ABN: 67 112 487 617
PO Box 93, Katoomba, NSW 2780
Web: www.epacrisenviro.com.au
Email: info@epacrisenviro.com.au
Ph/fax : (02) 4782-1177

Appendix F

7 Part Test for re-alignment of Proposed Mountain Bike track – Bantry Bay, Garigal National Park

Coastal Upland Swamp in the Sydney Basin Bioregion

The proposed track is a direct outcome of the National Parks and Wildlife Service's *Sustainable Mountain Bike Strategy (SMBS)*. The SMBS was approved by the Minister for the Environment in August 2011. It introduces a number of changes to the NPWS policies relating to the use of mountain bikes in reserves gazetted under the NSW *National Parks and Wildlife Act*.

Previous proposed track alignments in the Bantry Bay location (Epacris 2012) were revised, due to an extensive section of track passing through a recently listed Endangered Ecological Community 'Coastal Upland Swamp in the Sydney Basin Bioregion'. This community was listed as an EEC in 2012 after the previous field work was carried out. Disturbance of this EEC could potentially lead to deterioration of the swamp as it allows an area of ingress for sediment, nutrients, pathogens and weed species both from construction and usage of the track.

Epacris was approached to investigate realignments of the track which would minimise impacts to this EEC. Despite best efforts, it is impossible to completely avoid passing through the EEC. The new proposed track line still passes through two sections of the EEC, as mapped by Epacris' ecologist Wyn Jones using aerial photo interpretation, however the new alignment is approximately 200m shorter than the previous one. The Upland Swamp Community (Fig. 1) is present in these areas as evidenced by the moist soil and presence of species typical of the community such as *Leptospermum sp., Melaleuca sp, Banksia ericifolia* and *Allocasuarina distyla* (Fig. 2).

The Upland Swamp community areas that will be impacted by the new proposed track are comprised of a 110 metre long section under Bluff Lookout, and a 250 metre long section which joins the new track to the Engravings Trail, this section has been previously disturbed and has weed plumes and rubbish present, these will be removed and weeds treated. These sections of new track total 360 metres which when multiplied by the anticipated track width of 1.2 metres equals a total of 432 sq. metres – which represents 0.63% of the total extent of the EEC on this site. The proposed new track alignment is shown on Map 1.

This 7-part test is based on the use of a raised 'floating' fibreglass deck placed on recycled plastic bearers across the EEC areas. This type of track does not require complete vegetation removal or soil disturbance, and will provide the best access opportunities across this sensitive vegetation community with the least accompanying impact. The track will be hand constructed which minimizes disturbance and eliminates hazardous materials.

This 7-part test only covers the EEC 'Coastal Upland Swamp in the Sydney Basin Bioregion'. Previous 7-part tests for the other species present at this site are still current for this proposal.

1 Summary of Impacts

It is considered that the proposal will produce the following environmental impacts:

	N/A or Nil	Temp	Minor	High	Significant
Air	✓				
Water			✓		
Soil			✓		
Noise		✓			
Vibration		✓			
Flora			✓		
Fauna			✓		
Hazardous Substances	✓				
Contaminated Land	✓				
Waste Minimisation and Management	✓				
Natural Resource Use			✓		
Impact on the Community			✓		
Visual Assessment			✓		
Aboriginal Heritage	✓				
Other Cultural Heritage	✓				
Landuse			✓		
Cumulative Environmental Impacts			✓		

2 Conclusions

To conclude, decide whether:

☐ The activity is likely to significantly affect the environment – an EIS is required. Reasons:

☐ The activity is likely to have a significant effect on threatened species, populations, ecological communities, or their habitats – a SIS is required. Reasons:

☐ The activity is in respect of land that is, or is a part of, critical habitat – a SIS is required. Reasons:

☒ The proposal will not have a significant impact on the environment. No further assessment is required. The proposal is recommended for conditional approval:

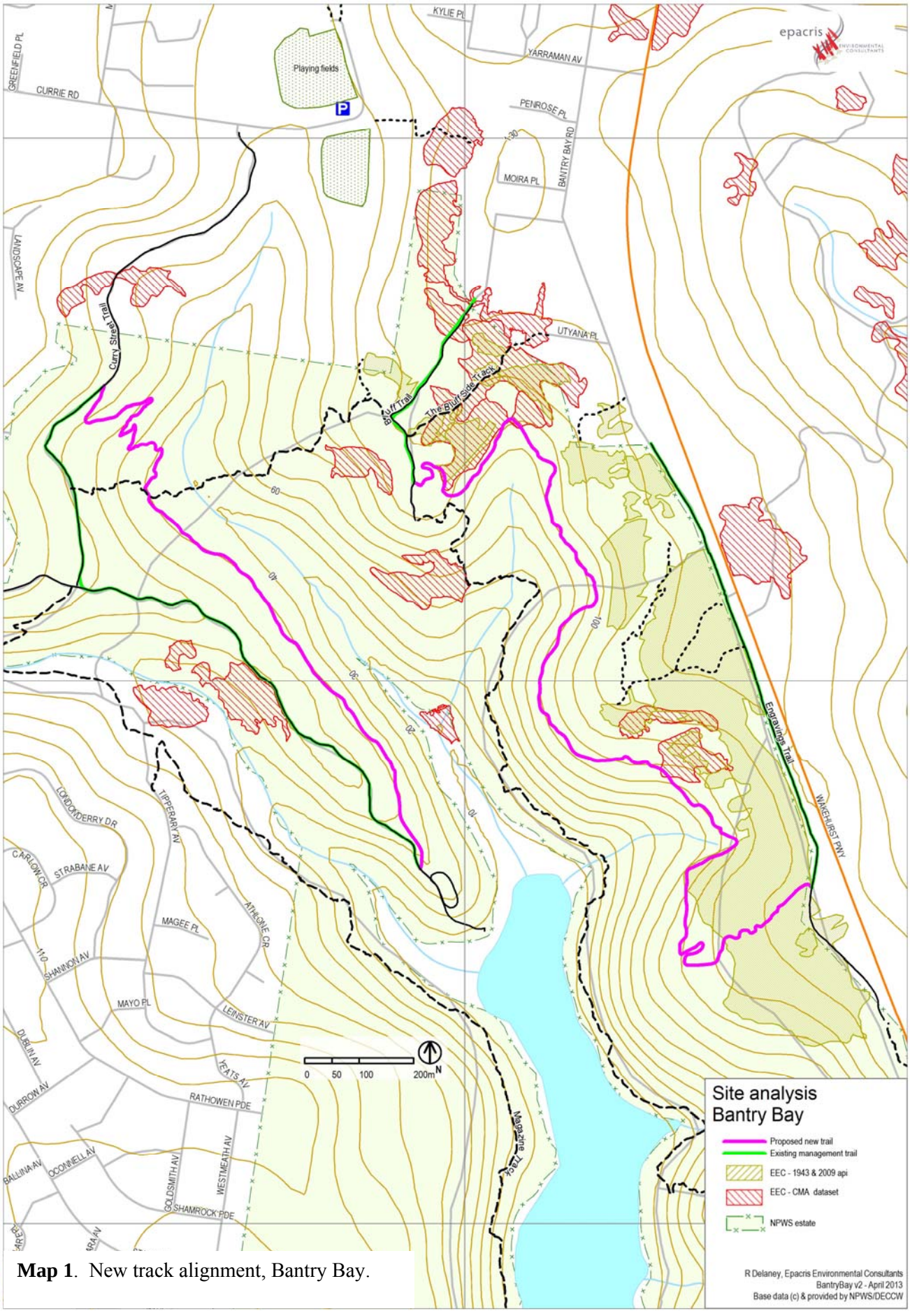
The proposed activity should be approved, subject to the adoption of certain environmental safeguards listed below.

