

# Review of Environmental Factors

## NPWS Tweed Byron Hinterland Walk



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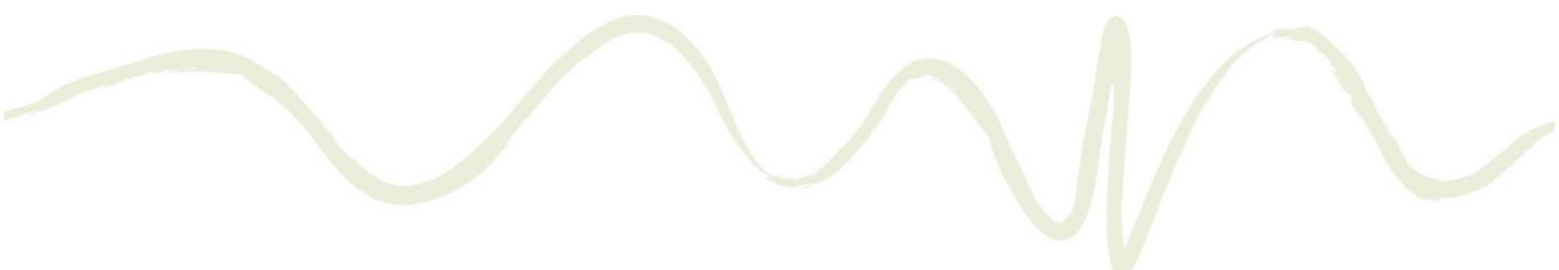
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# 1. Introduction

The proposed Tweed Byron Hinterland Trails (TBHT) project will involve the establishment of a multi-day walk and several shorter walks through Nightcap National Park, Whian Whian State Conservation Area and Mount Jerusalem National Park, connecting Manns Road trail head (near Unicorn Falls in Mount Jerusalem National Park) to the Minyon Falls day-use area in Nightcap National Park (refer to **Illustration 1.1** and **1.2**).

When completed, the project will comprise 47.74 km of walking tracks (to at least Class 4 hiking track standard, though some sections will be to class 3). The main walk is 35.55 km in length, made up of 8.25 km of new track and 27.30 km of existing tracks, roads and trails. The project will also incorporate a total of 12.18 km of side-tracks from the main route. Upgrades to existing roads and management trails will also be required for the construction and ongoing maintenance of the proposed facilities.

The multi-day walk will also include 3 camps with toilets, camping platforms and other infrastructure (tables, water tanks etc). Fireplaces will not be provided as open fires are not permitted in the remote areas of these national parks. New camps (from north to south) are referred to as Camp 1, Camp 2 and Camp 3 and will be renamed at a later date.

The TBHT is intended to be walked from north (Manns Road trail head) to south, terminating at Minyon Falls. The route also includes several side-tracks which diverge from the main walk to areas of scenic interest. These include (north to south):

- Whiskey Creek track to Unicorn Falls (~ 1.28 km): new and existing trail connection to Unicorn Falls day use area.
- Rowlands Creek (~ 1.49 km): an existing vehicle trail.
- Jerusalem Cliffs Lookout (~ 0.23 km): an existing vehicle trail and walking track.
- Minyon Grass Loop track (~ 1.24 km): a new track to be constructed as part of the TBHT, connecting Minyon Grass back to Minyon Falls and including the existing side branch to Quandong Falls.
- Minyon Falls pool track (~ 0.13 km): a short side branch from the existing Minyon Loop to formalise the existing rough pathway with stone tread steps and stone paving.
- Eastern Boundary Trail: an existing vehicle trail that will be part of a half-day walk from Minyon Falls to Rummery Park campground (which will loop back to Minyon Falls along the existing Boggy Creek Track).

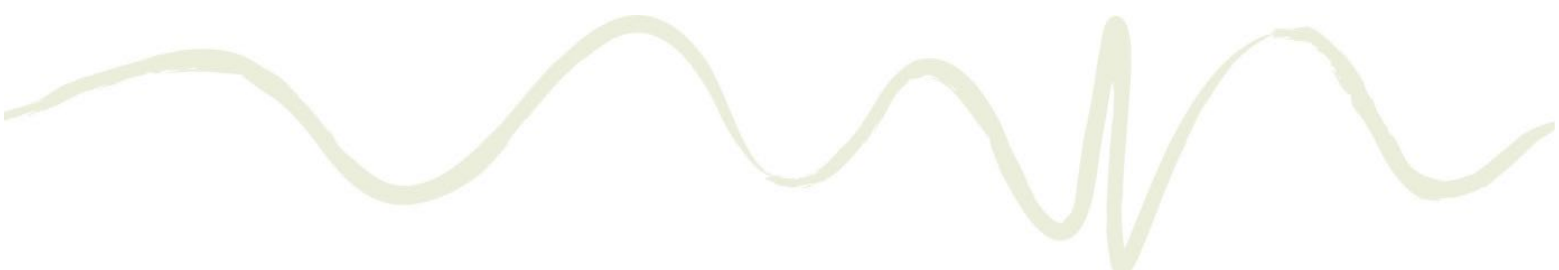
In this REF, these side-tracks are referred to by name (e.g. Rowlands Creek trail, Jerusalem Cliffs Lookout).

In addition, locations which have informally been used as lookouts will have minor upgrades such as signage (refer to **Illustration 1.2**).

For ease of reference in this report, the TBHT is referred to in 5 sections as follows:

- Section 1: Manns Road trail head to Camp 1.
- Section 2: Camp 1 to Camp 2.
- Section 3: Camp 2 to Camp 3.
- Section 4: Camp 3 to Minyon Falls.
- Section 5: Minyon Falls to Minyon Grass, Eastern Boundary Trail walk and existing Minyon Loop walk.

Sections 1-4 comprise the TBHT in full. Section 5 includes the additional walking tracks associated with Minyon Falls and/ or Rummery Park campground.



To carry out the proposed Activity and enable ongoing servicing of the infrastructure, access will be via existing (non-public) roads and management trails. Repairs and upgrades to these roads and trails will need to occur, in addition to the upgrade of an existing bridge. These components are considered as part of this REF.

The proposal also includes changing the use of Eastern Firebreak Trail to exclude horse riding.

**NOTES:**

'Tweed Byron Hinterland Trails' is used as the name of the proposal throughout this REF but may be subject to change.

A small portion of the TBHT occurs on private land and not within a park managed by NPWS. That portion on private land in Tweed LGA lies within a formal easement. Development Consent for the Activity is not required on this land under the Tweed Local Environmental Plan.

This REF only covers those works proposed to occur within Mt Jerusalem National Park, Nightcap National Park and Whian Whian State Conservation Area, and also on the Tweed Shire side of the private property on Doon Doon Saddle.

The estimated completion date of the project is 2023.

The estimated capital investment value of the entire project is \$6.5 million. The project scope outlined in this REF may not be achievable in full within current project funding but may be constructed at a later time if future funding becomes available.

Several specialist studies have been completed to support this REF and are referred to as required and attached as appendices:

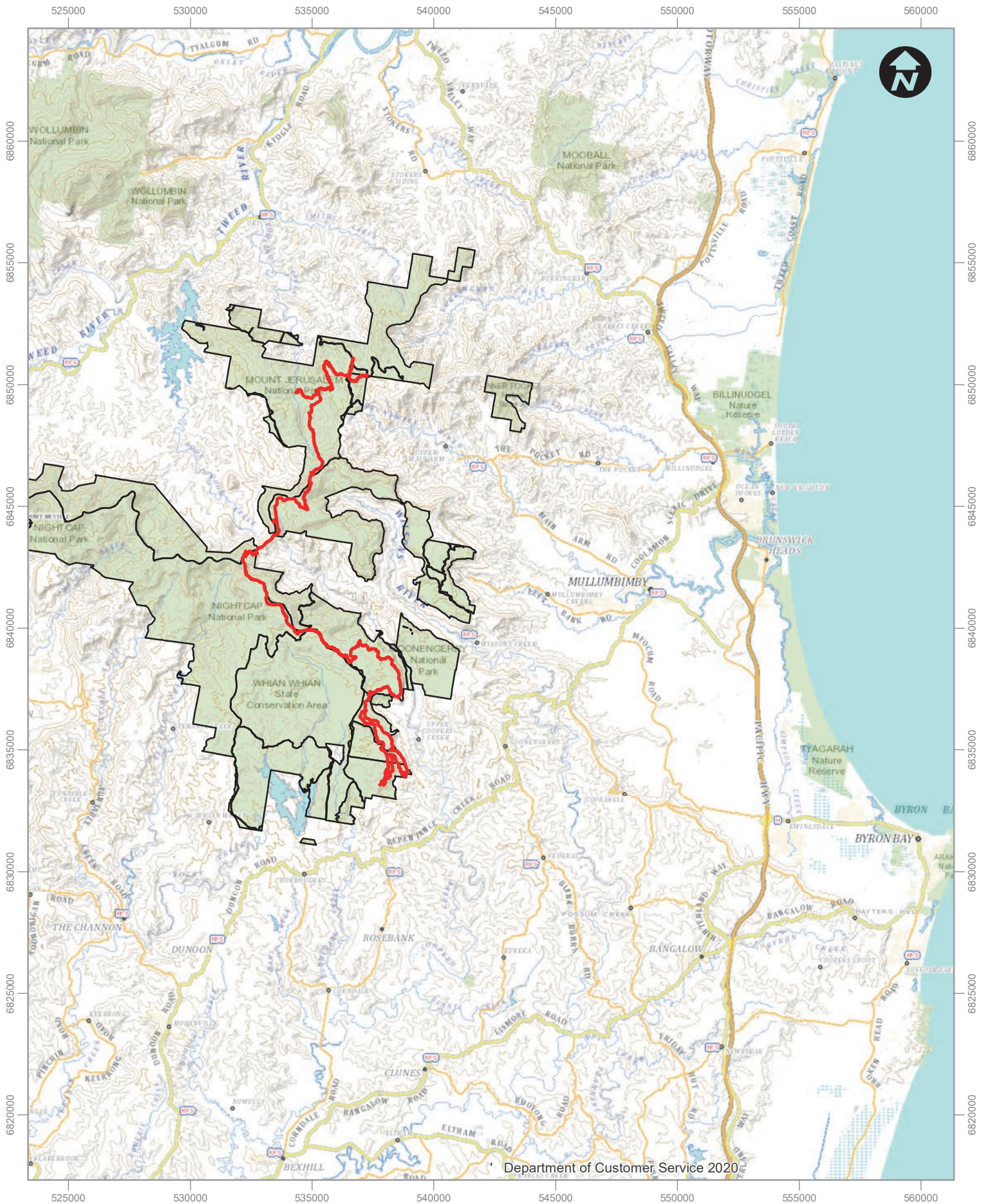
- *Natural Heritage Values Assessment* (GeoLINK 2022) - refer **Appendix A**.
- *Aboriginal Heritage Due Diligence Assessment Addendum* (Everick Heritage 2022) - refer **Appendix B**.
- *Aboriginal Cultural Heritage Assessment* (Everick Heritage 2021) - refer **Appendix C**.
- *Bridge Load Capacity Assessment* (Greg Alderson & Associates 2020) - refer **Appendix D**.

The proponent of this activity is the NSW National Parks and Wildlife Service, part of the Department of Planning and Environment. Responsibility for project delivery lies with the Park Operations Coastal Division's North Coast Branch.

