was undertaken (refer to Appendix B). The following threatened species or endangered ecological communities are known to occur on-site or are considered to have some potential to occur on-site or be otherwise impacted on by the proposed activity:

- *Pterostylis ventricosa*

Section 7.3 of the Act provides a 'five-part' test to determine whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats. Each Part is addressed below:

Part A - In the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the lifecycle of the species such that a viable local population of the species is likely to be place at risk of extinction.

Pterostylis ventricosa

¹ Fisheries NSW Spatial Data Portal https://webmap.industry.nsw.gov.au/Html5Viewer/index.html?viewer=Fisheries_Data_Portal

Pterostylis ventricosa is a perennial terrestrial orchid known from populations at St Georges Basin, Sussex Inlet and west of Nowra in the Shoalhaven and also near Tallong and Mittagong in the Southern Highlands. This orchid is found predominantly in more open areas of tall coastal eucalypt forest often dominated by one or more of the following tree species:- Turpentine, Spotted Gum, Grey Ironbark, Blackbutt, White Stringybark, Scribbly Gum and Sydney Peppermint. It often favours more open areas such as along powerline easements and on road verges where the tree overstorey has been removed or thinned. *P.ventricosa* grows in a range of groundcover types, including moderately dense low heath, open sedges and grasses, leaf litter, and mosses on outcropping rock. Small moss gardens are a commonly associated micro-habitat feature in most habitats. Soil type ranges from moisture-retentive grey silty loams to grey sandy loams. It is sometimes found in skeletal soils on sandstone rock shelves.

The species is known to occur growing within moss gardens [REDACTED]. Marginal potential habitat occurs for the species within the site. Surveys for the *P.ventricosa* were undertaken on 4 and 28 May 2020, after confirmation of flowering at the nearby known site (refer to Section 2.2 of this REF). No individuals were observed within the site. The species does not occur in close proximity such that it is at risk of being impacted on directly or indirectly by the proposed activity. The proposed activity is anticipated to result in a reduction of sediment moving downslope toward the rock shelf area to the east of the site where more favourable habitat for the species occurs. The proposed activity would not impact on any habitat which is critical for the survival of a population of the species.

It is therefore considered unlikely that *Pterostylis ventricosa* would be impacted on by the proposed activity and the proposed activity is unlikely to have an adverse effect on the lifecycle of the species such that a viable local population of any of these species is likely to be placed at risk of extinction.

Part B - In the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

- (i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or**
- (ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction**

No endangered ecological communities or critically endangered ecological communities occur within close proximity to the proposed activity such that they might be directly or indirectly impacted on.

Part C - In relation to the habitat of a threatened species or ecological community:

- (iii) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity**
- (iv) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and**
- (v) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality.**

No important habitat for threatened species would be removed or otherwise significantly impacted on (see Part A).

No EEC would not be fragmented or isolated, nor removed or modified to an extent that would affect the long-term survival of the EEC occurring in the locality (refer to Part B).

The proposed activity would therefore not affect the long-term survival of any threatened species or endangered ecological community in the locality.

Part D – Whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly).

No “areas of outstanding biodiversity values” have been declared in the City of Shoalhaven.

Part E – Whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

Key threatening processes listed in the NSW *Biodiversity Conservation Act 2016* considered relevant to the proposed activity include:

- Clearing native vegetation

Clearing of native vegetation is listed as a key threatening process, defined by the Scientific Committee’s determination (OEH 2021) as:

the destruction of a sufficient proportion of one or more strata (layers) within a stand or stands of native vegetation so as to result in the loss, or long-term modification, of the structure, composition and ecological function of a stand or stands.

Clearing of native vegetation has been shown to:

- cause widespread fragmentation of ecological communities;
- reduce the viability of ecological communities by disrupting ecological functions;
- result in the destruction of habitat and loss of biological diversity;
- lead to soil and bank erosion, increased salinity and loss of productive land.

The clearing of vegetation for the proposed activity would be minimal and confined to the understorey and small saplings. No large trees would require removal.

The impacts of the proposed activity associated with the clearing of native vegetation, are not considered to be significant as it is unlikely to lead to:

- destruction of habitat causing a loss of biological diversity and extinction of species or loss or local genotypes.
- fragmentation of populations resulting in limited gene flow between small, isolated populations, reduced potential to adapt to environmental change and loss or severe modification of the interactions between species.
- riparian zone degradation such as bank erosion leading to sedimentation that affects aquatic communities – the riparian corridor would be stabilised as a result of the works.
- disturbance of habitat which may permit the establishment and spread of exotic species which may displace native species.
- loss of leaf litter, removing habitat for a wide variety of vertebrates and invertebrates.
- significant reduction of habitat for threatened species or ecological communities.

3.3 Matters of National Environmental Significance (Commonwealth EPBC Act 1999)

A Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters Report was generated on 27th May 2020. An EPBC Protected Matters Report provides general guidance on matters of national significance and other matters protected by the EPBC Act in the area selected.

No matters of significance, i.e.:

- listed threatened species and communities;
- listed migratory species;
- Ramsar wetlands of international importance;
- Commonwealth marine environment;
- world heritage properties;
- national heritage places;
- the Great Barrier Reef Marine Park;
- nuclear actions; or
- a water resource, in relation to coal seam gas development and large coal mining development;

would be affected as a result of the proposed activity.

Further assessment and referral to the Commonwealth is not required.

Additional highly mobile species including migratory birds may occur occasionally and transiently within the vicinity of the proposed activity but would not be affected by the proposed activity.

3.4 Indigenous heritage

Under Section 86 of the NSW *National Parks and Wildlife Act 1974* (NPW Act) it is an offence to disturb, damage, or destroy any Aboriginal object without an Aboriginal Heritage Impact Permit (AHIP). The Act, however, provides that if a person who exercises 'due diligence' in determining that their actions would not harm Aboriginal objects has a defence against prosecution if they later unknowingly harm an object without an AHIP (Section 87(2) of the Act). To effect this, the NSW Department of Environment, Climate Change and Water have prepared the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (hereafter referred to as the 'Due Diligence Guidelines') to assist individuals and organisations to exercise due diligence when carrying out activities that may harm Aboriginal objects and to determine whether they should apply for an AHIP.

Landscape features that are regarded as indicating a higher potential for Aboriginal objects, as outlined in the NSW Department of Environment, Climate Change and Water's Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (2010) include:

- within 200m of waters, or
- located within a sand dune system, or
- located on a ridge top, ridge line or headland, or
- located within 200m below or above a cliff face, or
- within 20m of or in a cave, rock shelter, or a cave mouth.

The site occurs within 20m of Currambene Creek.

A search on the Aboriginal Heritage Information Management System (AHIMS) on 27th May 2020 indicated that that one recorded site occurs in proximity to the site of the proposed activity. The record (AHIMS reference 52-5-0037) [REDACTED]

[REDACTED] would not be impacted on in any way.

During a site investigation with Council staff on 3rd June 2020, a Local Land Services Officer discovered Aboriginal stone artefacts, [REDACTED]

Council subsequently engaged consultant archaeologist Dr Sue Feary to undertake an Aboriginal Cultural Heritage Assessment (ACHA) and to prepare a report (Feary 2022; Council reference D23/48677) and Aboriginal Heritage Impact Permit (AHIP) application.

Field investigation as part of the ACHA identified [REDACTED]

[REDACTED] It is considered likely that no artefacts are in-situ and there is no potential for subsurface artefacts. The site was assessed to have low scientific significance due to the level of disturbance (Feary 2022).

Informal discussions with local Aboriginal people and a review of the literature indicate that Currambene Creek in general and the waterfall area in particular, has cultural significance. The large size of the artefact scatter and presence of other recorded sites in the Falls Creek area indicates it was a focus of occupation in pre-contact times. Falls Creek was also the location of one of several Aboriginal fringe camps around Nowra and Jervis Bay in the mid-20 century. Local Aboriginal people have memories of the fringe camp, passed on through oral traditions. The

location has been assessed as having high social and cultural value for local Aboriginal people (Feary 2022).

Some of the artefacts recorded as belonging to Currumbene Falls artefact scatter would be harmed as a result of the erosion control works. The artefact scatter has already been harmed as a result of previous disturbance and by current erosion. In areas where erosion control works are planned, there is no potential for subsurface material 'of high conservation value' to be present (Feary 2022).