Environmental safeguards which should be implemented during the track construction include:

- Education of all track workers to ensure they are aware of the significance of the EEC 'Coastal Upland Swamp in the Sydney Basin Bioregion', and are educated as to the working restrictions within this area.
- Education of all track workers to be aware of the potential for uncovering recent or old heritage and cultural items and to report these immediately to the project manager if found.
- Avoid removing large plants and trees as far as possible by winding the track through obstacles.
- Trimmed vegetation to be used wherever possible to brush-mat closed tracks and other denuded areas, or spread some distance from the track.
- No removal of trees with hollows unless essential for public safety reasons.
- No bushrock to be removed.
- Extreme care to be taken while constructing track in Coastal Upland swamp vegetation. Width of disturbance to be kept to an absolute minimum along track route.
- If any vegetation removed is comprised of weed species, this to be bagged and removed from the site. The presence of weed species is to be mapped and recorded by the project officer.
- The presence of *Phytophthora* should be monitored in the vegetation along the track as per existing NPWS protocols.
- The presence of Myrtle rust should be monitored in the vegetation along the track as per existing NPWS protocols.
- Regular inspections for predator scats or the use of remote cameras could be implemented to assess the use of the track by feral animal species; if regular usage is shown, control programs should be implemented for these species.
- Regular monitoring of the presence of weed species along the track length should be carried out and any new weed incursions treated promptly.
- Rubbish and weed plumes to be removed from track connecting to Engravings Trail.

It is the responsibility of NPWS to ensure that these environmental safeguards are adhered to.

Fig.1. Coastal Upland Swamp at Bantry Bay (Photo: Wyn Jones)



Map 1. New track alignment, Bantry Bay.

7-PART TEST

The following Endangered Ecological Community is addressed within this 7-part test.

Coastal Upland Swamp in the Sydney Basin Bioregion – Endangered Ecological Community (TSC Act 1995)

Typical species assemblage of Coastal Upland Swamp at Bantry Bay (Photo: Wyn Jones)

Coastal Upland Swamp in the Sydney Basin Bioregion is the name given to the ecological community associated with periodically waterlogged soils on Hawkesbury sandstone plateaus, generally where mean annual rainfall exceeds 950 mm. Coastal Upland Swamp is generally associated with soils that are acidic and vary from yellow or grey mineral sandy loams with a shallow organic horizon to highly organic spongy black peats with pallid subsoils. They vary in depth from a few centimetres to at least 4 metres. The vegetation is dominated by sclerophyll shrubs and/or sedges, with dynamic mosaics of structural forms that may include tall scrub, open heath and/or sedgeland. Although typically treeless, Coastal Upland Swamp may include scattered trees.

(a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.

The EEC, Coastal Upland Swamp in the Sydney Basin Bioregion is not classified as a Threatened Species.

(b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.

The EEC, Coastal Upland Swamp in the Sydney Basin Bioregion is not classified as an Endangered population.

(c) In the case of a critically endangered or endangered ecological community, whether the action proposed:

(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.

(i) This proposal is a component of a larger planned mountain-bike track at Bantry Bay (Map 1). 360 metres of this track is located within the EEC *Coastal Upland Swamp in the Sydney Basin Bioregion*.

Careful consideration has been given to select a track type that is appropriate at these locations. The recommended track is comprised of raised 'floating' fibreglass platforms placed on recycled plastic bearers which sit on the top of the ground and has been selected as the most appropriate type of track construction for this area (Figs 3 and 4). The impacts both during construction and its subsequent use will be minimal as no digging or concrete pillars are required which have the potential to impact water drainage and water quality within the EEC.

Damage to vegetation will primarily only occur during construction and will grow back adjacent to the track once it is in place (Fig 4). Vegetation will need to be cut low to place the track in position. Use by bikes will keep this vegetation at a low level, however it will be able to grow back to full height within 10 years if the track is ever removed, therefore permanent damage will not occur to this swamp community.

It is not considered likely that this proposal will 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.

(ii) The proposed track works, while having some impact during construction, will not have a permanent impact on the swamp community except for the immediate line of track.

It is not considered that the activity will substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

Fig. 3. Recycled plastic bearers sit on ground and support track structure, eliminating the need to dig holes. (photo shows galvanised mesh, fibreglass mesh is recommended.

Fig. 4.
Raised floating track located in similar vegetation type.

(d) In relation to the habitat of a threatened species, population or ecological community:

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

Coastal Upland Swamp in the Sydney Basin Bioregion Coastal provides habitat to a wide variety of birds, mammals, amphibians, reptiles and invertebrate species. Some typical mammal and bird species include the swamp wallaby (*Wallabia bicolor*), Brown Antechinus (*Antechinus stuartii*), Swamp Rat (*Rattus lutreolus*), New Holland Honeyeater (*Phylidonyris novaehollandiae*), Southern Emu-wren (*Stipiturus malachrus*), Grey Fantail (*Rhipidura albiscapa*) and Beautiful Firetail (*Stagonopleura bella*).