The key contact for the proposal is:

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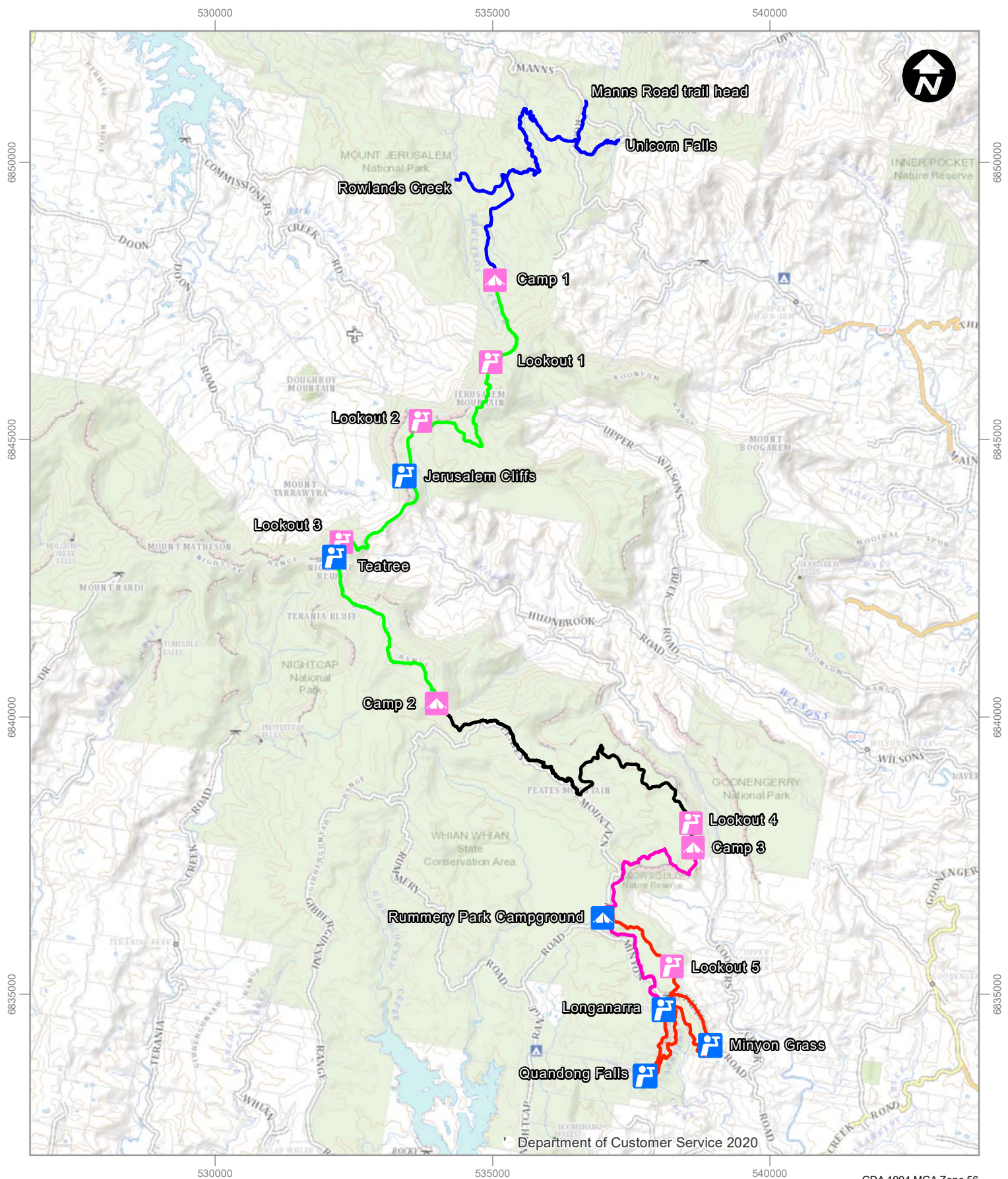
**LEGEND**

- The Tweed-Byron Hinterland Trails
- National Park reserve







**Locality Plan - Illustration 1.1**





**LEGEND**

- Section 1 Manns Road day use area to Campsite 1
- Section 2 Campsite 1 to Campsite 2
- Section 3 Campsite 2 to Campsite 3
- Section 4 Campsite 3 to Minyon Falls
- Section 5 Minyon Loop and Boggy Creek Track
-  Existing campground
-  Proposed walk-in campground
-  Existing lookout
-  Proposed lookout





## 2. Permissibility

### 2.1 Legal Permissibility

#### 2.1.1 National Parks and Wildlife Act 1974 (NPW Act)

##### **Objects of the Act (s.2A)**

The Activity is consistent with the Objects of the NPW Act as it will provide an opportunity to foster public appreciation, understanding and enjoyment of natural and cultural heritage as well as create an understanding of the conservation values of the unique ecosystems within the three parks.

##### **Reserve management principles (sections 30E–30K)**

The proposed Activity is consistent with the management principles for national parks and state conservation areas. In particular, the proposal will achieve the following:

- the promotion of public appreciation and understanding of the national park's natural and cultural values [s 30E(2)(d)].
- provision of a sustainable visitor or tourist use and enjoyment that is compatible with the conservation of the national park's conservation areas, historic sites and areas of natural and cultural values [s 30E(2)(e)].
- provision for sustainable visitor or tourist use and enjoyment that is compatible with the conservation of the state conservation area's natural and cultural values and with uses permitted under other provisions of this Act in such areas [s 30G(2)(d)].

##### **Plan of management**

The proposed Activity is subject to two separate plans of management, namely the *Parks and Reserves of the Tweed Caldera Plan of Management* (NPWS 2019a) and the *Whian Whian State Conservation Area Plan of Management* (NPWS 2019b). Amendments to both plans were adopted by the Minister for the Environment on 4 October 2019. The amendments to the plans support the development of a multi-day walking track (the TBHT) and associated facilities.

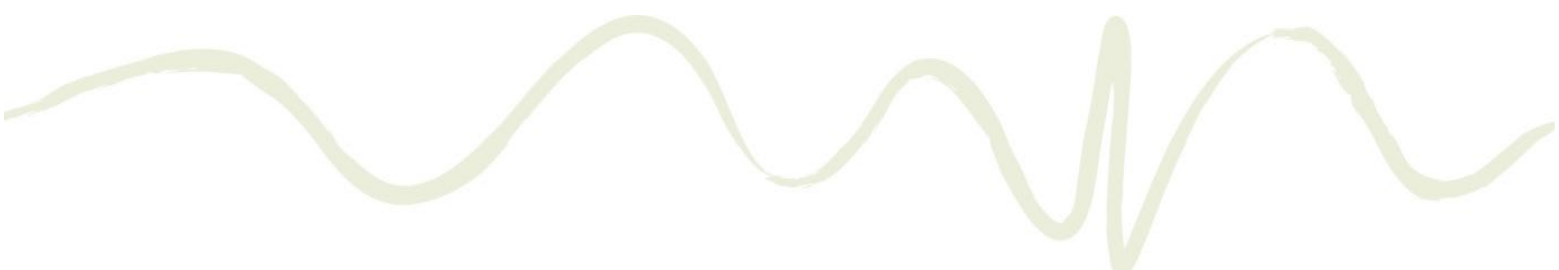
In particular, the amendment to the *Parks and Reserves of the Tweed Caldera Plan of Management* included the following text:

*This plan supports developing a multi-day walking track network linking Mount Jerusalem NP with Whian Whian State Conservation Area and the Minyon Falls visitor area in Nightcap NP (see Section 3.2.4 Bushwalking). To create the network, new walking tracks and new track linkages will be investigated that build on the existing system of walking tracks, management trails and roads. The new walking track network would also incorporate new day walks. The concept includes improving visitor facilities, signage, interpretation and information; developing a new camping area and day use area at Unicorn Falls in Mount Jerusalem Park; and developing remote camping areas in Mount Jerusalem and Nightcap National Parks (see Sections 3.2.2 Day Use Areas, 3.2.3 Camping, 3.2.4 Bushwalking and 3.2.10 Information, Interpretation & Education).*

It should be noted that the proposal for a camping area at Unicorn Falls was not supported during public consultation of its master plan and is therefore not currently part of the TBHT project.

The *Whian Whian State Conservation Area Plan of Management* was amended to include:

*NPWS is developing master plans for a multi-day walking track network linking Mount Jerusalem NP with Nightcap NP and Whian Whian SCA and Minyon Falls day use area. The*



*master plans will be publicly exhibited, amended and implemented subject to further investigation, design and environmental impact and cultural heritage assessment and compliance with any applicable native title or ILUA procedures. The Boggy Creek Walk and Peates Mountain Track form part of the multi-day walking track network and along with the majority of the network will be maintained to Class 4 walking track standard (Australian Walking Track Grading System).*

The amendments require the construction of the TBHT to be subject to the Master Plan. The Master Plan has been prepared in conjunction with this report.

### **Conservation action plans for assets of intergenerational significance**

Assets of Intergenerational Significance (AIS) can be any area of exceptional value – environmental or cultural – that warrants special protection including dedicated management measures.

For each AIS, NPWS has a statutory obligation to prepare and implement a concise conservation action plan (CAP) which sets out:

- the environmental and cultural values of the land
- key risks to those values
- management activities to address and mitigate the risks – such as dedicated feral animal control or fire management
- actions to measure and report on the health and condition of the declared value.

The proposed Activity acknowledges that there are species which fall under the AIS category and any future works or land management activities will be cognisant of the individual conservation action plans.

### **Other sections of the Act**

The powers and functions of the NPWS relate to such works and activities as the Minister may direct, either generally or in a particular case, in relation to various activities. The following provisions are directly relevant to the Activity:

*12 (d) the identification, conservation and protection of, and prevention of damage to, Aboriginal objects and Aboriginal places*

The ACHA has addressed matters relating to Aboriginal objects and places and their conservation and protection.

*12 (f) the provision of facilities and opportunities for sustainable visitor or tourist use and enjoyment on land reserved under this Act*

The central aim of the Activity is the creation of an asset which provides for sustainable visitor and tourism uses.

*12 (i) the undertaking of public education in relation to any of the matters referred to in paragraphs (a)–(e) [of Section 12].*

The Activity allows for public education opportunities as part of the overall project.

The leasing, licensing and easement provisions of Part 12 of the Act are not applicable, as no leases or licences over NPWS reserved land are required as part of the project's construction or ongoing operation. Commercial tour operators leading groups of clients on the walk will be subject to Parks EcoPass licensing requirements under s 152 of the Act.

### 2.1.2 Wilderness Act 1987

Not applicable. The TBHT does not occur within a wilderness area identified or declared under this Act.

### 2.1.3 Environmental Planning and Assessment Act 1979 (EP&A Act)

#### 2.1.3.1 *Environmental planning instruments*

The majority of the Activity may be undertaken without development consent under section 2.73 of the *State Environmental Planning Policy (Transport and Infrastructure) 2021* as it is:

- **on land reserved** under the NPW Act and
- for a purpose authorised under the NPW Act (as justified under section 3.1.1).

A portion of the TBHT occurs on private land not within the NPWS reserve system.

The section of the Activity **not on NPWS reserved land** and covered by this REF may also be undertaken without development consent because the zoning of the land does not require development consent for the Activity.

Part of the TBHT follows Nightcap Road (a constructed forestry road) at Doon Doon Saddle. This land (Lot 1 and 2 DP1244434, Lot 88 DP755710) is privately owned land on which a formal easement occurs. Section 2.109 of the Transport and Infrastructure SEPP allows road or road infrastructure facilities to be carried out by or on behalf of a public authority without consent on any land. The proposed works are consistent with this clause however, consent or agreement is required from the property owner. Consultation undertaken with Tweed Shire Council confirmed this position is appropriate, and a development application (DA) was not required.

Minor refinements to the alignment of the walk may be necessary in the section across private property where it links Mt Jerusalem and Nightcap national parks.

The Activity is on land that contains Koala habitat and the relevant aims, objectives, principles and provisions of the State Environmental Planning Policy (Biodiversity and Conservation) 2021 (Biodiversity and Conservation SEPP) have been considered in preparation of the REF, although this SEPP does not apply to land reserved under the NPW Act.

Nightcap NP, Mt Jerusalem NP and Whian Whian State Conservation Area all contain areas of Koala habitat, and the species has been recorded within and in proximity to the proposed Activity (refer to *Natural Heritage Values Assessment*, BioNet records). Consideration of the objectives and principles of Chapter 4 Koala Habitat Protection 2021 of the Biodiversity and Conservation SEPP have been applied. Safeguards would be adopted to mitigate potential impacts on Koalas and their habitat.

#### 2.1.3.2 *Relevant strategic plans*

The Activity is consistent with the relevant strategic plans prepared and adopted under Division 3.1 of the EP&A Act as follows:

- North Coast Regional Strategic Plan 2036 (DPE 2017)
  - The Activity will provide tourism and visitor accommodation and supporting land use in the hinterland of the region (Action 8.2) and promote opportunities to expand visitation to a regionally significant natural area (Action 8.4)



- The Activity will expand nature-based tourism and enhance visitor experiences associated with Mount Jerusalem and Nightcap national parks, consistent with economic and employment goals stated in the local government narrative for Tweed Shire.
- *Inspire Lismore 2040 Local Strategic Planning Statement* (Lismore City Council 2020) recognises eco-tourism development (such as provided by the Activity) as an element that will support the expansion of emerging industries and enhance economic activity (Planning Priority 5).
- *Byron Shire Local Strategic Planning Statement* (Byron Shire Council 2020) recognises the benefits of healthy, diverse natural environments to provide
  - recreational opportunities such as birdwatching, hiking and camping which encourage active lifestyles, contributing to the health and wellbeing of community
  - economic benefits in ecotourism.