The ACHA provided the following recommendations associated with undertaking the proposed works:

1. No further archaeological investigation is required for the proposed erosion control works.
2. Shoalhaven City Council makes application to Heritage NSW for an AHIP to harm the recorded site Currumbene Falls artefact scatter. The extent of the artefact scatter to which the AHIP should apply is shown in Figure 20. The AHIP should be valid for at least five years (5) to allow for any delays in works being carried out.
3. If unanticipated finds are encountered during works and are not covered by the permit, works must cease until advice is provided by the relevant regulatory authority. In this context unanticipated finds include: - human skeletal remains, undisturbed stratified cultural deposits or rare objects such as axe heads or grinding stones.

At the time of writing, an AHIP application was being prepared for submission.

All works involving disturbance of the ground surface shall be carried out in accordance with the AHIP conditions.

Given the high social and cultural value of the site for local Aboriginal people, it is further recommended that a Nowra LALC Aboriginal Heritage Site Officer be engaged to monitor excavation works for unexpected finds.

3.5 Non-indigenous heritage

No non-indigenous heritage items listed on the NSW State Heritage Inventory or the Shoalhaven Local Environment Plan 2014 occur in proximity to the site.

3.6 Riparian corridors, Key Fish Habitat & Water quality

The site occurs partially within a Category 1 riparian corridor. No trees or other significant vegetation shall be removed or otherwise impacted on as a result of the proposed works.

The proposed activity would not involve dredging or reclamation within water land.

The proposed activity is anticipated to result in a reduction of sediment moving downslope toward Currumbene Creek and so would likely have a positive benefit to the health of the creek and riparian corridor.

No further assessment is required.

3.7 Acid Sulfate Soil

The site and surrounds are mapped as Class 5 Acid Sulfate Soils. As the proposed activity would not result in any lowering of the watertable or excavation below 2.0m, it is considered there is no risk of exposure of Acid Sulfate Soils as a result of the proposed works.

3.8 Other considerations

In the context of this environmental assessment, the area to be affected by the proposed activity:

- is not an Aboriginal Place in the context of the NSW National Parks and Wildlife Act 1974
- is not mapped as being flood liable
- is not mapped as “potentially contaminated land”

3.9 EP&A Regulation – Section 171 matters of consideration

Section 171(2) of the *Environmental Planning and Assessment Regulation 2021* lists the factors to be taken into account when consideration is being given to the likely impact of an activity on the environment under Part 5 of the EP&A Act. These matters are addressed in Table 1.

Table 1. Section 171 Matters of consideration

Does the proposal:	Assessment	Reason
a) Have any environmental impact on a community?	Positive	<p>The purpose of the proposed activity is to manage sediment erosion and reduce the impacts of sediment movement into Currumbene Creek.</p> <p>The proposed activity is consistent with the existing land use.</p> <p>Public access would remain available to the site, although vehicles would no longer be able to access the lower part of the site. Parking would remain available in the power easement, increasing the required walking distance by around 30m.</p> <p>The proposed activity would not have any impact on other community services and infrastructure such as power, water, waste water, waste management, educational, medical or social services.</p>
b) Cause any transformation of a locality?	Positive / Negligible	<p>The locality’s current use would remain unchanged.</p> <p>It is anticipated that the proposed activity would result in reduced erosion and sediment movement downslope to the rock shelf area and Currumbene Creek.</p>
c) Have any environmental impact on the ecosystem of the locality?	Low adverse	<p>Impact on native vegetation would be minimal and limited to ground-storey vegetation disturbed during construction of the crossbanks.</p> <p>The five-part test of significance (Section 3.2) concludes that the proposed activity would not have a significant</p>

		<p>impact on threatened species or endangered ecological communities.</p> <p>No food resources critical to the survival of a particular species would be removed.</p> <p>Aquatic ecosystems are not likely to be negatively affected by the proposed activity and any long-term or long-lasting impact related to potential input of sediment and nutrient into the ecosystem would be reduced as a result of the proposed activity.</p> <p>Refer to prescribed environmental safeguards and mitigation measures (Section 7).</p>
d) Cause a diminution of the aesthetic, recreational, scientific or other environmental quality or value of a locality?	Negligible / Positive	<p>The proposed activity would result in a reduction of the impacts of sediment erosion.</p> <p>No important habitat would be impacted on by the proposed activity.</p> <p>In the context of the locality, the visual impact of the proposed activity is considered to be minimal.</p> <p>Scientific and environmental qualities of the site would not be affected. The proposed activity would have no impact on these values.</p> <p>The restriction of vehicular movement at the site would have minimal impact on the site's recreational values since the Falls would remain accessible via pedestrian access.</p>
e) Have any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific, or social significance or other special value for present or future generations?	Low adverse	<p>The proposed activity would have no impact on aesthetic, architectural, historical, scientific or social values.</p> <p>No items in the vicinity of the work site which are listed on the State Heritage Register and the Shoalhaven Local environmental Plan would be impacted by the proposed activity.</p> <p>The site is not within an Aboriginal Place declared under the National Parks and Wildlife Act 1974.</p> <p>In accordance with the NSW Department of Environment, Climate Change and Water's Due Diligence Code of Practice, the proposed activity would require an Aboriginal Heritage Impact Permit as the activity would harm Aboriginal artefacts. The artefact scatter over the site has already been harmed as a result of previous disturbance and by current erosion. In areas where erosion control works are planned, there is no potential for subsurface material 'of high conservation value' to be present. All works involving disturbance of the ground surface shall be carried out in accordance with an AHIP. Given the high social and cultural value of the site for local Aboriginal people, it is further recommended that a Nowra LALC Aboriginal Heritage Site Officer be engaged to monitor</p>

		excavation works for unexpected finds. Refer to Section 3.4 for more information.
f) Have any impact on the habitat of protected fauna (within the meaning of the Biodiversity Conservation Act 2016)?	Low adverse	<p>Impact on native vegetation would be minimal and limited to ground-storey vegetation disturbed during construction of the crossbanks. No significant habitat would be removed or otherwise impacted on by the proposed activity.</p> <p>The five-part test of significance, provided in Section 3.2 above, concludes that the proposed activity would not have a significant impact on threatened fauna.</p> <p>The prescribed environmental safeguards and mitigation measures (Section 7) would mitigate indirect impacts on fauna and habitat including through control of sediment.</p>
g) Cause any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?	Low-adverse	<p>Impact on native vegetation would be minimal and limited to ground-storey vegetation disturbed during construction of the crossbanks.</p> <p>The five-part test of significance, provided in Section 3.2 above, concludes that the proposed activity would not have a significant impact on threatened fauna.</p> <p>There are no species likely to rely on the site of the proposed works to the extent that modification would put them further in danger.</p> <p>The prescribed environmental safeguards and mitigation measures (Section 7) would minimise the risk of impact on resident fauna.</p>
h) Have any long-term effects on the environment?	Negligible short-term / Positive long-term	<p>The works would be relatively short term and the noise generated would occur during normal working hours.</p> <p>In the long-term, the affected area would stabilise and long-term effects are considered unlikely. The proposed activity would result in a reduction of the impacts associated with sediment erosion.</p> <p>The proposed activity would not use hazardous substances or use or generate chemicals which may build up residues in the environment.</p> <p>The possible impacts have been discussed in detail under Section 3. Refer also to the prescribed environmental safeguards and mitigation measures in Section 7.</p>
i) Cause any degradation of the quality of the environment?	Negligible / Positive	<p>The proposed activity requires minimal clearing but would not result in fragmentation or loss of important habitat.</p> <p>The proposed activity would result in a reduction of the impacts of sediment erosion.</p> <p>Aquatic ecosystems are not likely to be affected by the proposed activity and there is not likely to be any long-term</p>