(i) An area of approximately 432 sq. Metres or 0.63% of the EEC present at this location will be modified to allow the installation of the raised bike track. No significant area of this EEC and its habitat will be removed permanently. Some impact is expected to occur during the installation of the track, however this should recover quickly. The vegetation under the track will be kept trimmed through constant use, however if in the future, the track is removed, this vegetation should grow back to its pre-disturbed state within 10 years. *Only 0.63% of the EEC will be modified, however any impacts are expected to be only temporary.*

(ii) There is minimal potential for the recommended raised 'floating' bike track to fragment or isolate an area of habitat from other habitat areas. Large animals and birds will be able to cross the track while frogs and other reptiles and small animals will be able to travel underneath the raised track. Use of the track will be intermittent during daylight hours, minimising any impact on fauna species. *It is considered that minimal fragmentation or isolation will occur as a result of this proposal.*

(iii) Any area of this EEC should be considered important and managed to minimise any potential impacts. The proposed trackworks, while having some impact during construction, will have minimal permanent impact on the EEC. *It is not considered that the activity will substantially and adversely modify, fragment or isolate the Endangered Ecological Community which would endanger its long-term survival.*

(e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).

There is no critical habitat listed in this area.

(f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.

There are currently no recovery plans or threat abatement plans prepared for the Endangered Ecological Community, Coastal Upland Swamp in the Sydney Basin Bioregion.

(g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

Clearing of native vegetation is a listed Key Threatening Process under the Threatened Species Conservation Act (1995). Clearing is defined 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 stand or stands."

Clearing has the potential to destroy habitats for individual species, cause fragmentation of habitat, provide increased habitat for invasive species (incl. edge effects), cause loss of leaf litter layers, disrupt ecological function and cause changes to the soil biota.
The proposed construction of a bike track at Bantry Bay is expected to cause only temporary impact to the vegetation during installation, due to the type of track recommended for these sections through the EEC. This area is expected to regenerate naturally over time.

The construction of the track is considered unlikely to increase the impact of this Key Threatening Process.

Bushrock Removal is a listed Key Threatening Process under the Threatened Species Conservation Act (1995). Bushrock removal is the removal of natural surface deposits of rock from rock outcrops or from areas of native vegetation.

Bushrock serves many purposes in the natural environment. It provides habitat for many plants and animals, some of which are threatened. Many animals use rocks and rock environments for shelter, to hide from predators, find food, avoid extreme weather conditions and escape bushfires. Bushrock is also known to provide egg-laying sites for reptiles.

Any bushrock located along the track alignment, if it is required to be moved at all, will only be temporarily removed to allow construction.

The construction of the track is considered unlikely to increase the impact of this Key Threatening Process.

Infection of native plants by *Phytophthora cinnamomi* is a listed Key Threatening Process under the Threatened Species Conservation Act (1995).

Phytophthora cinnamomi is a microscopic soilborne organism, invisible to the naked eye, which causes root rot of a wide variety of plant species including many native and introduced plants. Infection often results in the death of the plant, with early symptoms including wilting, yellowing and retention of dried foliage and darkening of young feeder roots and occasionally the larger roots. *Phytophthora* requires moist soil conditions and warm temperatures to be active, but damage is most evident in summer when plants are also prone to drought stress.

A plant infected by *Phytophthora* suffers destruction of root tissue which renders the plant unable to absorb water and nutrients, and the plant may subsequently die. The spores are easily transported in stormwater, drainage water, contaminated soil and on tools, footwear and vehicles, including bicycles. *Phytophthora* is able to survive in dead plant tissue and in the soil for extended periods. This fungus is considered to be already present in many vegetation communities within the Sydney region, and unable to be controlled.

The proposed track passes through 0.63% of this EEC on site, some of which has been previously cleared and disturbed. The construction of the track is considered unlikely to increase the impact of this Key Threatening Process on the EEC.

Introduction and Establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae is a listed Key Threatening Process under the Threatened Species Conservation Act (1995).