The Activity will develop an eco tourist opportunity in the less visited hinterland of the Shire, which is identified as a focus for product development and visitor attraction.

- *Tweed Local Strategic Planning Statement – 2020* (Tweed Shire Council 2020) recognises the significance of its world heritage listed national parks and the role of protecting the natural environment and landscape qualities while cultivating sustainable growth and development. The Activity will contribute to several actions relating to economic and environmental planning priorities, including:
  - 1.2 Acknowledge Tweed’s World Heritage status and its function as a driving force for preserving the natural environment and establishing a conservation based tourism industry within land-use policy.
  - 6.14 Encourage active and nature based tourism recreation, such as the Northern Rivers Rail Trail, mountain biking and walking trails and related artisan, food and beverage industries
  - 9.2 Promote agri-tourism, nature-based experiences, local produce, heritage and cultural experiences, reinforcing them as tourism cornerstones for the Tweed through implementation of the Tweed Destination Management Plan 2018–2030.
  - 9.3 Explore Indigenous tourism opportunities and support where appropriate in consultation with the local aboriginal community

#### 2.1.4 Heritage Act 1977

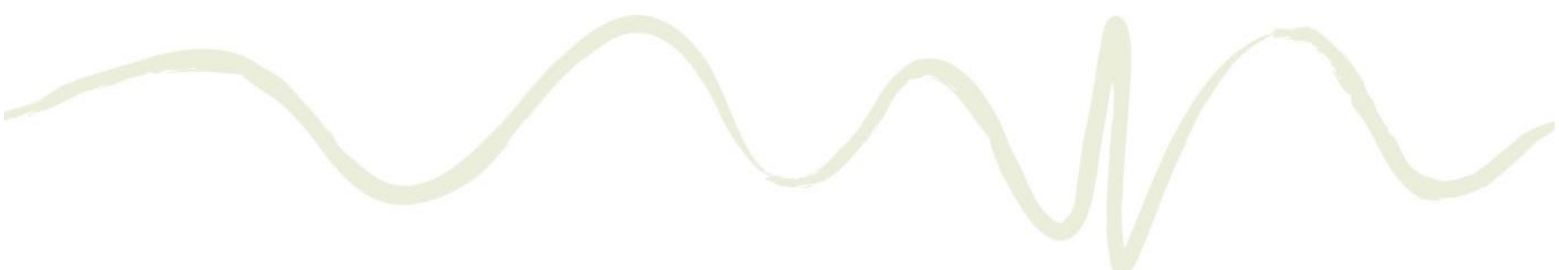
The Activity is on land that contains:

- an item listed on the State Heritage Register (SHR)
- an item listed on the NPWS section 170 Heritage and Conservation Register (contained in the Historic Heritage Information Management System)

The TBHT traverses some areas of High Conservation Value Old Growth Forest listed on the State Heritage Register (refer **Illustration 3.1**). An order under Section 57(2) of the *Heritage Act 1977* provides an exemption to allow work that is consistent with the provisions and obligations of approved Plans of Management under the NPW Act. As discussed above, the proposed Activity is consistent with the applicable plans of management.

The proposed Activity will also pass through or be near the following items listed on the Historic Heritage Information Management System:

- Quandong Falls Reserve
- Hole in The Wall

- 
- Historic Nightcap Track
  - Rummery Forestry Park Camp and Rest Area
  - Minyon Falls Flora Reserve.

The Aboriginal Cultural Heritage Assessment (ACHA - refer to **Appendix C**) determined that the additional following features in the locality meet NSW heritage criteria: Mount Jerusalem and Minyon Falls.

The Activity is unlikely to have any effect on an item on the State Heritage Register or on the NPWS Heritage and Conservation Register.

### 2.1.5 Biodiversity Conservation Act 2016 (BC Act)

The proposed Activity is broadly consistent with the purposes identified in Section 1.3 of the BC Act, as per Section 1.3 (b): *to maintain the diversity and quality of ecosystems and enhance their capacity to adapt to change and provide for the needs of future generations.*

The *Natural Heritage Values Assessment* (refer to **Appendix A**) identified habitat for numerous threatened species listed in the BC Act along and proximate to the TBHT, in addition to the threatened ecological community (TEC) 'Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions'. Tests of significance ('five-part tests') have been completed for threatened species/communities with potential to be impacted by the proposed Activity (refer to **Section 10** and *Natural Heritage Values Assessment* at **Appendix A**). The tests concluded that no significant impact to threatened species or communities is likely to occur as a result of the Activity.

### 2.1.6 Rural Fires Act 1997

NPWS has statutory obligations under the *Rural Fires Act 1997* to protect life and property on its lands and to prevent fire from leaving its property.

The proposed Activity is for the construction of a multi-day walk and associated infrastructure within Nightcap NP, Whian Whian SCA and Mount Jerusalem NP. Bushfire management operational guidelines for the site are summarised in the *Nightcap NP, Whian Whian State Conservation Area & Snows Gully Nature Reserve Fire Management Strategy (Type 2)* (NPWS, 2005) and the *Mt Jerusalem National Park & Inner Pocket Nature Reserve Fire Management Strategy (Type 2) 2005*.

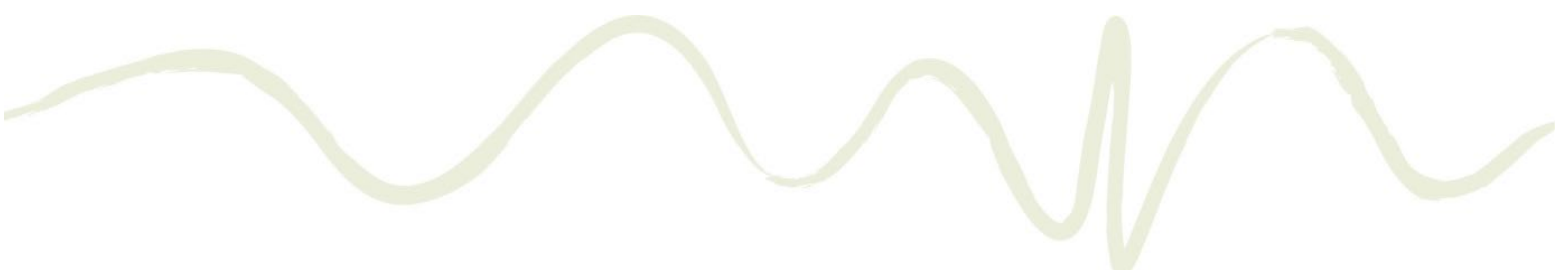
These strategies allow for parks and reserves to be closed when fire conditions pose a significant risk. The proposed Activity is consistent with the management strategy and will ensure the protection of property and life. The prohibition on open fires at the remotely located campsites along the walk reduces the risk of the Activity increasing bushfire risk in the area.

Some of the management trails that will be utilised as part of the TBHT are registered fire trails. Their use as part of the TBHT will not restrict their use as fire trails.

Consideration of Planning for Bush Fire Protection is not required as the proposal is not one of the developments listed in s 2.16 of the Transport and Infrastructure SEPP.

### 2.1.7 Fisheries Management Act 1994

The proposed works are not characteristic of any Key Threatening Process listed in the *Fisheries Management Act 1994* (FM Act). The TBHT will cross through a number of minor un-named



ephemeral watercourses and minor structural repairs are required to the bridge at Sand Ridge Road (S2). No significant watercourses or creeks mapped as key fish habitat would be affected.

The Fisheries Spatial Data Portal does not map any watercourses within the project area as potential threatened freshwater species habitat, and the majority of watercourses are ephemeral and minor in nature. On this basis, the Activity is unlikely to affect fish, fish habitat or marine vegetation (including threatened species) and approval under the FM Act is not required.

### 2.1.8 Commonwealth legislation

The Activity is on land that contains, or the Activity may affect the following Matters of National Environmental Significance (MNES) protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act):

- World Heritage or National Heritage values of a place on the World Heritage List or National Heritage List
- nationally listed threatened species and ecological communities, or migratory species

All three parks contain known habitat for numerous threatened species listed under the EPBC Act. The *Natural Heritage Values Assessment* recorded a number of these species (and/ or their habitats) along the TBHT. Significance Impact Assessments determined the construction and operation of the TBHT would not significantly impact upon habitat for federally listed threatened species or communities (refer to *Natural Heritage Values Assessment* at **Appendix A**).

The TBHT will pass through approximately 5 km of the World Heritage listed 'Gondwana Rainforest of Australia' within Nightcap NP (refer **Illustration 3.1**). The Gondwana Rainforests World Heritage Area (WHA) is also a listed National Heritage Place. The majority of the TBHT passes through areas that are on Australia's tentative world heritage list as an addition to the Gondwana Rainforests WHA.

The walk and associated infrastructure have been sited and designed to ensure minimal impact to the surrounding ecosystem, and the world heritage values it supports. On this basis, the Activity will have no significant impact on the heritage values of the WHA. Further assessment of this matter is detailed in **Section 9.7** and a detailed assessment is included in the *Natural Heritage Values Assessment* (refer **Appendix A**).



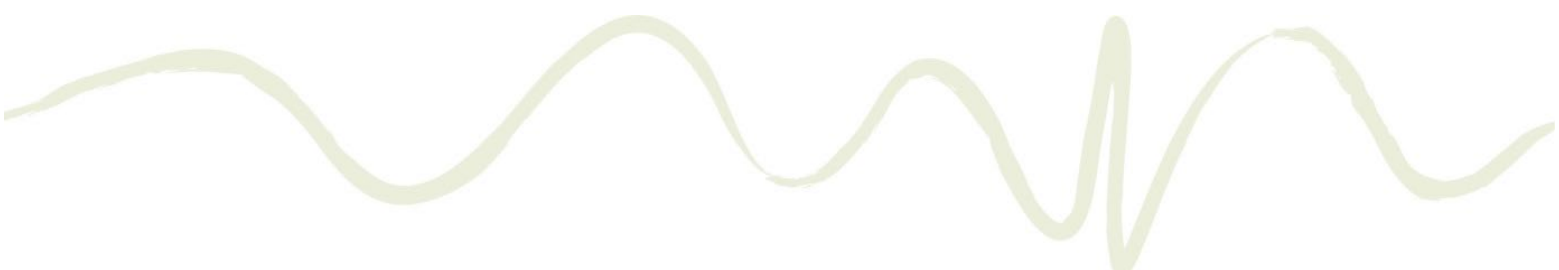
## 2.2 Consistency with NPWS Policy

Relevant NPWS policies are listed Table 1.