		<p>or long-lasting impact associated with input of sediment and nutrient into the ecosystem.</p> <p>The proposed activity would not intentionally introduce noxious weeds, vermin, or feral animals into the area or contaminate the soil.</p> <p>Environmental safeguards and mitigation measures (Section 7) would be employed to minimise risk of impacts.</p>
j) Cause any risk to the safety of the environment?	Negligible	<p>The proposed activity would not involve hazardous wastes and would not lead to increased bushfire or landslide risks.</p> <p>The proposed activity would not adversely affect flood or tidal regimes or exacerbate flooding risks (refer to Section 3.7).</p> <p>The prescribed environmental safeguards and mitigation measures in Section 7</p>
k) Cause any reduction in the range of beneficial uses of the environment?	Negligible	<p>The proposed activity would be confined to existing disturbed areas. The proposed activity is consistent with the existing land use. The proposed activity is not anticipated to result in further degradation of the site or surrounding land.</p>
l) Cause any pollution of the environment?	Low-adverse	<p>The proposed activity would involve a temporary and local increase in noise during the construction phase due to the use of machinery. However, this would not affect any sensitive receivers such as residential areas, schools, childcare centres and hospitals.</p> <p>Falls Creek Primary School is located approximately 150m from the site. Notification shall be provided prior to commencement of works.</p> <p>Sediment and erosion control in accordance with the Blue Book would be implemented to minimise movement of sediment into waterways.</p> <p>It is unlikely that the activity (including the environmental impact mitigation measures) would result in water or air pollution, spillages, dust, odours, vibration or radiation.</p> <p>The proposed activity would not involve the use, storage or transportation of hazardous substances or the generation of chemicals which may build up residues in the environment.</p> <p>The risk of contamination and spills from machinery including fuel and hydraulic fluids would be minimised through prescribed environmental safeguards and mitigation measures (Section 7).</p>
m) Have any environmental problems	Negligible	<p>There would be no trackable waste, hazardous waste, liquid waste, or restricted solid waste as described in the <i>NSW Protection of the Environment Operations Act 1997</i>.</p>

associated with the disposal of waste?		
n) Cause any increased demands on resources (natural or otherwise) which are, or are likely to become, in short supply?	Low-adverse	The amount of resources that would be used are not considered significant and would not increase demands on current resources such that they would become in short supply.
o) Have any cumulative environmental effect with other existing or likely future activities?	Negligible	<p>The assessed low adverse or negligible impacts of the proposed activity are not likely to interact.</p> <p>Prescribed environmental safeguards and mitigation measures (Section 7) shall be implemented to minimise the risk of cumulative environmental effects.</p> <p>The proposed activity would not significantly affect habitat connectivity or reduce any significant vegetation.</p>
p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions	Negligible	<p>The proposed activity would have no effect on coastal processes including those projected under climate change conditions.</p> <p>The site is not located in a coastal hazard area.</p>
q) Any applicable local strategic planning statement, regional strategic plan or district strategic plan made under Division 3.1 of the Act	Positive	<p>The proposed activity is consistent with the <i>Shoalhaven 2040 Strategic Land-use Planning Statement</i>, including Planning Priority 11 <i>Adapting to natural hazards through building resilience</i> https://doc.shoalhaven.nsw.gov.au/displaydoc.aspx?record=D20/437277.</p> <p>The activity is not inconsistent with the Illawarra Shoalhaven Regional Plan 2041 https://www.planning.nsw.gov.au/-/media/Files/DPE/Plans-and-policies/Plans-for-your-area/Regional-plans/Illawarra-Shoalhaven-Regional-Plan-05-21.pdf and the vegetation that would be removed is not mapped in the Planning Statement as “high environmental value” or “habitat corridor”.</p>
r) Any other relevant environmental factors	N/A	

4. PLANNING APPROVALS PATHWAY

4.1 Environmental Planning & Assessment Act 1979

Section 4.1 (Development that does not need consent) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) states that:

“If an environmental planning instrument provides that specified development may be carried out without the need for development consent, a person may carry the development out, in accordance with the instrument, on land to which the provision applies.”

In this regard, clause 2.133(1) of the NSW *State Environmental Planning Policy (Transport and Infrastructure) 2021* (Transport & Infrastructure SEPP) provides that (underline added for emphasis):

“Development for the purpose of soil conservation works may be carried out by or on behalf of a public authority without consent on any land.”

(2) A reference in this section to development for the purpose of soil conservation works includes a reference to development for any of the following purposes if the development is in connection with soil conservation works—

- (a) construction works,*
- (b) routine maintenance works,*
- (c) emergency works, including works associated with landslides,*
- (d) environmental management works.*

As the proposed activity does not require development consent, and as it constitutes an ‘activity’ for the purposes of Part 5 of the EP&A Act, being carried out by (or on behalf of) a public authority, environmental assessment under Part 5 of the EP&A Act is required. This REF provides this assessment and ensures that Council as determining authority in consideration of the activity, meets its obligation under s5.5 of the EP&A Act, to examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

4.2 Biodiversity Conservation Act 2016

The proposed development complies with the *Biodiversity Conservation Act 2016* for the following reasons:

- The proposed activity is unlikely to have a significant impact on threatened species and/or threatened ecological communities listed in the schedules of the Act. There is, therefore, no requirement to ‘opt in’ to the Biodiversity Offset Scheme.
- The design and mitigation measures (Section 7) would ensure that no *serious and irreversible impacts on biodiversity values* (as defined by the BC Act) occur at the site of the proposed activity. Note that *Pterostylis ventricosa* (an SAIL species) is known to occur in proximity to the site, but not in the location of the proposed activity as confirmed by survey described in Section 3.2 of this REF.
- The proposed activity is not within an area declared to be of “outstanding biodiversity value” as defined in the Act and Regulations.

Because of the above considerations, neither a species impact statement nor a biodiversity development assessment report is required for the proposed activity.

It is also a defence to a prosecution for an offence under Part 2 of the Act (harming animals, picking plants, damaging the habitat of threatened species or ecological communities etc) if the work was essential for the carrying out of an activity by a determining authority within the meaning of Part 5 of the Environmental Planning and Assessment Act 1979 after compliance with that Part.

The activity would not remove vegetation that is listed under Schedule 1 Threatened Species, Schedule 2 Threatened ecological communities and Schedule 6 Protected Plants. Therefore, the activity is considered permissible as this REF has been prepared and determined in accordance with the EP&A Act.

Refer to Section 3.2 for more information.

4.3 Other

A summary of other relevant legislation and permissibility is provided in Table 2 below.

Table 2. Summary of other relevant legislation and permissibility

NSW STATE LEGISLATION	
<i>Environmental Planning and Assessment Act 1979 (EP&A Act)</i>	
Permissible	√ Not permissible <input type="checkbox"/>
The Transport & Infrastructure SEPP provides for the proposed works to be undertaken without development consent (refer above). In circumstances where development consent is not required, the environmental assessment provisions outlined in Part 5 of the Act are required to be complied with. This REF fulfils this requirement.	
<i>Shoalhaven Local Environmental Plan 2014 (SLEP)</i>	
Permissible	√ Not permissible <input type="checkbox"/>
Under the SLEP the proposed activity may have required development consent. The provisions of Transport and Infrastructure SEPP however, prevail over the SLEP where there is an inconsistency by virtue of Section 3.28 of the EP&A Act. Consequently, development consent is not required.	
<i>State Environmental Planning Policy (Resilience and Hazards) 2021</i>	
Permissible	√ Not permissible <input type="checkbox"/>
The proposed activity would be undertaken within an area which is mapped as Coastal Environment Area for the purpose of the SEPP. Development controls associated with this mapped area are not applicable to development which can be undertaken without consent. Other considerations of the SEPP are not applicable to the proposed activity.	
<i>Wilderness Act 1987</i>	
Permissible	√ Not permissible <input type="checkbox"/>
The proposed activity is not located within a wilderness area declared under this Act.	

Protection of the Environment Operations Act 1997

Permissible ☒ Not permissible ☐

The proposed activity does not constitute scheduled development work or scheduled activities as listed in Schedule 1 of the Act. The proposed activity therefore does not require an environmental protection licence.