Myrtle rust (*Puccinia psidii s.l.*) is a newly described fungus that is closely related to the Eucalyptus/Guava rusts. These rusts are serious pathogens which affect plants belonging to the family Myrtaceae including Australian natives like bottle brush (*Callistemon* spp.), tea tree (*Melaleuca* spp.) and eucalypts (*Eucalyptus* spp.).

Myrtle rust is distinctive in that it produces masses of powdery bright yellow or orange-yellow spores on infected plant parts. It infects leaves of susceptible plants producing spore-filled lesions on young actively growing leaves, shoots, flower buds and fruits. Leaves may become buckled or twisted and may die as a result of infection. Sometimes these infected spots are surrounded by a purple ring. Older lesions may contain dark brown spores. Infection on highly susceptible plants may result in plant death.

Myrtle rust can be spread from footwear or equipment that has previously been exposed to areas where it is present. The Myrtle Rust National Management Group have agreed that it is not technically feasible to eradicate this disease.

The proposed track passes through 0.63% of the EEC on this site, some of which has been previously cleared and disturbed. The construction of the track is considered unlikely to increase the impact of this Key Threatening Process on the EEC.

Predation by the feral cat (*Felis catus*) and Predation by the European red fox (*Vulpes vulpes*) are listed threatening processes under the Threatened Species Conservation Act (1995).

Tracks within natural areas facilitate the movement of feral mammal species such as cats and foxes through these areas which they otherwise may have not encroached upon – especially where vegetation is thick. Feral cats prey on a wide range of native fauna, and are known vectors of disease and parasites which can be transmitted to humans, native fauna and domestic stock. At particular risk of cat predation are small sized mammals weighing less than 220g and birds less than 200g, however they can kill vertebrates up to 3kg. Reptiles, amphibians and invertebrates are also eaten. Cats may directly prey upon threatened species.

Foxes are an adaptable and elusive predator common in urban areas throughout southern Australia. They do not appear to favour any particular habitat and the main determinants of their population size and distribution appear to be food supply, disturbance of natural habitats and refuge availability.

Since their introduction into Australia in the 1870s, foxes have contributed to severe declines and extinctions of a suite of native fauna, particularly among medium-sized (450-5000 g) ground-dwelling and semi-arboreal mammals, ground-nesting birds and freshwater turtles. Recent experimental studies have shown that predation by foxes continues to threaten remnant populations of many of these species. In contrast, some studies have found that fox predation has little or no impact on some populations of native prey, including some small mammal populations in dense microhabitats.

The proposed track only passes through 0.63% of this EEC on site, some of which has been previously cleared and disturbed. The construction of the track is considered unlikely to increase the impact of this Key Threatening Process on the EEC.

Weed Introduction

There are several listed Key Threatening Processes under the Threatened Species Conservation Act (1995),that relate to weed invasion, the following three are relevant to the Bantry Bay site.

- **Invasion, establishment and spread of *Lantana camara.***
- **Invasion of native plant communities by exotic perennial grasses.**
- **Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants.**

Any disturbance of natural vegetation can result in the spread of weed species. The construction of a bike track through natural bushland also acts as a conduit for the spread of weed seed and propagules that may be carried on the clothing and equipment of track users.

The proposed track will pass through sections of Coastal Upland Swamp EEC at two points, with a total incursion of 0.36 km. The section which links the track back on to the Engravings Trail passes through 0.23 km of EEC, and follows the route of an old 4WD track, which displays evidence of previous disturbance (weed plumes and rubbish). The weeds are to be treated and the rubbish removed during the track construction phase.

The proposed track only passes through 0.63% of this EEC on site, some of which has been previously cleared and disturbed. The threat from weeds currently exists at this site and the construction of the track is considered unlikely to increase the impact of this Key Threatening Process on the EEC.

In conclusion, is the proposed activity likely to have a significant effect on threatened species, populations, ecological communities or their habitats? (include reasons)

From the above seven part tests, we conclude that the proposed activity, which includes the installation of a raised fibreglass floating track on recycled plastic bearers across a section of EEC "Coastal Upland Swamp in the Sydney Basin Bioregion" that equates to 0.63% of the EEC in this area, is unlikely to have a significant impact on the Endangered Ecological Community, and that an Environmental Impact Statement is not required.

AUTHOR - Epacris Environmental Consultants[1]

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