**Table 1. Relevant NPWS Policies**

Policy Name	How Proposal is Consistent
Homeless People Policy	<p>Previous field assessment by NPWS staff found evidence of a homeless person living within Mt Jerusalem NP, however it appears this individual is no longer present. No action is proposed to be undertaken. This is in accordance with the Homeless People Policy. As per the policy Department staff will intervene only when:</p> <ul style="list-style-type: none"> <li>▪ The person asks for help or help is being offered.</li> <li>▪ The person appears to be distressed or in need of help.</li> <li>▪ The person's behaviour threatens his or her own safety or the safety and security of others.</li> <li>▪ The person's behaviour is likely to result in damage to property or the environment.</li> </ul>
Vehicle Access Policy	<p>Public vehicle access is not permitted along the trail or to access the camps. Public vehicle access to Manns Road trail head and Mynon Falls picnic area is along existing roads. As such the proposed Activity is in accordance with the policy and:</p> <ul style="list-style-type: none"> <li>▪ Would not cause unacceptable impacts on nature or cultural heritage of the parks.</li> </ul> <p>Temporary closures are covered by s. 18 of this policy if required.</p>
Visitor Accommodation Policy	<p>The proposed visitor accommodation is consistent with this policy as it:</p> <ul style="list-style-type: none"> <li>▪ Is consistent with the relevant plans of management and the Master Plans.</li> <li>▪ Will protect natural and cultural values.</li> <li>▪ Is designed to minimise environmental impacts at the site and in the surrounding area.</li> <li>▪ Will not impact other park users.</li> <li>▪ Is of a design that is low-key and suitable for the location.</li> <li>▪ Is consistent with the sustainability guidelines.</li> <li>▪ Will encourage an appreciation of reserve values.</li> </ul>

Policy Name	How Proposal is Consistent
Walking Tracks Policy	<p>In accordance with the Walking Tracks Policy, the proposed Activity is consistent with relevant plans of management and the facilities are designed in accordance with the <i>Park Visitor Facilities Policy and Park Facilities Manual</i>. Furthermore, the proposed Activity is located and designed to minimise environmental impacts. This is discussed in detail below and within the <i>Natural Heritage Values Assessment</i>. This policy requires the planning, development and management of walking tracks to take into account public safety issues such as: how the track fits within other walking opportunities, opportunities to provide access for people with disabilities, and resources needed to keep the track maintained. These are considered below:</p> <ul style="list-style-type: none"> <li>▪ The TBHT will be managed in accordance with national park guidelines which allow for the closure of the parks to protect the safety of visitors. The TBHT will also be accessible by park management tracks in a number of locations (including all three camps) to provide assistance if required. The design of the trail and facilities will also be in accordance with relevant design standards to ensure clear communication, patron safety and the trail/camp longevity. The proposed Activity will ensure public safety is maintained.</li> <li>▪ The TBHT will link and upgrade a number of existing walking opportunities in the parks and provide a significant enhancement to their existing facilities.</li> <li>▪ Given the terrain covered by the TBHT, there is no opportunity to provide disabled access. The existing day use area at Minyon Falls is accessible to any patrons with a physical disability.</li> <li>▪ The trail and accommodation will be designed of long-lasting materials to minimise maintenance costs.</li> </ul> <p>The Activity is consistent with this policy.</p>
Horse Riding Policy	<p>Horse riding is currently permitted in the parks, including along some management trails that are proposed for use as part of the TBHT. The <i>Parks and Reserves of the Tweed Caldera Plan of Management (NPWS 2019a)</i> states that:</p> <p><i>Separate master plans are being developed that will provide detailed information on the multi-day walking track route, Minyon Falls day use area, Unicorn Falls day use area and camping area, and visitor facilities in Wollumbin NP. All master plans will be publicly exhibited and, once finalised, will guide preparation of all environmental impact, cultural heritage, safety, social, financial and engineering assessments required by law and policy. Following public exhibition, the master plans may be adjusted to meet environmental assessment outcomes, consultation and local design issues but must still meet the requirements of this plan of management.</i></p> <p>To minimise conflicts between users and maximise the experience for TBHT walkers, the draft TBHT master plan specifies that mountain bike riders and horses will no longer be permitted on Eastern Firebreak and Perlite Road. This will reduce the amount of management trails for horse riding by approximately 2 km. Horse riding/mountain biking will continue to be permitted on Gibbergunyah Road to allow the current circuit to be maintained.</p>



Policy Name	How Proposal is Consistent
Park Facilities Manual	Facility design, track design and proposed materials for construction adhere to with Park Facilities Manual specifications and principles.

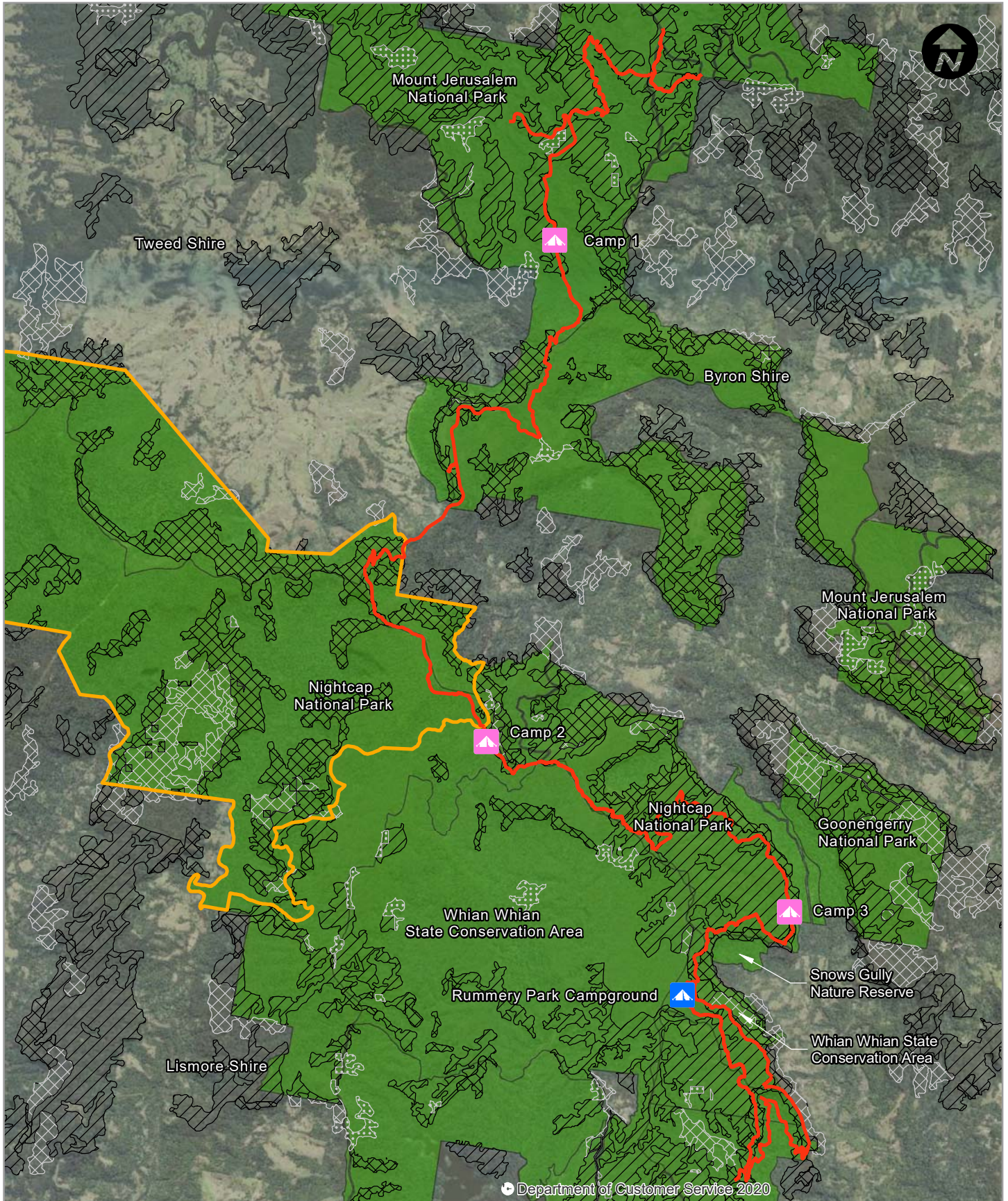
## 2.3 Type of Approvals Sought

Only internal NPWS approval is required for the majority of the Activity. The section across private property in the Doon Doon Saddle is authorised under the terms of the easement.

The Activity is not subject to an approval under the following legislation:

- Heritage Act
- Fisheries Management Act
- National Parks and Wildlife Act (s.90)





**LEGEND**

- The Tweed-Byron Hinterland Trails
- Gondwana Rainforests of Australia (World Heritage)
- National Park reserve
- Candidate Old Growth
- Disturbed Mature Forest
- Disturbed Old Growth
- Mature Forest
- Existing campground
- Proposed walk-in campground



**World Heritage and Old Growth Forests - Illustration 3.1**





## 3. Consultation - General

### 3.1 Overview of consultation

Nine engagement meetings and 19 days of fieldwork were undertaken in July, August, September, October and November 2019 with members of the Northern Rivers Bushwalking Club, Uki Village and Residents Association, Rangers, and field staff from the Richmond and Tweed/ Byron NPWS areas.

Meetings were also held with Widjabul Wia-bal Native Title Claimants and the Wollumbin Consultative Committee, which included members from families with knowledge and links to the area, Bundjalung of Byron Bay (Arakwal) Aboriginal Corporation, Widjabul Wia-bal Native Title Claimants, and the Tweed/ Byron LALC.

The purpose of this collaborative approach was to learn from knowledgeable individuals, to create relationships, to better understand the landscape, and to create stewardship of the TBHT with these stakeholders. The final design has been prepared in consideration of the advice received from these meetings.

Consultation with Lismore City Council was carried out as Nightcap NP and Whian Whian SCA are listed as heritage items in the Lismore LEP. No specific matters have been raised for consideration in the REF. Planning staff at Tweed Shire Council were also contacted to confirm any requirements where the TBHT traverses private land.

Due to works within watercourses, NPWS must give the Minister of Fisheries written notice of the proposed work, and consider any matters concerning the proposed work that are raised by the Minister within 21 days after the giving of the notice (as per Section 199 of the FM Act).

The TBHT Master Plan (refer to **Appendix A**) will be placed on public exhibition for comment. Following the conclusion of the exhibition period all submissions will be considered.

### 3.2 Statutory consultations

#### 3.2.1 Consultation under Part 2.2 of Transport & Infrastructure SEPP

Section 2.11 of the Transport and Infrastructure SEPP required consultation with Lismore Council as the Lismore LEP lists Nightcap NP and Whian Whian SCA as heritage items. This consultation has been completed as required (refer above).

Other sections of the SEPP requiring consultation with councils were not triggered as the proposal will not:

- have a substantial impact on any local council infrastructure or services (including stormwater, sewerage or water supply systems)
- require the enclosing or excavation of a public place under council management
- generate traffic to an extent that will strain the capacity of the local road system
- involve development on flood liable land or change flood patterns.

Consultation with other public authorities under section 2.15 or 2.122 the SEPP was also not required.



### **3.2.2 Notification under the Fisheries Management Act**

The Activity triggers notification under s 199 of the FM Act as it will involve works within watercourses that meet the definitions of dredging or reclamation work under s 198A that Act. Therefore, NPWS (as a public authority) must give the Minister of Fisheries written notice of the Activity before it carries out or authorises the carrying out of any dredging or reclamation work.



## 4. Consultation – Aboriginal communities

The land on which the Activity is proposed is not subject to an Indigenous Land Use Agreement, nor has there been a determination of native title applicable to the land. However, there is a native title determination pending over part of the TBHT (Widjabul Wia-bal Native Title claim (NC2013/005) filed in June 2013).

While native title has been extinguished over the small section of private property traversed by the TBHT, it is unlikely to have been extinguished over much of the route across national park.

Accordingly, extensive consultation with Aboriginal stakeholders has been completed for the TBHT as part of the Aboriginal Cultural Heritage Assessment (refer to **Appendix C**). Meetings have been held with Widjabul Wia-bal Native Title Claimants and Wollumbin Consultative Committee, which included members from families with knowledge and links to the area, Bundjalung of Byron Bay (Arakwal) Aboriginal Corporation, Widjabul Wia-bal Native Title Claimants and the Tweed/ Byron LALC.

Fieldwork has also been undertaken with representatives and knowledge holders of the Widjabul Wia-bal people and Tweed Byron LALC, with the entire TBHT (including camps) assessed. A Cultural Heritage Values report was produced and used to inform the trail location to ensure no unreasonable impacts will occur to the cultural heritage of the area.

As a walking track with only minor infrastructure, the Activity is unlikely to limit the exercise of native title rights should the current or future native title claims be determined.



## 5. Proposed Activity (or Activities)

**Table 2. Location of Activity**

Park name	Nightcap National Park, Whian Whian State Conservation Area, Mount Jerusalem National Park.
Description of location	The TBHT occurs within reserves administered by NPWS and includes Nightcap National Park (NP), Whian Whian State Conservation Area (SCA) and Mount Jerusalem NP. A small section of the TBHT is not within NPWS estate and follows Nightcap Road (an old forestry trail linking Nightcap and Mount Jerusalem NP) which is on private land (Lots 1 and 2 DP1244434 and Lot 88 DP755710).
Site reference	Easting: 532302 Northing: 6843144
	AMG zone:56 Reference system: GDA94
Council (Local Government)	Tweed, Byron and Lismore Local Government Areas
Title reference (if available)	Folio identifier or volume-folio (if Torrens Land System)  Lot 138 DP 755730, Lot 5 DP 921339, Lot 2 DP1178152 Lot 98 DP728194 (NPWS estate), Lots 1 and 2 DP1244434 and Lot 88 DP755710 (private land).
	Registered deed number (if Old Land System)  1308-3050 (Nightcap NP)
NSW State electorate	Ballina and Lismore

### 5.1 Description of the Proposed Activity

#### 5.1.1 Description of the proposed activity and stages of construction:

The TBHT is described in detail in **Section 1**.