National Parks and Wildlife Act 1974 (NP&W Act)

Permissible ☒ (With Permit) Not permissible ☐

- The proposed activity would not encroach into National Park estate.
- The Act provides the basis for the legal protection and management of Aboriginal sites in NSW. Under Sections 86 and 90 of the Act it is an offence to disturb an Aboriginal object or knowingly destroy or damage, or cause the destruction or damage to, an Aboriginal object or place, except in accordance with a permit of consent under section 87 and 90 of the Act.
- As there are no recorded sites or visible objects and as the site is on 'disturbed land', the Due Diligence Guidelines requires no further assessment as it is reasonable to conclude that there is a low probability of objects occurring in the area of the proposed activity and an AHIP is not required. Refer to Section 3.4 for more information.
- In accordance with the NSW Department of Environment, Climate Change and Water's Due Diligence Code of Practice, the proposed activity would require an Aboriginal Heritage Impact Permit as the activity would harm Aboriginal artefacts. All works involving disturbance of the ground surface shall be carried out in accordance with an AHIP. Given the high social and cultural value of the site for local Aboriginal people, it is further recommended that a Nowra LALC Aboriginal Heritage Site Officer be engaged to monitor excavation works for unexpected finds. Refer to Section 3.4 for more information.

Fisheries Management Act 1994

Permissible ☒ Not permissible ☐

The proposed activity:

- would not affect declared aquatic reserves (Part 7, Division 2 of the Act);
- would not involve dredging and reclamation in Key Fish Habitat (Part 7, Division 3);
- would not involve blocking the passage of fish (s.219);
- would not impact on mangroves and marine vegetation (Part 7, Division 4);
- would not involve disturbance to gravel beds where salmon or trout spawn (s.208 of the Act);
- does not involve the release of live fish (Part 7, Division 7);
- does not involve the construction of dams and weirs (s.218);
- would not result in the blocking of the passage of fish;
- would not impact on declared threatened species of endangered ecological communities (Part 7A);
- does not constitute a declared key threatening process (Part 7A); and
- would not use explosives in a watercourse (Clauses 70 and 71 of the *Fisheries Management (General) Regulation 2019*).

Heritage Act 1977

Permissible ☒ Not permissible ☐

The proposed activity would not affect any item of state or local heritage significance. Refer to s3.5 of this REF for more information.

Water Management Act 2000

Permissible ☒ Not permissible ☐

- Local councils are exempt from s.91E(1) of the Act in relation to all controlled activities that they carry out in, on or under waterfront land by virtue of clause 41 of the *Water Management (General) Regulation 2018*.
- The proposed activity would not interfere with the aquifer and therefore an interference licence is not required (s.91F).

COMMONWEALTH LEGISLATION

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EP&BC Act)

Permissible ☒ Not permissible ☐

The proposed activity would not be undertaken on Commonwealth land and no matters of National Environmental Significance are likely to be significantly impacted on by the proposed activity (Section 3.3). The proposed activity is therefore not a controlled action and does not require commonwealth referral.

Commonwealth *Native Title Act 1993*

Permissible ☒ Not permissible ☐

The site occurs in Crown land Part Lot 7311 DP 1148427 which is subject to Native Title Claims. The proposed works are considered environmental mitigation works involving maintenance of existing access tracks. The proposed works would not involve the installation of any structures or fixtures, would not result in any permanent change to the site, and would not affect accessibility of the land.

The proposed works are therefore considered a low-impact Future Act consistent with the criteria of Subdivision L under the NT Act and would not affect Native Title. No procedural rights arise from this activity.

Consultation with or approval from native title claimants is therefore not required.

5. CONSULTATION WITH GOVERNMENT AGENCIES

5.1 Transport & Infrastructure SEPP

Note that consultation under Chapter 2, Part 2.2 of the Transport & Infrastructure SEPP applies only to relevant development undertaken as development without consent under the provisions of Chapter 2.

Section 2.10 – Development with impacts on council-related infrastructure or services

The proposed activity would involve minor modifications to a public place (Currambene Creek Falls Lookout Carpark) for which Council, who is undertaking the works, is the land manager.

Impacts on sewerage systems, water infrastructure, roads or footpaths, such as described under section 2.10(1) would not occur.

Consultation under section 2.11 is therefore not required.

Section 2.11 – Development with impacts on local heritage

The proposed activity would not impact on any local heritage item (refer to Section 3.5 of this REF).

Consultation under section 2.11 is therefore not required.

Section 2.12 – Development with impacts on flood liable land

The proposed activity would not occur on land which is mapped as being flood liable and the proposed activity is unlikely to change flood patterns other than to a minor extent.

Consultation under section 2.12 is therefore not required.

Section 2.13 – Consultation with State Emergency Service—development with impacts on flood liable land

The proposed activity would not occur on land which is mapped as being flood liable.

Consultation under section 2.13 is therefore not required.

Section 2.14 – Development with impacts on certain land within the coastal zone

The proposed activity would not occur within a coastal vulnerability area. Consultation is therefore not required.

Section 2.15 – Consultation with public authorities other than councils

In consideration of the consultation requirements specified under section 2.15 of the Transport & Infrastructure SEPP, the proposed activity:

- would not be undertaken on adjacent to land reserved under the *National Parks and Wildlife Act 1974* or in Zone E1 or in equivalent zones.

- does not comprise a fixed or floating structure in or over navigable waters
- would not increase the amount of artificial light in the night sky and located on land within the dark sky region as identified on the dark sky region map
- would not be undertaken within Defence communications facility buffer (only relevant to the defence communications facility near Morundah)
- would not be undertaken on land in a mine subsidence district within the meaning of the *Mine Subsidence Compensation Act 1961*
- would not occur on or impact on the Willandra Lakes Region World Heritage Property
- would not occur within a Western City operational area specified in the *Western Parkland City Authority Act 2018*

The consultation requirements specified under section 2.15 of the Transport & Infrastructure SEPP therefore do not apply.

Section 2.16 – Consideration of Planning for Bush Fire Protection (PBP)

The proposed activity is not a type applicable to this clause *i.e.* health services facilities, correctional centres and residential accommodation. Consideration of PBP is therefore not required.

Summary

No consultation with government agencies under Part 2.2, Division 1 of the Transport & Infrastructure SEPP is required.

6. COMMUNITY ENGAGEMENT

In accordance with Council's Community Engagement Policy, the proposed activity constitutes a *Local Area – Low Impact* activity. Formal community engagement is not required.

7. ENVIRONMENTAL SAFEGUARDS AND MEASURES TO MINIMISE IMPACTS

Note that all safeguards are prescribed unless otherwise stated.

Safeguard / Measure	Responsibility
Works planning, approvals, consultation & notification	
1. Notification of works and a contact for the site supervisor shall be provided to Falls Creek Primary School, prior to commencement of works.	Project Manager;
2. An Aboriginal Heritage Impact Permit (AHIP) shall be obtained for the proposed activity.	
3. This REF must be published on the determining authority's (Council's) website or the NSW planning portal, in accordance with clause 171(4) EP&A Regulation 2021.	Project Manager / Environmental Officer
Site Establishment	
4. All works involving disturbance of the ground surface shall be carried out in accordance with the conditions of an Aboriginal Heritage Impact Permit (AHIP) including unexpected finds protocols.	Project Manager; Construction Contractor
5. Suitable signage and barriers shall be installed to notify / restrict entry of – the public in proximity to the work site.	Construction Contractor
6. Required clearing shall be clearly delineated prior to commencing works to ensure no unnecessary encroachment into vegetation.	Construction Contractor
7. Machinery, vehicles and stockpiles shall not encroach into native vegetation. A buffer of minimum 3m to tree trunks shall be maintained.	Construction Contractor
8. The contractor shall keep an emergency spill kit on-site at all times with procedures to contain and collect any leakage or spillage of fuels, oils and greases from plant and equipment.	Construction contractor
9. No major equipment maintenance works shall be undertaken on-site.	Construction contractor
10. To avoid the risk of pollution from machinery, refuelling shall generally be done off site, however if refuelling on site is required, due care shall be taken to avoid spilling fuel and a tray shall be used to catch any accidentally spilt fuel.	Construction contractor

Safeguard / Measure	Responsibility
<p>11. Erosion and sediment controls in accordance with the 'Blue Book' (Landcom 2004) shall be installed and maintained to prevent the entry of sediment into waterways.</p> <p>Erosion and sediment controls shall be maintained in good working order and monitored for the duration of the works and subsequently for a period of ten years by the contractor (as per the Deed) until the site has been stabilised and the risk of erosion is minimal.</p>	Construction Contractor
Construction works	
<p>12. It is recommended that a Nowra LALC Aboriginal Heritage Site Officer be engaged to monitor excavation works for unexpected finds.</p>	Project Manager; Construction Contractor
<p>13. Vegetation removal shall be undertaken only to the extent required to construct the proposed crossbanks and shall not involve the removal of any trees.</p>	Construction Contractor
<p>14. Tree protection measures in accordance with AS4970 – <i>Protection of trees on development sites</i> shall be implemented to minimise the risk of impact on the structural root zones of trees to be retained.</p>	Construction contractor
<p>15. Pruning of trees where required is to be undertaken in accordance with AS 4373-1996 "Pruning of Amenity Trees".</p>	Construction Contractor;
<p>16. Cleared vegetation may be relocated to adjacent disturbed areas under the supervision of Council's Natural Areas Officer.</p>	Construction Contractor; SCC Natural Areas Officer
<p>17. In the event that any wildlife be significantly disturbed or injured during works, Council's Environmental Officers are to be contacted on 4429 3405, or if unavailable, Wildlife Rescue – South Coast should be contacted on 0418 427 214, to rescue and relocate the animal(s).</p>	Construction Contractor
<p>18. If engineering fill is imported to the site, all conditions prescribed in the applicable Resource Recovery Exemptions shall be complied with, including:</p> <ul style="list-style-type: none"> • ensuring the producer of the waste has complied with the applicable Order such as testing and validation • ensuring the material has met all chemical and other material requirements specified in the applicable Order • keeping a written record of the following for a period of six years: <ul style="list-style-type: none"> ○ the quantity of material received ○ the name and address of the supplier 	Construction contractor

Safeguard / Measure	Responsibility
<p>19. If Virgin Excavated Natural Material (VENM) is taken to the site (i.e. without chemical testing and validation):</p> <ul style="list-style-type: none"> a. the material must meet the definition of VENM (http://www.epa.nsw.gov.au/waste/virgin-material.htm) b. the supplier must fill out and complete the <i>VENM Certificate</i> <p>The completed <i>VENM Certificate</i> shall be kept for at least six years and provided to the EPA upon any request.</p>	Construction contractor
<p>20. Any waste generated on site shall be reused in accordance with relevant Resource Recovery Orders and Exemptions, or otherwise disposed of at a licenced waste facility.</p>	Construction Contractor
<p>21. Staff working at the site shall be instructed to stop work immediately on identification of any suspected Aboriginal heritage artefact. If any objects are found, NSW Department of Planning, Industry and Environment (ph:131 555) shall be contacted.</p>	Construction Contractor
<p>22. Disturbed table drains and road batters shall be stabilised following construction with jute mesh, turf, hydromulch or similar.</p>	Construction Contractor;
Post construction	
<p>23. Monitoring and maintenance of the site shall be undertaken as per Appendix A.</p>	Land Manager
<p>24. In maintenance of the crossbanks, soil and gravel build-up shall not be deposited within areas of native vegetation. Such material must be removed from site or otherwise used to infill areas within the existing disturbed carpark and access roads.</p>	Land Manager

8. SIGNIFICANCE EVALUATION & DECISION STATEMENT

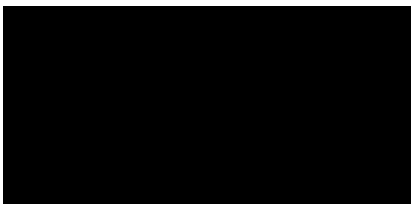
This Review of Environmental Factors has assessed the likely environmental impacts, in the context of Part 5 of the Environmental Planning and Assessment Act 1979, of a proposal by Shoalhaven City Council for the construction of diversion crossbanks to reduce and manage the impacts of sediment erosion at Currumbene Creek Falls Lookout Carpark, Vidler Rd, Falls Creek.

In consideration of the proposed activity as described in Section 1, in accordance with any design plans referred to in this report, and assuming the implementation of all proposed safeguards and mitigation measures (Section 7), it is determined that:

1. It is unlikely that there would be any significant environmental impact as a result of the proposed activity and an Environmental Impact Statement is not required.
2. The proposed activity would not be carried out in a declared area of outstanding biodiversity value and is not likely to significantly affect threatened species, populations or ecological communities, or their habitats, and a Species Impact Statement / BDAR is not required.
3. No statutory approvals, licences, permits or external government consultations are required.
4. The proposed activity may proceed.

In accepting and adopting this REF, Shoalhaven City Council commits to ensuring the implementation of the proposed safeguards and mitigation measures identified in this report (Section 7) to minimise and/or prevent detrimental environmental impacts.

Determined by:



Peter Swanson
Lead – Land Management
Shoalhaven City Council

Date: 23/03/2023

9. REFERENCES

- DECCW (Department of Environment, Climate Change and Water, NSW). 2010. *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales*.
- DoE (Department of Environment, Commonwealth of Australia). 2013. *Matters of National Environmental Significance Significant Impact Guidelines 1.1*. Available from: <http://155.187.2.69/epbc/guidelines-policies.html>
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- Landcom. 2004. *Managing Urban Stormwater: Soils and Construction 4th edition*. NSW Government. ISBN 0-9752030-3-7.
- NSW Government. 2020a. *BioNet Atlas* (online database). Available at: https://www.environment.nsw.gov.au/atlaspublicapp/UI_Modules/ATLAS_/AtlasSearch.aspx
- NSW Government. 2020b. *Threatened Biodiversity Data Collection* (online database). Available at: https://www.environment.nsw.gov.au/AtlasApp/UI_Modules/TSM_/Default.aspx
- OEH (NSW Office of Environment & Heritage). 2018. *Threatened species Test of Significance Guidelines*. OEH, 59 Goulburn St Sydney NSW 2000.
- OEH (NSW Office of Environment & Heritage). 2019. *Pterostylis ventricosa – profile*. Available from: <https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20162>
- OEH (NSW Office of Environment and Heritage). 2021. *Clearing of native vegetation- profile*. Available at: <https://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=20023>

APPENDIX A – Maintenance and Monitoring Schedule

Schedule – Maintenance & Monitoring

A. Target Condition

The target condition/s for the site/s are identified below in the Table – Target Condition. The maintenance and monitoring services outlined in Table – Maintenance and Monitoring will assist you to meet these target conditions and/or identify if alternative maintenance services are required.

Table – Target condition

Objective	Target condition criteria	Due date
Significantly reduce sediment emanating from easements and tracks entering Currumbene Creek through the Falls car park	Stormwater and run-off captured and dispersed to stable and vegetated areas. Works meet 'blue book' standard	June 2020
Remediated standard maintained	Noticable reduction of sediment run-off on to the creek rock platform for the life of the project.	Ongoing for ten (10) years
Limit the exposed erodible surface area	No increase in exposed erodible surface area Any ongoing informal vehicle access issues are addressed	ongoing

B. Maintenance and Monitoring

Table – Maintenance and Monitoring (which you must carry out)

Service Type	Service	Service Standard	Service Frequency	Service completion date
Maintenance	Maintain cross drains capacity to capture and disperse storm water	Meets 'blue book' standards	As required	Ongoing for 10 years
Monitoring	Monitor water run-off and sediment flows	Regular inspections and remedial work to maintain standard	annually	2030

APPENDIX B – Threatened Species Likelihood of Occurrence

NSW Threatened Species Likelihood of Occurrence Table

The table of likelihood of occurrence evaluates the likelihood of threatened species to occur on the subject site. This list is derived from previously recorded species within a 5 km radius (taken from NSW BioNet Atlas) around the subject site. Ecology information unless otherwise stated, has been obtained from the *Threatened Biodiversity Profile Search* on the NSW OEH (Office of Environment & Heritage) online database (<https://www.environment.nsw.gov.au/threatenedspeciesapp/>).

Likelihood of occurrence in study area

1. Unlikely – Species, population or ecological community is not likely to occur. Lack of previous recent (<25 years) records and suitable potential habitat limited or not available in the study area.
2. Likely – Species, population or ecological community could occur and study area is likely to provide suitable habitat. Previous records in the locality and/or suitable potential habitat in the study area.
3. Present – Species, population or ecological community was recorded during the field investigations.