**Construction/ installation** of the TBHT is likely to include the following components where possible within available funding (subject to market pricing):

- Repairs to a section of Middle Ridge Fire Trail.
- Repairs to a section of Clay Pot Road.
- Repairs to a section of Eastern Fire Break.
- Tree removal for construction of the three camps.
- Construction of three camps, including provision of toilets, shelters, water tanks, camping platforms and bespoke furniture at each site.
- Fabrication, delivery and installation of all signs, posts, and trail markers.
- Trail construction - Manns Road trail head to Clay Pot Road.
- Trail construction - Camp 2 to Camp 3: helicopter for delivery of stone steps.

- Repairs to the vehicle bridge on Sand Ridge Road.
- Repairs to Sand Ridge Road.
- Repairs to Mount Jerusalem Road.
- Trail construction - Camp 2 to Camp 3.
- Repairs to trail to Tea Tree Lookout.
- Trail construction - Camp 3 to Minyon Falls.
- New trail construction – Minyon Grass to Minyon Precinct.
- Access trail to the base of Minyon Falls (from the existing Minyon Loop) with stone tread steps and stone paving option using local rock.
- Upgrade of the existing Minyon Loop walk by replacing all concrete, mortar bag and timber steps along the entire trail with stone steps, and replacing all existing star-picket and plain wire fall-height barriers with an approved fall-height barrier design consistent with the *Parks Facilities Manual*. Note: this component of the Activity is not funded as part of the initial construction works and will be completed in the future as funding permits.
- Installation of shoe cleaning stations.
- Installation of at-grade lookouts and seating

The **operational phase** of the Activity will involve:

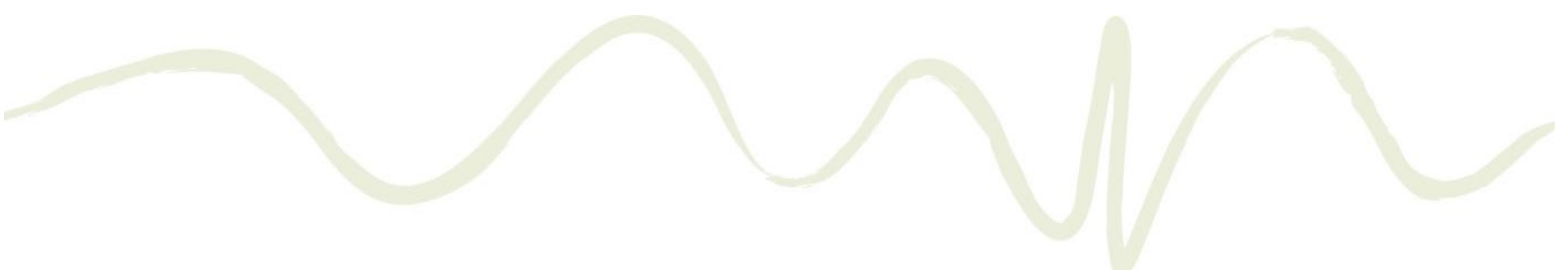
- Use of the TBHT by long distance (multi day) walkers and day visitors, with the latter sharing Day 1 and Day 4 of the TBHT as part of shorter walks. These shared sections include Manns Road trail head to Rowlands Creek (via Whiskey Creek Trail and Clay Pot Road) and the Boggy Creek Track/Eastern Fire Trail loop.
- Each camp on the multi day walk is currently designed to cater for 22 walkers (10 independent walkers and 12 guided walkers), meaning that 88 multi day walkers could potentially be on the TBHT daily.
- Introduction of a booking system and shuttle service for the multi day walk that facilitates north to south use only. The booking system will issue camping permits for 3 successive days starting with the northern-most camp (Camp 1) and will apply to both independent and group bookings. Multi day walkers will be discouraged from leaving vehicles at the trail head due to site constraints and to reduce the potential for vandalism and theft.
- Regular servicing and maintenance of camp facilities and the track by NPWS staff and contractors, including toilets, water supply, and track surface and drainage. NPWS staff and contractors will also conduct regular risk management audits (for example removal of dangerous tree limbs) and compliance checks for unauthorised use.

NPWS will undertake monitoring of facilities during the operation of the TBHT. This may indicate modifications may be required at a later date, such as larger or additional water tanks or toilets.

The operational phase will also include changing the use of Eastern Fire Break and Perlite Road to exclude horse riding. This measure will remove horse riding from approximately 2 km of trail however, existing access to areas of Gibbergunyah Range Road and South Chowan Road (Jerusalem NP) will remain unchanged.

### **Walking Tracks**

Walking tracks in undisturbed areas will be built to a 600 mm width and require a disturbance footprint of approximately 2 m for laying down and moving equipment, establishing sediment controls etc. There may be a need for passing bays or wider sections of track (> 600 mm) to be included if required.



Construction methodology may include track building machines or hand tools (mattocks/ crowbars) depending on site sensitivities and shrubs and groundcovers will be removed or cut back as required. No mature trees or trees >100 mm dbh would require removal.

Rock will be required for steeper sections of the TBHT for step building and steps/edging and will be flown in by helicopter where required.

The stages in construction of new walking tracks are as follows:

- The exact alignment of the track will be marked with flagging tape on pegs in the ground.
- Vegetation will be removed along the alignment with hand tools and large fallen logs cut with chainsaws, with cut vegetation dispersed among the adjoining forest out of sight of the track.
- Mattocks, crowbars, shovels, rake-hoes and rakes will be used to dig the soil to build a new track, all soil will be dispersed among the adjoining forest. Small machines will be used where conditions are appropriate.
- Helicopter or power carriers will be used to transport rock to site to build steps or stepping-stones, depending on access requirements.
- Helicopter or power carriers will be used to transport posts and signage to install along the track, depending on access requirements.

A side-by-side utility vehicle will be utilised for improved access for fire management, pest and weed management and enforcement work within more remote parts of the TBHT. A side-by-side would require a 2 m wide trail with greater width needed at corners for turning. Improvements along the section of the Historic Nightcap Track between Doon Doon Saddle and Gibbergunyah Range Road would be required to allow the passage of a side-by-side vehicle. Earthworks were completed along this section of the trail in the past (using a bulldozer), but the trail width has reduced through lack of use, lack of maintenance, soil creep, bank collapse and revegetation.

### ***Lookouts and Seating***

The TBHT will utilise existing lookouts, as well as undertaking minor upgrades at locations currently informally accessed (refer **Illustration 1.2**):

No additional works are proposed at any existing lookouts, other than the installation of signage to warn walkers of the fall risk.

Five new lookouts are proposed (refer to **Illustration 1.2**) with each lookout to be built at grade with minor disturbance and installation of a single seat. Names for the new lookouts are being decided in consultation with local Aboriginal custodians.

A total of 19 seats will be installed along the TBHT, with a single simple bench seat installed at each site. Nothing else is proposed at the seating locations.

### ***Camps***

Each camp has two areas, with an independent walkers' camp and a tour camp (each with its own shelter), and one shared toilet (refer to Master Plan). All camps have a relatively small footprint of less than 0.3 ha in area. Camps will require small scale disturbance (benching for shelters and excavation for toilet tanks), and the installation of footings for the tent platforms and furniture. Some minor removal of regrowth vegetation may be required, in addition to the removal and relocation of fallen timber. Toilets will be composting and will require a small drainage trench, with dry waste removed from each site and taken to an approved wastewater treatment facility as part of general maintenance.



## **Watercourse Crossings**

The proposed track includes several crossings of minor watercourses which are subject to ephemeral flows. These crossing points will be constructed by using stepping stones, with the size of the stepping stone defined by the size of existing rock within the creek itself. Stepping stones will be of sufficient size to ensure that they are not displaced by high rainfall events. Natural (onsite) rock and rock brought in from quarries will be used.

## **Bridge Repairs**

Structural repairs to the existing bridge in Section 2 (Sand Ridge Road) will be completed so light vehicles can cross the creek during construction work, and also for future servicing of camp 1. To ensure the bridge meets safety requirements for walkers, a handrail will be fitted after construction work is complete. Other bridges will have minor repairs to infill gaps and allow safe crossing by walkers only.

A number of other bridges along the Eastern Fire Break (Section 4) will also be upgraded for passage by vehicles and walkers, however these works are being completed under separate REFs under the Fire Access and Fire Trails (FAFT) scheme.

### **5.1.2 The size of the proposed activity footprint:**

The proposed Activity includes 47.74 km of formal walking tracks that are at least approximately 600 mm wide (much of the walk occurs on existing tracks and trails), three camps (each typically ~ 0.3 ha in area) and use of existing tracks and trails. The activity will require upgrades to be undertaken on Sand Ridge and Gibbergunyah Range Road to enable vehicle access during the construction of camps 1 and 2 and for continued servicing.

### **5.1.3 Ancillary activities:**

As discussed the Activity will require upgrades to be undertaken on Sand Ridge and Gibbergunyah Range Road to enable vehicle access during the construction of camps 1 and 2 and continued servicing. Signage will be implemented at various locations along the TBHT both for directional and informative/safety reasons.

### **5.1.4 Proposed construction methods, materials and equipment:**

Plant and equipment will include a small excavator (1.5 tonne), truck for delivery of stone (10 tonne) in addition to personnel completing much of the works by hand, using an arrangement of hand tools (mattock, crowbar, shovels, rake-hoes, rakes) and power tools (auger, concrete mixer, generator, drill, angle grinder, chainsaw, angle grinder, power barrow etc). A side-by-side vehicle will be utilised where possible to transport equipment and supplies from laydown areas. A helicopter (load capacity of 800 kg) will be deployed during construction at remote areas including step building operations up to Mt Jerusalem. Helicopters will be used to ferry in construction materials but will not land (ie. no formal landing area is required). All materials will be lowered to the ground in slings.



### 5.1.5 Receival, storage and on-site management for materials used in construction:

Materials will be stored in laydown areas within or proximate to the TBHT or camp locations. If materials are to be stored outside of NPWS estate, landowner consent will be required.

### 5.1.6 Earthworks or site clearing including extent of vegetation to be removed:

No substantial earthworks are proposed, with minimum intervention required to establish camps, infrastructure and form the actual walking track. On this basis, vegetation removal is expected to be minor in the context of the substantial areas of vegetation protected within the three reserves.