Possibility of impact

1. Unlikely – The proposal would be unlikely to impact this species or its habitats. No NSW *Biodiversity Conservation Act 2016* “Test of Significance” or EPBC Act significance assessment is necessary for this species.
2. Likely – The proposal could impact this species, population or ecological community or its habitats. A NSW *Biodiversity Conservation Act 2016* “Test of Significance” and/or EPBC Act significance assessment is required for this species, population or ecological community.

Note that where further assessment is deemed required, this is undertaken within the REF as a Test of Significance (in the case of NSW listed species) or an EPBC Significant Impact Assessment (in the case of Commonwealth listed species).

Review of Environmental Factors Part 5 Assessment EP&A Act 1979

Endangered Ecological Community name		Status	Likelihood of presence within areas impacted by the activity
Coastal Saltmarsh in the NSW North Coast, Sydney Basin and South East Corner Bioregions		Endangered - <i>NSW BC Act</i> Vulnerable - Commonwealth <i>EPBC Act</i>	Does not occur on-site and is not mapped as occurring in close proximity to the site (nearest records are approx. 4.9km from site).
Freshwater wetlands on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions		Endangered - <i>NSW BC Act</i>	Does not occur on-site and is not mapped as occurring in close proximity to the site (nearest records are approx. 2.85km from site).
Illawarra Lowlands Grassy Woodland in the Sydney Basin Bioregion		Endangered - <i>NSW BC Act</i> Critically Endangered - Commonwealth <i>EPBC Act</i>	Does not occur on-site and is not mapped as occurring in close proximity to the site (nearest records are approx. 1.05km from site).
Swamp oak floodplain forest of the NSW North Coast, Sydney Basin and South East Corner bioregions		Endangered - <i>NSW BC Act</i> Endangered - Commonwealth <i>EPBC Act</i>	Does not occur on-site and is not mapped as occurring in close proximity to the site (nearest records are approx. 1.02km from site).
Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions		Endangered - <i>NSW BC Act</i>	Does not occur on-site and is not mapped as occurring in close proximity to the site (nearest records are approx. 2.8km from site).
Species name	Status	Habitat requirements (www.environment.nsw.gov.au)	Likelihood of presence within areas impacted by the activity
FLORA			
<i>Eucalyptus langleyi</i> Albatross Mallee	NSW BC Act Vulnerable EPBC Act Vulnerable	Found in Mallee shrub land on poorly drained, shallow, sandy soils on sandstone.	Not present. Conspicuous species not detected during surveys.

Review of Environmental Factors Part 5 Assessment EP&A Act 1979

<i>Pterostylis ventricosa</i>	Critically endangered <i>NSW BC Act</i>	Predominantly in more open areas of tall coastal eucalypt forest often dominated by one or more of the following tree species:- Turpentine, Spotted Gum, Grey Ironbark, Blackbutt, White Stringybark, Scribbly Gum and Sydney Peppermint. Often favours more open areas such as along powerline easements and on road verges where the tree overstorey has been removed or thinned. Grows in a range of groundcover types, including moderately dense low heath, open sedges and grasses, leaf litter, and mosses on outcropping rock. Soil type ranges from moisture retentive grey silty loams to grey sandy loams. Sometimes found in skeletal soils on sandstone rock shelves	Possible. Known to occur in proximity to the site. Further assessment required.
<i>Syzygium paniculatum</i> Magenta Lilly Pilly	Vulnerable <i>EPBC Act</i> Endangered <i>NSW BC Act</i>	On the south coast the Magenta Lilly Pilly occurs on grey soils over sandstone, restricted mainly to remnant stands of littoral (coastal) rainforest.	Not present. Conspicuous species not detected during surveys.
AMPHIBIANS			
Green and Golden Bell Frog <i>Litoria aurea</i>	Vulnerable <i>EPBC Act</i> Endangered <i>NSW BC Act</i>	Heath, woodland and open dry sclerophyll forest on a variety of soil types except clay based. Whilst in non-breeding habitat it burrows below the soil surface or in the leaf litter. Breeding frogs will call from open spaces, under vegetation or rocks or from within burrows in the creek bank. Egg masses are laid in burrows or under vegetation in small pools. After rains, tadpoles are washed into larger pools where they complete their development in ponds or ponded areas of the creekline. Tadpole development ranges from Breeding habitat of this species is generally soaks or pools within first or second order streams. They are also commonly recorded from 'hanging swamp' seepage lines and where small pools form from the collected water.	Unlikely - No suitable habitat
BIRDS			
Australasian Bittern <i>Botaurus poiciloptilus</i>	<i>NSW BC Act</i> Endangered <i>EPBC Act</i> Endangered	Occurs in terrestrial freshwater wetlands and, rarely, estuarine habitats. It favours wetlands with tall, dense vegetation, where it forages in still, shallow water up to 0.3 m deep, often at the edges of pools or waterways, or from platforms or mats of vegetation over deep water. The species favours permanent and seasonal freshwater habitats, particularly those dominated by sedges, rushes and/or reeds (e.g. Phragmites, Cyperus, Eleocharis, Juncus, Typha, Baumea, Bolboschoenus) or cutting grass (Gahnia) growing over muddy or peaty substrate. Knowledge of the breeding ecology of the Australasian Bittern is relatively poor. Available data indicate that the Australasian Bittern breeds in relatively deep, densely vegetated freshwater swamps and pools, building its nests in deep cover over shallow water. In rushland, it may avoid breeding in the densest areas; alternatively, this may simply reflect the accessibility of the few nests that have been found. If population	Unlikely to occur. No suitable habitat within or in close proximity to the site.

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		<p>density is high, it may resort to open wetlands for nesting, e.g. in stunted Acacia, but this may be exceptional behaviour.</p> <p>It is clear that a complexity of habitat is required in order for foraging and breeding to occur in one location. The species requires shallow water, less than 30 cm deep with medium to low density reeds, grasses or shrubs for foraging and needs deeper water, with medium to high density reeds, rushes or sedges for nesting.</p>	
<p>Barking Owl <i>Ninox connivens</i></p>	<p>Vulnerable NSW BC Act</p>	<p>Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. It is flexible in its habitat use, and hunting can extend in to closed forest and more open areas. Sometimes able to successfully breed along timbered watercourses in heavily cleared habitats (e.g. western NSW) due to the higher density of prey on these fertile soils.</p> <p>Roost in shaded portions of tree canopies, including tall midstorey trees with dense foliage such as Acacia and Casuarina species. During nesting season, the male perches in a nearby tree overlooking the hollow entrance.</p> <p>Requires very large permanent territories in most habitats due to sparse prey densities. Monogamous pairs hunt over as much as 6000 hectares, with 2000 hectares being more typical in NSW habitats.</p> <p>Two or three eggs are laid in hollows of large, old trees. Living eucalypts are preferred though dead trees are also used. Nest sites are used repeatedly over years by a pair, but they may switch sites if disturbed by predators (e.g. goannas).</p>	<p>Possibly occurring transiently within or in close proximity to the site, but no suitable habitat occurring in areas to be impacted. No important habitat to the species would be removed or otherwise impacted by the proposal.</p>
<p>Cattle Egret <i>Ardea ibis</i></p>	<p>Migratory EPBC Act</p>	<p>Typical habitat occurs in tropical and temperate grasslands, wooded lands and terrestrial wetlands. It has occasionally been seen in arid and semi-arid regions however this is extremely rare. High numbers have been observed in moist, low-lying poorly drained pastures with an abundance of high grass; it avoids low grass pastures. It has been recorded on earthen dam walls and ploughed fields. It is commonly associated with the habitats of farm animals, particularly cattle, but also pigs, sheep, horses and deer. The Cattle Egret is known to follow earth-moving machinery and has been located at rubbish tips. It uses predominately shallow, open and fresh wetlands including meadows and swamps with low emergent vegetation and abundant aquatic flora. They have sometimes been observed in swamps with tall emergent vegetation. Feeding habitat occurs away from water on low lying grasslands, improved pastures and croplands. It is commonly found in cattle fields and other farm areas that contain livestock. The Cattle Egret has also been observed foraging in rubbish tips. It is becoming more frequent in drier regions; consuming the ticks of livestock in the absence of other food sources. This inland spread is believed to be due to the construction of artificial waterways.</p>	<p>Unlikely to occur. No suitable habitat within or in close proximity to the site.</p>