A total of 10.59 km of track will be constructed within undisturbed vegetation (the greatest impact), with lesser impacts from track construction along abandoned logging tracks (~ 3.80 km) where selective regrowth clearing would be required. The balance of the TBHT utilises formed roads or existing walking tracks (eg Historic Nightcap Track, Nightcap Road, Eastern Fire Break) where impacts would be low to nil. A summary of vegetation impacts is below (refer to Natural Heritage Report at **Appendix A** for further information):

**Table 3. Summary of vegetation impacts**

<i>Vegetation Condition</i>	<i>Impacts</i>	<i>Km</i>	<i>Area (ha) *</i>
<b>Walking Tracks</b>			
Undisturbed vegetation	High	10.59	2.12
Old logging road (not maintained)	Minor	3.80	0.76
Existing formal walking track	Low	13.38	Nil**
Existing maintained vehicle trail	Nil to Low	18.97	Nil**
Informal walking tracks	Low to Minor	1.00	0.2
<b>Camps</b>			
Undisturbed vegetation	High	n/a	~0.7

\*Based on disturbance corridor of 2 m width for walking trails

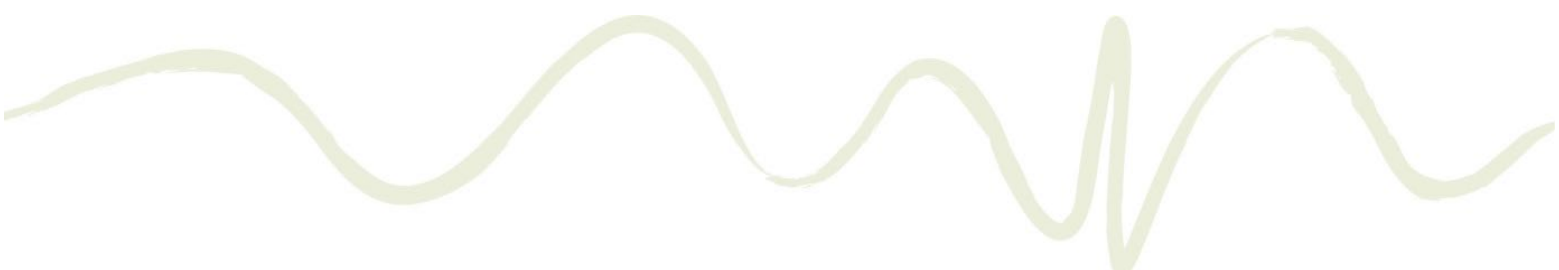
\*\*No clearing works required

### 5.1.7 Environmental safeguards and mitigation measures:

Environmental safeguards and mitigation include the following:

#### **Geology, soils and landform during construction**

- An Erosion and Sedimentation Control Plan would be prepared and would comply with the “*Blue Book*” (Soils and Construction, Managing Urban Stormwater Volume 1, 4<sup>th</sup> Edition March 2004).
- Access would be restricted and clearly defined for all construction personnel.
- The removal of vegetation and soil would be minimised as much as practicable.
- Non-essential or excessive fuels, oils and chemicals would not be stored at the site.
- Refuelling of plant and maintenance of machinery would be undertaken at least 40 m away from waterways or drainage lines in designated refuelling areas.
- Machines to be cleaned offsite in a suitable facility prior to entering the National Park or Reserve.
- Disturbed surfaces would be compacted and stabilised in anticipation of a rain event to reduce the potential for erosion.



Earthworks will be required at the camps to provide level areas for the water tanks and seating areas. Cut and fill will be balanced to remove the need for importing or exporting materials.

### **Biodiversity**

Safeguards are as prescribed in the *Natural Heritage Values Assessment (Appendix A; refer Section 7.4)*.

#### *During construction*

- A track guidance note will be prepared for contractors detailing specific measures to minimise environmental impacts and provide contingency measures as appropriate.
- The final TBHT alignment will be clearly marked and shown to clearing contractors prior to construction works commencing.
- The extent of camps will be defined by parawebbing to limit disturbance by plant/ machinery.
- Vegetation removal will be completed sensitively using appropriate equipment (eg. 'mini' excavators) and to the minimum extent necessary.
- Vegetation to be cleared will be mulched and/ or dispersed into surrounding vegetation.
- Salvage/ translocation of small plants (eg. palms, tree ferns) will be completed where practical.
- No burning or other disposal of cleared vegetation will occur.
- If lopping or pruning of any vegetation is required, it will be completed by a certified and experienced arborist in accordance with *AS 4970-2009 Protection of trees on development sites*.
- Any landscaping or screen plantings installed at the camps will be native flora species consistent with the plant community type in which each camp is located. Planting schedules will be developed in conjunction with NPWS.
- Prior to construction works, an ecologist must re-survey the locations of threatened flora (based on findings of this assessment) and clearly mark any threatened flora within the works zone (allowing for earthworks, clearing and access). Surveys will be particularly thorough in areas of burnt rainforest or wet sclerophyll forest where germination of threatened flora may have occurred prior to commencement of construction works.
- An 'unexpected finds' procedure will be developed to allow for redesign of the TBHT if additional threatened flora are recorded during any pre-clearing or preliminary surveys.
- A threatened flora database (using BioNet data, data from the *Natural Heritage Values Assessment* and any future assessment) will be established and maintained to be available to all TBHT contractors and relevant NPWS staff.
- A plan of threatened flora locations will be provided to contractors prior to clearing and where aggregations of threatened flora occur signage is to be installed stating 'threatened flora location' (or words of similar intention) to alert construction personnel.
- Seedlings of affected Tree Guinea Flower (*Hibbertia hexandra*) are salvaged and replanted within adjacent habitat to the trail footprint.
- The project ecologist will be available to work collaboratively with the construction contractor and guide works within sensitive environments (rainforest, gully crossings) where threatened flora are present to ensure construction of the trail avoids directly impacting any threatened flora species. If impacts are unavoidable in some instances, track redirection may be required.
- Prior to any vegetation removal, an ecologist will complete a pre-clearing survey to examine impacted areas for active nests or dreys, with inspections completed daily within each work section. Clearing may only commence to the satisfaction of the project ecologist.
- A site-specific soil and water management plan will be developed in consultation with NPWS to minimise soil and water impacts. The plan and all contingency measures will be included in the project CEMP.

- Appropriate soil and erosion control measures will be implemented and maintained for the duration of construction in accordance with the approved soil and water management plan.
- A detailed construction schedule will be developed based on predicted annual rainfall and applied to works requiring greatest disturbance so that works are scheduled within periods of low rainfall (May -October) to minimise the potential for soil erosion, sedimentation and negative water quality impacts.
- Measures will be implemented during construction works so that machinery and plant do not introduce weed seed, pests or propagules to the site (e.g. by adoption and implementation of the 'Arrive Clean, Leave Clean' guidelines (DoE 2015).
- Prior to construction works commencing, areas of known weed infestations (introduced grasses, Lantana) will be treated by a qualified operator to reduce the spread of weed seed.
- In accordance with the wishes of private landowner at the Doon Doon saddle, weed control will be limited to slashing only and no herbicide will be used.
- Measures will be implemented during construction works to ensure hygiene protocols for minimising the introduction and spread of Myrtle Rust/Chytrid Fungus/Cinnamon Fungus are developed and maintained in accordance with current best practice and/or NPWS policies or guidelines (e.g.. *Saving Our Species Hygiene Guidelines* DPIE 2020).
- To minimise transmission of Cinnamon Fungus/ Myrtle Rust, materials will be sourced from clean sites where these pathogens are absent.
- All construction materials and plant/ equipment will be certified to come from areas free of any known Yellow Crazy Ant infestations.
- Shoe cleaning stations (with signage and information provided both on site and on the TBHT website) will be installed to reduce the spread of weeds.

#### *During operation*

- A Code of Practice detailing walker protocols for protection of the environment will be written and displayed on the TBHT website and made available for download. This information will form part of an information kit supplied to all walkers. Signage may also be required as part of an adaptive approach to management.
- Information will be provided on the TBHT website outlining the need for sensitivity in forest environments to protect vegetation and soils. This message may be assisted by signage at key locations.
- Appropriate signage will be placed where the TBHT occurs proximate to any sensitive locations of threatened flora.
- The TBHT website will provide guidelines and information on threatened flora along the TBHT.
- Annual monitoring of threatened flora prone to Myrtle Rust [Scrub Turpentine (*Rhodamnia rubescens*) Peach Myrtle (*Uromyrtus australis*)] will be completed along the TBHT.
- Monitoring of erosion and sediment control post construction will be completed until staff are satisfied, they can be safely removed.
- Information regarding reducing water quality impacts from washing and swimming will be outlined in the Code of Practice and educational resources on TBHT website.
- Weeds will be controlled/ managed as required and in accordance with requested control methods on private land.
- The TBHT website will provide details on appropriate protocols to reduce spreading weeds along the TBHT.
- Shoe cleaning stations will be maintained appropriately.
- Information on appropriate Myrtle Rust minimisation measures will be provided on the TBHT website and updated according to new information/ best practice.
- Feral animal baiting (wild dogs, foxes) will be completed as required.



### **Noise and vibration during construction**

- All works will be undertaken in accordance with the *Interim Construction Noise Guideline* (DECC, 2009).
- Notification of the works will be provided to the three adjacent private residences (Lot 1 DP384890, Lots 1 and 2 DP793686) at least five days prior to the commencement of construction activities.
- The construction team will be briefed to create awareness of the locality of sensitive receivers and the importance of minimising noise emissions.
- Mufflers and appropriate covers will be fitted to all plant and machinery used during the works where appropriate.
- The contractor will be required to minimise and contain noise outputs using best practice (e.g. by avoiding generating unnecessary noise onsite) and high-quality plant and equipment.

### **Air quality during construction**

- Vehicles and all fuel powered machinery and equipment will be maintained to meet the requirements of the Protection of the Environment Operations Act.
- All vehicles transporting waste or other materials that may produce odours or dust will be covered during transportation.
- Debris and wastes will be cleaned from the construction area as soon as practical to ensure light-weight material is not disseminated by wind gusts.
- No burning of timber or other wastes will occur.
- If winds are high and works are creating high levels of dust that are either likely to discomfort nearby visitors or create a safety hazard to traffic or personnel, works will be modified or ceased until the dust hazard is eliminated or reduced to an acceptable level; alternatively, dust suppression measures will be implemented to minimise or prevent air pollution from dust.
- Any stockpiles will be appropriately managed so the potential for air pollution is minimised.

### **Water quality, hydrology and drainage during construction**

- Appropriate erosion and sediment controls will be in place prior to the commencement of any excavation works. Controls would comply with the *“Blue Book”* (Soils and Construction, Managing Urban Stormwater Volume 1, 4<sup>th</sup> Edition March 2004).
- All areas where excavation is required and/or vegetation is removed will be turfed, seeded, revegetated or otherwise stabilised with the most appropriate method.
- Refuelling of plant and maintenance of machinery will be undertaken at least 40 m away from waterways or drainage lines.
- Disturbed surfaces will be compacted and stabilised in anticipation of a rain event to reduce the potential for erosion.
- Spill kits will be available at construction sites at all times.
- Erosion and sediment controls will be monitored for effectiveness and be maintained until the site is remediated and stabilised.

### **Non-Aboriginal heritage during construction**

- If any non-Aboriginal items of significance are located during the works, all work will cease and NPWS will be contacted immediately.





### ***Aboriginal heritage during construction***

- If suspected Aboriginal material has been uncovered because of development activities within the Project Area:
  - a) work in the surrounding area will stop immediately
  - b) a temporary fence will be erected around the site, with a buffer zone of at least 10 m (unless otherwise impractical) around the known edge of the site
  - c) an appropriately qualified archaeological consultant will be engaged to identify the material
  - d) if the material is found to be of Aboriginal origin, the Aboriginal community will be consulted in a manner as outlined in the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010)
  - e) should the works be deemed to have harmed the Aboriginal objects Heritage NSW will be notified immediately via the NSW Environment Line.
- Aboriginal site monitors will be engaged to support the unexpected find procedure to assist construction staff to identify Aboriginal objects should they be present.
- Although it is unlikely that Aboriginal Human Remains will be located at any stage during earthworks within the Project Area, should this event arise it is recommended that all works will halt in the immediate area to prevent any further impacts to the remains. The site will be cordoned off and the remains themselves will be left untouched. The nearest Police Station, the Widjabul Wia-bal Registered Native Title Body Corporate (or their legal representation) or the Tweed Byron LALC (depending on location), and the Heritage NSW Regional Office (Coffs Harbour) will all be notified as soon as possible. If the remains are found to be of Aboriginal origin and the police do not wish to investigate the Site for criminal activities, the Aboriginal community and Heritage NSW will be consulted as to how the remains will be dealt with. Work will only resume after agreement is reached between all notified parties, provided it is in accordance with all parties' statutory obligations.
- All NPWS staff and contractors will be made aware of their responsibilities under the NPW Act and made aware of appropriate procedures in the event of Aboriginal objects or remains being discovered during the construction process.

### ***Visual amenity during construction***

- The final landform will be designed to maintain the visual amenity of the site.
- The work site will be left in a tidy state at the end of each work day.

### ***Land uses and services during construction***

- Notification of road closure and impacts to camping and/ or visitor facilities will be provided at least 5 days prior to the commencement of construction activities via the NPWS website.
- Implement temporary traffic control measures when required (e.g. when offloading excavators) to minimise disruptions to local traffic and allow safe access and departure of construction vehicles.
- Exclusion zones will be established along access routes if pre-site work risk assessment determines it is necessary to do so.