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		Roosts in trees, or amongst ground vegetation in or near lakes and swamps. It has also been recorded roosting near human settlement and industrial areas in Murwillumbah, NSW.	
Dusky Woodswallow <i>Artamus cyanopterus cyanopterus</i>	Vulnerable NSW BC Act	The Dusky Woodswallow is often reported in woodlands is eastern, southern and southwestern Australia. In New South Wales it is widespread from coast to inland, including the western slopes of the great Diving Range and farther west. It is often reported in woodlands and dry open sclerophyll forests, usually dominated by eucalyptus, including mallee associations. It have also been recorded in shrublands and heathlands and carious modified habitats including regenerating forests; very occasionally in moist forests of rainforests. At sites where Dusky Woodswallows are recorded the understorey is typically open with sparse eucalypt saplings, acacias and other shrubs, including heath. The ground cover may consist of grasses, sedges or open ground, often with course woody debris. Birds are often observed in farmland usually at the edges of forests, woodlands or in roadside remnants or wind breaks with dead timber. Nesting occurs from late September to late February, with eggs present between October and early December. They nest in an open shallow untidy cup, frequently in an open hollow, crevice or stump.	Possibly occurring transiently within or in close proximity to the site, but no suitable habitat occurring in areas to be impacted. No important habitat to the species would be removed or otherwise impacted by the proposal.
Gang-gang Cockatoo <i>Callocephalon fimbriatum</i>	Vulnerable NSW BC Act	Tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In winter, may occur at lower altitudes in drier more open eucalypt forests and woodlands, and often found in urban areas. preferring more open eucalypt forests and woodlands, particularly in box-ironbark assemblages, or in dry forest in coastal areas. Favours old growth attributes for nesting and roosting	Possibly occurring transiently within or in close proximity to the site, but no suitable habitat occurring in areas to be impacted. No important habitat to the species would be removed or otherwise impacted by the proposal.
Glossy Black-cockatoo <i>Calyptorhynchus lathami</i>	Vulnerable NSW BC Act	The GBC inhabits open forest and woodlands of the coast where stands of she-oak occur. In the Jervis Bay region they feed almost exclusively on the seeds of the black she-oak <i>Allocasuarina littoralis</i> , shredding the cones with their bill	Possibly occurring transiently within or in close proximity to the site, but no suitable habitat occurring in areas to be impacted. No important habitat to the species would be removed or otherwise impacted by the proposal.

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Little Eagle <i>Hieraaetus morphnoides</i>	Vulnerable NSW BC Act	Occupies open eucalypt forest, woodland or open woodland. She-oak or acacia woodlands and riparian woodlands of interior NSW are also used. Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter	Possibly occurring transiently within or in close proximity to the site, but no suitable habitat occurring in areas to be impacted. No important habitat to the species would be removed or otherwise impacted by the proposal.
Little Lorikeet <i>Glossopsitta pusilla</i>	Vulnerable NSW BC ACT	Forages primarily in the canopy of open Eucalyptus forest and woodland, yet also finds food in Angophora, Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity. Isolated flowering trees in open country, e.g. paddocks, roadside remnants and urban trees also help sustain viable populations of the species. Roosts in treetops, often distant from feeding areas. Nests in proximity to feeding areas if possible, most typically selecting hollows in the limb or trunk of smooth-barked Eucalypts. Entrance is small (3 cm) and usually high above the ground (2–15 m). These nest sites are often used repeatedly for decades, suggesting that preferred sites are limited. Riparian trees often chosen, including species like Allocasuarina	Possibly occurring transiently within or in close proximity to the site, but no suitable habitat occurring in areas to be impacted. No important habitat to the species would be removed or otherwise impacted by the proposal.
Masked Owl <i>Tyto novaehollandiae</i>	Vulnerable NSW BC Act	Dry eucalypt forests and woodlands from sea level to 1100 m. Inhabits forest but often hunts along the edges of forests, including roadsides. The typical diet consists of tree-dwelling and ground mammals, especially rats. Pairs have a large home-range of 500 to 1000 hectares. Roosts and breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting. requires old growth elements-hollow bearing tree resources for nesting and prey source	Possibly occurring transiently within or in close proximity to the site, but no suitable habitat occurring in areas to be impacted. No important habitat to the species would be removed or otherwise impacted by the proposal.
Powerful Owl <i>Ninox strenua</i>	Vulnerable NSW BC Act	Coastal Woodland, Dry Sclerophyll Forest, wet sclerophyll forest and rainforest- Can occur in fragmented landscapes. Roosts in dense vegetation comprising species such as Turpentine Syncarpia glomulifera, Black She-oak Allocasuarina littoralis, Blackwood Acacia melanoxylon, Rough-barked Apple Angophora floribunda, Cherry Ballart Exocarpus cupressiformis and a number of eucalypt species. requires old growth	Possibly occurring transiently within or in close proximity to the site, but no suitable habitat occurring in areas to be impacted. No

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		elements-hollow bearing tree resources for nesting and prey resource. Nests in large tree hollows in large eucalypts that are at least 150yrs old. Often in riparian areas. Large home range	important habitat to the species would be removed or otherwise impacted by the proposal.
Scarlet Robin <i>Petroica boodang</i>	Vulnerable NSW BC Act	The Scarlet Robin is primarily a resident in dry forests and woodlands, but some adults and young birds disperse to more open habitats after breeding.	Possibly occurring transiently within or in close proximity to the site, but no suitable habitat occurring in areas to be impacted. No important habitat to the species would be removed or otherwise impacted by the proposal.
Sooty Owl <i>Tyto tenebricosa</i>	Vulnerable NSW BC Act	Occurs in rainforest, including dry rainforest, subtropical and warm temperate rainforest, as well as moist eucalypt forests	Possibly occurring transiently within or in close proximity to the site, but no suitable habitat occurring in areas to be impacted. No important habitat to the species would be removed or otherwise impacted by the proposal.
Square-Tailed Kite <i>Lophoictinia isura</i>	Vulnerable NSW BC Act	Summer breeding migrant to the south-east, including the NSW south coast, arriving in September and leaving by March. Found in a variety of timbered habitats including dry woodlands and open forests. Shows a particular preference for timbered watercourses large hunting ranges of more than 100km ² Nest within large hollow bearing trees generally within 200m of riparian areas.	Possibly occurring transiently within or in close proximity to the site, but no suitable habitat occurring in areas to be impacted. No important habitat to the species would be removed or otherwise impacted by the proposal.
Superb Fruit-Dove <i>Ptilinopus superbus</i>	Vulnerable NSW BC Act	Inhabits rainforest and similar closed forests where it forages high in the canopy, eating the fruits of many tree species such as figs and palms. It may also forage in eucalypt or acacia woodland where there are fruit-bearing trees. Part of the population is migratory or nomadic. Predominantly north east NSW. Breeding takes place from September to January. The nest is a structure of fine interlocked forked twigs, and is usually 5-30 metres up in rainforest and rainforest edge tree and shrub species	Unlikely to occur. No suitable habitat present.