### ***Dangerous goods/chemical and waste management during construction***

- The resource hierarchy detailed by the *Waste Avoidance Resource Recovery Act 2001* will be adopted.

- Waste materials requiring removal from site will be classified, handled and stored on-site in accordance with the *'Waste Classification Guidelines: Part 1 Classifying Waste'* (DECCW, 2009) until collection by a contractor for disposal.
- Where no feasible and reasonable options for waste avoidance and reuse of recycling are available, all residual waste material will be disposed to a suitably licensed landfill or waste management facility.
- Waste destined for recycling or reuse will be stored separately and in a suitable location to avoid mixing with other materials/wastes.
- All working areas will be monitored to ensure the construction site and any construction compounds required are kept free of rubbish and cleaned at the end of each working shift.
- Storage and handling of any dangerous goods will be undertaken in accordance with *The Storage and Handling of Dangerous Goods Code of Practice 2005*.
- Sufficient spill kits will always be kept on site.
- Any excavated natural material will be treated in accordance with the requirements of the POEO Act.

#### 5.1.8 Sustainability measures:

To guide the design process and ensure project integrity, a philosophy was formed to guarantee that future works follow a set of principles which encapsulate ecological and cultural values. This was created through a collaborative approach with ecologists, designers, local Aboriginal leaders, Elders, Knowledge-Keepers and community members. The design philosophy formed through these interactions influence, inform and direct the design of elements such as camping areas, furniture design and locations of interest along the trail. Sustainability principles adopted for the project design are that facilities should embody sustainable materials and design applications, provide for the ongoing efficient use of resources, and where possible assist in educating park users as to sustainable resource management and conservation principles.

The project has also incorporated planning and design principles in the *NPWS Park Facilities Manual* in the Master Plan including:

- **Consistent look and feel** – Facilities should create a consistent look and feel for national parks and reserves in New South Wales.
- **Sustainability** (refer above)
- **Heritage** – Protection of natural and cultural heritage values, as part of the park experience, is to be achieved in all facilities provision.
- **Harmony with nature** – Natural features in the landscape should predominate, and facilities should harmonise with their setting.
- **Enhancing the visitor experience** – Facilities should enhance and not detract from the visitor experience and should be fit for the purpose intended.
- **Genuine materials** – Materials are to be genuine and true to character.

#### 5.1.9 Construction timetable and staging and hours of operation:

General hours of operation for the construction contractors will be 6am - 5pm Monday to Friday. Work may occur on weekends where required. No works would occur on public holidays or when the Fire Danger Rating is Extreme or Catastrophic. A timetable for construction staging is below and is subject to variation with regard to weather, contractor availability, availability of helicopter services etc.

**Table 4. Timetable for construction staging**

<b>Asset</b>	<b>Construction Commences</b>	<b>Construction Complete</b>
Fire Trails	2022	2023
Camps	2022	2023
Walking Track	2022	2023

## **5.2 Objectives of the Proposal**

Project objectives include:

- Create an appealing new walking experience of international standing.
- Protect and respect the region's environmental and cultural heritage, and foster future conservation advocacy and stewardship while providing for nature-based experiences.
- Create alternative and compelling nature-based experiences in the hinterland to increase dispersal of visitors from the coast.
- Contribute to ongoing maintenance costs and ensure financial sustainability of the walk experience.
- Manage the overall increase in visitation to Mount Jerusalem and Nightcap national parks, focusing on increasing visitors in non-peak periods.
- Create nature-based experiences which support the sustainable growth of the regional economy.
- Create tourism-related projects and business opportunities for NPWS and host communities.
- Build strong partnerships with industry, government and host communities.
- Create employment opportunities for host communities.
- Provide new opportunities for Aboriginal communities to appropriately share their culture, participate in and benefit from the regional tourism economy.



## 6. Reasons for the Activity and Consideration of Alternatives

### 6.1 Reasons for activity:

The reasons for the TBHT are expressed in the objectives (refer **Section 5.2**). However, the primary reason for the Activity is to create alternative and compelling nature-based experiences in the hinterland to increase dispersal of visitors from the coast.

The proposal to remove horse riding from Eastern Fire Break and Perlite Road is due to minimise conflicts between user groups and to maximise the experience for walkers.

### 6.2 Alternatives:

Various other alternative walking routes were investigated for each of the four days of the walk and the three camps. Decisions on the proposed route were based on the following criteria:

- Total walking distance per day
- Camp locations next to management trails for ease of construction and maintenance
- Availability of existing walking trails, fire trails, and old logging roads and snig tracks
- Location of Aboriginal cultural values
- Location of threatened plant and animal species, communities and their habitats
- Capital budget provided for the TBHT
- Suitability of the landscape for walking trail construction
- Gradient of new walking tracks at a maximum of eight degrees to minimise soil erosion
- No construction of new tracks or camps within the World Heritage Area in Nightcap NP
- Providing opportunities to experience the following opportunities that walkers in the north coast of NSW seek in national parks near to the major tourism hubs of Byron Bay and the Gold Coast:
  - Waterfalls
  - Lookouts
  - Walking in rainforest
  - Wildlife

Other national parks and reserves within the North Coast area were not viable alternatives for a multi-day walk of this nature as they did not contain the criteria listed above.

### 6.3 Justification for preferred option:

The proposed location of the TBHT was selected on the basis of areas of conservation value with existing facilities/ infrastructure which are within proximity to areas of population and tourism.





# 7. Description of the Existing Environment

## 7.1 Overview

Nightcap NP and Whian Whian SCA (in which the southern portion of the TBHT occurs) are situated within the Nightcap Range and collectively cover approximately 10,463 ha. Mount Jerusalem NP (in which the northern portion of the TBHT occurs) covers approximately 5,160 ha. The western portion of Nightcap NP (approximately 61% of the park) also forms part of the 'Gondwana Rainforests of Australia' World Heritage Area (WHA). Approximately 5 km of walking track occurs within the WHA.

The three parks provide extensive conservation estate which is densely forested with little infrastructure or facilities. There are few visitor facilities in the parks, and public access is permitted via Manns Road (Mt Jerusalem NP) and Minyon Falls Road (Nightcap NP).

The TBHT intercepts with existing or proposed infrastructure at several locations:

- Manns Road: a trail head, toilet and carpark will be established in a disturbed area near the junction of South Chowan Road (leading to Unicorn Falls). A separate REF and assessment process has been completed for this facility.
- Section 3 of the TBHT utilises part of the existing Historic Nightcap Track, a formalised and intermittently maintained walking track which connects from Mount Nardi to Gibbergunyah Range Road.
- Section 4 takes walkers to the existing Rummery Park campground facilities (day use area, toilets, shelter). An existing walking track ('Boggy Creek walk') links Rummery Park campground to Minyon Falls.
- The TBHT terminates at Minyon Falls, which has undergone a major upgrade to improve facilities (parking facilities and day use area were improved during 2020-22). The Minyon Falls Master Plan has been addressed under a separate REF.
- Minyon Loop: the existing loop walk from Minyon Falls to the base of the falls and up to Minyon Grass will undergo minor improvements (step replacement and replacement of star pickets and wire with handrails).
- Rummery Park campground: The Eastern Boundary Trail walk will direct walkers to the existing camping and day use facilities at Rummery Park and utilise the existing Boggy Creek walk to return to Minyon Falls.

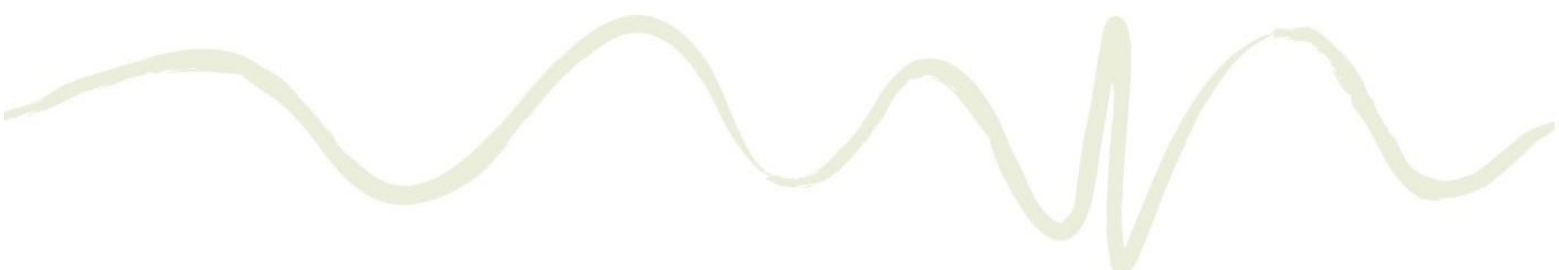
The proposed Activity is located mostly within the parks' boundaries, with the exception of where the TBHT occurs along the Nightcap Road at Doon Doon Saddle.

The area surrounding the parks is dominated by a combination of forested and agricultural land.

## 7.2 Physical environment

### 7.2.1 Meteorological data

The locality experiences a humid subtropical climate which is characterised by warm summers and mild winters. Prior to the closure of the nearby Rummery Park weather station in 2004, the previous 54



years of data had recorded a mean annual rainfall of 2,316 mm, mean maximum temperature of 22.4°C and minimum temperature of 12.7°C. This data represents a wetter and cooler climate than experienced in Lismore.

Extreme rainfall events are more likely to occur in late summer and early autumn. The driest times of the year are in late winter and spring when days of high fire danger can be experienced.

### **7.2.2 Topography:**

Mount Jerusalem NP comprises hilly elevated country, with Mount Jerusalem being the highest point at ~ 801 m. Nightcap NP comprises the Nightcap Ranges which reaches an elevation of 933 m at Mount Burrell. The topography of Whian Whian SCA is mostly low undulating hills with an elevation of 400 m above sea level. Peates Mountain represents the highest point of the SCA at 640 m, with the lowest point of 200 m being in the south.

Within the TBHT, topography varies considerably, from flat to gently sloping to undulating areas and several steep sections. The steepest slope traversed by the walk is the ascent from Hell Hole in Section 2. Track design has aimed at reducing steep ascents and descents where possible for the benefit of patrons and for constructability.

### **7.2.3 Geology/geomorphology:**

All of the parks form the south-eastern rim of the Tweed Caldera, where volcanic geology comprises rhyolite and basalt.

### **7.2.4 Soil types and properties:**

The Nightcap Range represents the largest area of the acid volcanic or rhyolitic soil derivations of the Tweed Caldera. Soil development from this parent material forms siliceous, red, yellow and brown podsol variants. These soils are generally poorly to moderately drained and of low fertility.

Soil landscapes (eSPADE) along the TBHT (from north to south) include:

#### **Frogs Hollow (fu)**

- Landscape: steep hills on the Chillingham Volcanics.
- Geology: Chillingham Volcanics (Triassic): rhyolite, rhyolitic tuff, claystone.
- Soils: moderately deep to deep (100–200 cm), moderately well-drained Brown Podzolic Soils and Brown Earths on ridges and upper slopes. Deep (>200 cm), moderately well-drained Red Podzolic Soils and Red Clays elsewhere.
- Limitations: very steep slopes and mass movement hazard with localised rock outcrop and shallow soils. Strongly acid, highly erodible soils with high aluminium toxicity potential.

#### **Kunghur (ku)**

- Landscape: undulating and rolling hills on Bundamba Group sediments.
- Geology: Bundamba Group (Triassic–Jurassic)—sandstone, siltstone, claystone, conglomerate.
- Soils: shallow to deep (50–>150 cm), well-drained Yellow Podzolic Soils on ridges and upper slopes. Deep (>100 cm), moderately well-drained Yellow Podzolic Soils, Red Podzolic Soils and Red Earths on slopes. Moderately deep (100–150 cm), poorly drained Gleyed Podzolic Soils and Yellow Podzolic Soils on lower slopes and poorly drained areas.

- Limitations: steep slopes, localised rock outcrop and mass movement hazard. Hardsetting, erodible, moderately dispersive and highly acid soils that are occasionally shallow and non-cohesive with localised waterlogging.

#### **Nimbin Rocks (nr)**

- Landscape: cliffs and scarps of Nimbin Rhyolite overlying moderately inclined to very steep cliff-footslopes and talus of Nimbin Rhyolite and Lismore Basalts.
- Geology: Cliffs and colluvial cliff-footslopes within the Border-Nightcap Range and associated with the Nimbin Rhyolites.
- Soils: moderately well-drained Brown Podzolic Soils and Grey-brown Podzolic Soils of variable depth on cliff-footslopes, talus.
- Limitations: extreme rock fall and debris avalanche hazard, rock outcrop, steep slopes.