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White-bellied Sea-Eagle <i>Haliaeetus leucogaster</i>	NSW BC Act Vulnerable Migratory EPBC Act	Found in coastal habitats (especially those close to the sea-shore) and around terrestrial wetlands in tropical and temperate regions of mainland Australia and its offshore islands. The habitats occupied by the sea-eagle are characterized by the presence of large areas of open water (larger rivers, swamps, lakes, the sea). Birds have been recorded in (or flying over) a variety of terrestrial habitats. The species is mostly recorded in coastal lowlands, but can occupy habitats up to 1400 m above sea level on the Northern Tablelands of NSW and up to 800 m above sea level in Tasmania and South Australia. Birds have been recorded at or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs, saltmarsh and sewage ponds. They also occur at sites near the sea or sea-shore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, forest (including rainforest) and even urban areas. Breeding has been recorded on the coast, at inland sites, and on offshore islands. Breeding territories are located close to water, and mainly in tall open forest or woodland, although nests are sometimes located in other habitats such as dense forest (including rainforest), closed scrub or in remnant trees on cleared land. Forages over large expanses of open water; this is particularly true of birds that occur in coastal environments close to the sea-shore, where they forage over in-shore waters. However, the White-bellied Sea-Eagle will also forage over open terrestrial habitats (such as grasslands). Birds may move to and congregate in favorable sites during drought or food shortage.	Possibly occurring transiently within or in close proximity to the site, but no suitable habitat occurring in areas to be impacted. No important habitat to the species would be removed or otherwise impacted by the proposal.
White-throated Needletail <i>Hirundapus caudacutus</i>	Migratory EPBC Act	Almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above the ground. Because they are aerial, it has been stated that conventional habitat descriptions are inapplicable, but there are, nevertheless, certain preferences exhibited by the species. Although they occur over most types of habitat, they are probably recorded most often above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy, but they are less commonly recorded flying above woodland. They also commonly occur over heathland, but less often over treeless areas, such as grassland or swamps. When flying above farmland, they are more often recorded above partly cleared pasture, plantations or remnant vegetation at the edge of paddocks. In coastal areas, they are sometimes seen flying over sandy beaches or mudflats, and often around coastal cliffs and other areas with prominent updraughts, such as ridges and sand-dunes. They are sometimes recorded above islands well out to sea.	Possibly occurring transiently within or in close proximity to the site, but no suitable habitat occurring in areas to be impacted. No important habitat to the species would be removed or otherwise impacted by the proposal.

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MICRO-CHIROPTERAN BATS			
Eastern Coastal Free-tailed Bat <i>Micronomus norfolkensis</i>	Vulnerable NSW BC Act	Occur in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range. Roost mainly in tree hollows but will also roost under bark or in man-made structures. Usually solitary but also recorded roosting communally, probably insectivorous.	Possibly occurring transiently within or in close proximity to the site, but no suitable habitat occurring in areas to be impacted. No important habitat to the species would be removed or otherwise impacted by the proposal.
Large-eared Pied Bat <i>Chalinobolus dwyeri</i>	Vulnerable NSW BC Act Vulnerable EPBC Act	Found mainly in areas with extensive cliffs and caves, from Rockhampton in Queensland south to Bungonia in the NSW Southern Highlands. It is generally rare with a very patchy distribution in NSW. There are scattered records from the New England Tablelands and North West Slopes. Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (<i>Petrochelidon ariel</i>), frequenting low to mid-elevation dry open forest and woodland close to these features	
Southern Myotis (Large-footed Myotis) <i>Myotis macropus</i>	Vulnerable NSW BC Act	This species is predominantly roosts in caves, however, is known to roost in trees and man- made structures close to water. Roosts are generally located close to water, where the bats forage in small groups of three or four. They have a strong association with streams and permanent waterways in areas that are vegetated rather than cleared (Churchill, S 2008, Australian Bats, Jacana Books, Crows Nest, NSW They feed on small fish, prawns and aquatic macroinvertebrates. They have a preference towards large still pools, rather than flowing streams. They will also forage an aerial insects flying over water. They use their large feet to capture prey items (Churchill 2008).	
Yellow-bellied Sheathtail-bat <i>Saccolaimus flaviventris</i>	Vulnerable NSW BC Act	Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. When foraging for insects, flies high and fast over the forest canopy, but lower in more open country. Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory. Breeding has been recorded from December to mid-March, when a single young is born. Seasonal movements are unknown; there is speculation about a migration to southern Australia in late summer and autumn	
MAMMALS			
Eastern Pygmy-possum <i>Cercatetus nanus</i>	Vulnerable NSW BC Act	Rainforest, sclerophyll forest & woodland to heath – but heath & woodland preferred. Forages on banksias, eucalypts & bottlebrushes.	Unlikely to occur. No suitable habitat present.
Greater Glider <i>Petauroides Volans</i>	Vulnerable EPBC Act	Feeds exclusively on eucalypt leaves, buds, flowers and mistletoe. Shelter during the day in tree hollows and will use up to 18 hollows in their home range. Occupy a relatively small home range with an average size of 1 to 3 ha. Give birth to a single	Possibly occurring transiently within or in close proximity to the site, but no

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		young in late autumn or early winter which remains in the pouch for approximately 4 months and is independent at 9 months of age. Usually solitary, though mated pairs and offspring will share a den during the breeding season and until the young are independent. Can glide up to a horizontal distance of 100m including changes of direction of as much as 90 degrees. Very loyal to their territory.	suitable habitat occurring in areas to be impacted. No important habitat to the species would be removed or otherwise impacted by the proposal.
Grey-headed Flying-fox <i>Pteropus poliocephalus</i>	Vulnerable EPBC Act Vulnerable NSW BC Act	Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy.	Possibly occurring transiently within or in close proximity to the site, but no suitable habitat occurring in areas to be impacted. No important habitat to the species would be removed or otherwise impacted by the proposal.
Koala <i>Phascolarctos cinereus</i>	Vulnerable NSW BC Act	Eucalypt woodland and forest Home range sizes vary with quality of habitat ranging from less than two ha to several hundred ha. Preferred tree species on the south coast are <i>Eucalyptus amplifolia</i> , <i>E.viminalis</i> , & <i>E.tereticornis</i> but numerous other species also known food trees.	Unlikely to occur. No suitable habitat present.
New Holland Mouse <i>Pseudomys novaehollandiae</i>	Vulnerable NSW BC Act	Known to inhabit open heathlands, woodlands and forests with a heathland understorey and vegetated sand dunes It is a social animal, living predominantly in burrows shared with other individuals Distribution is patchy in time and space, with peaks in abundance during early to mid stages of vegetation succession typically induced by fire	Unlikely to occur. No suitable habitat present.
Southern Brown Bandicoot (eastern) <i>Isodon obesulus obesulus</i>	Endangered EPBC Act Endangered NSW BC Act	Southern Brown Bandicoots are largely crepuscular (active mainly after dusk and/or before dawn). They are generally only found in heath or open forest with a heathy understorey on sandy or friable soils. They feed on a variety of ground-dwelling invertebrates and the fruit-bodies of hypogeous (underground-fruited) fungi. Their searches for food often create distinctive conical holes in the soil. Males have a home range of approximately 5-20 hectares whilst females forage over smaller areas of about 2-3 hectares. Nest during the day in a shallow depression in the ground covered by leaf litter, grass or other plant material. Nests may be located under Grass trees <i>Xanthorrhoea</i> spp., blackberry bushes and other shrubs, or in rabbit burrows. The upper surface of the nest may be mixed with earth to waterproof the inside of the nest.	Unlikely to occur. No suitable habitat present.

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Spotted-tailed Quoll <i>Dasyurus maculatus</i>	Endangered EPBC Act Vulnerable NSW BC Act	Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Individual animals use hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites. Mostly nocturnal, although will hunt during the day; spends most of the time on the ground, although also an excellent climber and will hunt possums and gliders in tree hollows and prey on roosting birds. Use communal 'latrine sites', often on flat rocks among boulder fields, rocky cliff-faces or along rocky stream beds or banks. Such sites may be visited by multiple individuals and can be recognised by the accumulation of the sometimes characteristic 'twisty-shaped' faeces deposited by animals. Females occupy home ranges up to about 750 hectares and males up to 3500 hectares. Are known to traverse their home ranges along densely vegetated creeklines.	Unlikely to occur. No suitable habitat present.
Yellow-bellied Glider - <i>Petaurus Australis</i>	Vulnerable NSW BC Act	Forest with old growth elements. Large Eucalypt Hollows for denning- Inhabits mature or old growth Blackbutt-Bloodwood forest with heath understorey in coastal areas. Prefers mixed species stands with a shrub or Acacia mid storey. Feed primarily on plant and insect exudates, including nectar, sap, honeydew and manna with pollen and insects providing protein. Extract sap by incising (or biting into) the trunks and branches of favoured food trees, often leaving a distinctive 'V'-shaped scar. Very mobile and occupy large home ranges between 20 to 85 ha to encompass dispersed and seasonally variable food resources.	Possibly occurring transiently within or in close proximity to the site, but no suitable habitat occurring in areas to be impacted. No important habitat to the species would be removed or otherwise impacted by the proposal.