#### **Minyon (mi)**

- Landscape: plateau tops of low rolling hills on Nimbin Rhyolites.
- Geology: Lamington Volcanics: Nimbin Rhyolites - rhyolite, obsidian, pitchstone, tuff, agglomerate.
- Soils: deep (100–200 cm), moderately well-drained Red Podzolic Soils, Brown Podzolic Soils and Red Podzolic Soil/Krasnozem intergrades throughout plateaux. Deep (100–150 cm), poorly to moderately well-drained Red Podzolic Soils associated with pitchstone/obsidian outcrops. Shallow (50–100 cm), poorly drained Grey Leached Earths on plateau margins.
- Limitations: moderate to highly erodible soils of low fertility with localised stony, shallow occurrences. Localised steep slopes and rock outcrop.

#### **7.2.5 Waterways including wild and scenic rivers:**

The proposed trail intercepts a number of minor ephemeral creeks. The creek crossings will use low impact stepping stones to ensure the Activity does not have a significant impact on the creeks flow or ecosystem. No scenic or wild rivers are present.

#### **7.2.6 Catchment values:**

Nightcap NP represents part of the Rocky Creek catchment which comprises Rocky and Gibbergunyah Creeks. Whian Whian SCA represents most of the Rocky Creek catchment which comprises the northern reaches of Rocky, Boggy, Gibbergunyah and Boomerang Creeks. Both catchments ultimately feed into the Wilsons River catchment, an important local asset within the Lismore LGA, providing a range of environmental, social, economic and agricultural services.

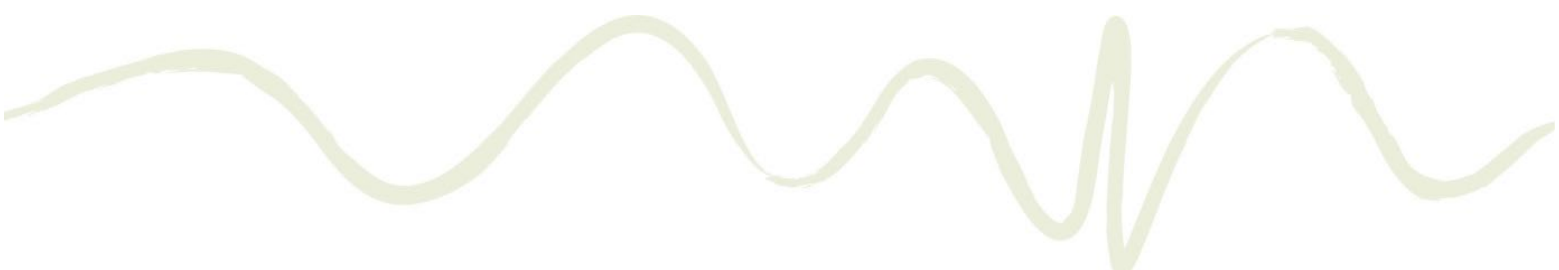
#### **7.2.7 Coastal risk areas:**

Not applicable.

### **7.3 Biodiversity**

#### **7.3.1 Ecological communities:**

A number of forest communities are traversed by the TBHT (refer to *Natural Heritage Values Assessment* at **Appendix A**). The threatened ecological community 'Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions' occurs at elevations up to 600 m, with an estimated 3,179 ha mapped throughout the three reserves. The TBHT will traverse approximately 10 km of



lowland rainforest, of which 2.37 km (~ 0.14 ha) comprises undisturbed habitat where works to construct the walking track are required.

### 7.3.2 Flora (including flora of conservation significance):

All three parks are noted for their floristic diversity, including numerous threatened species. Several endemic species of limited geographic range are known to occur.

Field survey for the *Natural Values Heritage Assessment* (refer to **Appendix A**) recorded 15 threatened flora species along the TBHT (refer **Appendix A**): Corokia (*Corokia whiteana*), Rusty Rose Walnut (*Endiandra hayesii*), Green-leaved Rose Walnut (*Endiandra muelleri* subsp. *Bracteata*), Narrow-leaf Finger Fern (*Grammitis stenophylla*), Red Boppel Nut (*Hicksbeachia pinnatifolia*), Rough-shelled Bush Nut (*Macadamia tetraphylla*), Rusty Plum (*Niemeyera whitei*), Onion Cedar (*Owenia cepiodora*), Scrub Turpentine (*Rhodamnia rubescens*), Rainforest Senna (*Senna acclinis*), Small-leaved Hazelwood (*Symplocos baeuerlenii*), Red Lilly Pilly (*Syzygium hodgkinsoniae*), Arrow-head Vine (*Tinospora tinosporoides*), Peach Myrtle (*Uromyrtus australis*), Tree Guinea Flower (*Hibbertia hexandra*).

The TBHT has been designed and sited to avoid threatened flora habitats wherever possible. Tests of significance ('five-part tests') in accordance with Section 7.3 of the BC Act were completed for flora species which occur along the TBHT. The tests concluded that the construction and operation of the Activity would be unlikely to result in a significant impact to any threatened flora species (refer to *Natural Values Heritage Assessment* at **Appendix A**).

### 7.3.3 Fauna (including fauna of conservation significance):

A diverse range of fauna have been identified within the three parks, including numerous threatened species. Field survey for the *Natural Values Heritage Assessment* (refer to **Appendix A**) recorded nine threatened fauna species along the TBHT: Pouched Frog (*Assa darlingtonia*), Glossy Black-Cockatoo (*Calyptorhynchus lathami*), White-eared Monarch (*Carterornis leucotis*), Albert's Lyrebird (*Menura alberti*), Loveridge's Frog (*Philoria loveridgei*), Koala (*Phascolarctos cinereus*), Wompoo Fruit-Dove (*Ptilinopus magnificus*), Sooty Owl (*Tyto tenebricosa*), Pale-vented Bush-hen (*Amaurornis moluccana*).

Tests of significance ('five-part tests') in accordance with Section 7.3 of the BC Act were completed for these species. The tests concluded that the construction and operation of the Activity would be unlikely to result in a significant impact to any threatened fauna species (refer to *Natural Values Heritage Assessment* at **Appendix A**).

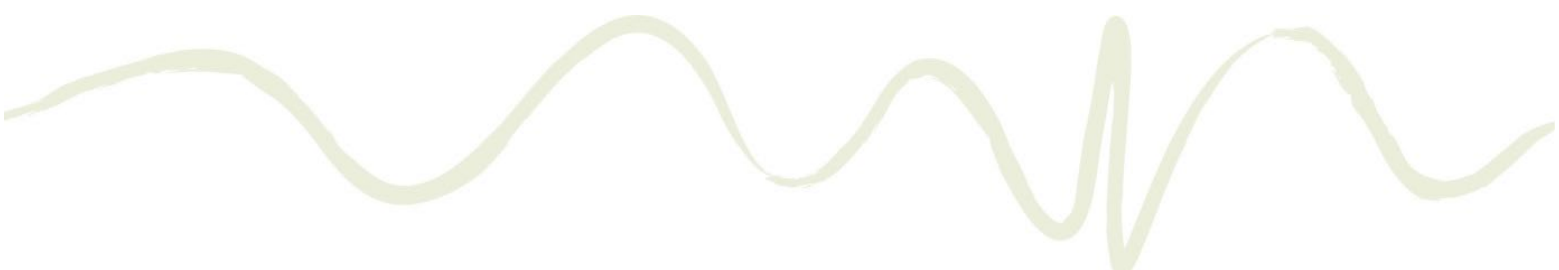
### 7.3.4 Area of outstanding biodiversity value:

No areas of outstanding biodiversity value (within the meaning of the BC Act) occur.

### 7.3.5 Environmental asset of intergenerational significance:

The trail will traverse the following areas declared to be environmental assets of intergenerational significance under Part 12A of the NPW Act:

- AIS\_E0\_026 (species: Peach Myrtle)
- AIS\_E0\_027 (species: Coast Euodia)

- 
- AIS\_E0\_191 (species: Koala)

### 7.3.6 Koala Habitat

Wet and dry sclerophyll forests in these parks support several schedule 3 feed tree species in the North Coast Koala Management Area listed in Chapter 4 of the SEPP (Biodiversity and Conservation). These are Flooded Gum (*Eucalyptus grandis*), Small-fruited Grey Gum (*Eucalyptus propinqua*), Blackbutt (*Eucalyptus pilularis*), Tallowwood (*Eucalyptus microcorys*), Grey Ironbark (*Eucalyptus siderophloia*), Forest Oak (*Allocasuarina torulosa*), Red Bloodwood (*Corymbia gummifera*), Scribbly Gum (*Eucalyptus signata*), White Mahogany (*Eucalyptus acmenoides*), New England Blackbutt (*Eucalyptus campanulata*), Forest Red Gum (*Eucalyptus tereticornis*).

While the SEPP does not apply to any activities within NPWS estate, it is NPWS policy to comply with the SEPP's objectives, which are: "...to encourage the conservation and management of areas of natural vegetation that provide habitat for koalas to support a permanent free-living population over their present range and reverse the current trend of koala population decline". In combination, the three parks provide substantial areas of protected Koala habitat in the locality. The Activity would not significantly reduce Koala habitat in the context of the three parks due to the retention of trees > 100 mm, the minor nature of the works which would not fragment Koala habitat and the operation of the TBHT being of a relatively benign nature which would not disturb Koalas or result in any other substantial indirect threats.

## 7.4 Cultural values

### 7.4.1 Aboriginal cultural heritage:

An *Aboriginal Cultural Heritage Assessment* has been undertaken by Everick Heritage Consultants (refer to **Appendix C**). The report concluded that the works required for the Activity are unlikely to harm Aboriginal objects. A number of management recommendations have been provided (refer to **Section 9.5**) and are included as safeguards in this REF.

### 7.4.2 National/State/local natural or cultural heritage values:

No specific non-indigenous cultural heritage values occur within or in immediate proximity to the TBHT footprint.

### 7.4.3 Vegetation of cultural landscape value:

No vegetation of cultural landscape value (e.g. gardens and settings, introduced exotic species or evidence of broader remnant land uses) occurs within the TBHT alignment. Vegetation of cultural landscape values occurs elsewhere within the reserves but would not be affected by the Activity.

### 7.4.4 Other cultural heritage values:

All three reserves have heritage values from past forestry/ silviculture activities and evidence of these activities remains in the form of old logging stumps. No other cultural heritage values are known.





## 7.5 Social values

### 7.5.1 Recreation use:

Mount Jerusalem NP, Nightcap NP and the adjoining Whian Whian SCA have considerable recreational values and are highly visited areas, popular with locals and visitors and used as a staging area for events (e.g. Freedom MTB Marathon). Minyon Grass and Minyon Falls provide a range of facilities for day visitors. The area is highly valued for bushwalking, horse riding, mountain biking and other nature-based pursuits.

The Activity aims to improve recreational values at both sites by improving the quality of visitor facilities. Note: some sections of the TBHT are currently used for horse riding (e.g. Eastern Firebreak); it will be proposed via the Master Plan that horse riding will no longer be allowed on those sections of the TBHT.

### 7.5.2 Scenic and visually significant areas:

Mount Jerusalem NP, Nightcap NP and the adjoining Whian Whian SCA have considerable scenic and visually significant areas including the areas of high scenic value Minyon Grass and Minyon Falls.

### 7.5.3 Education and scientific values:

Nightcap NP has considerable educational values and is popular for group activities including local school groups, NSW Rural Fire Service and Defence Force training (orienteering) activities, community programs and by bushwalking clubs. NPWS also conducts Discovery Ranger activities during school holiday periods and by request.

Nightcap NP is also a key area for scientific research because of the high biodiversity values and easy access. The park has been used extensively since the early 1980s for ongoing research and thus provides valuable information and understanding of the complex natural processes that occur. Rous Water also conducts water quality monitoring within adjacent Whian Whian SCA as part of the Rocky Creek Dam catchment.

All three reserves have scientific values and are utilised for research and monitoring. Several active monitoring projects are operating in Nightcap NP under the 'Saving Our Species' program.

### 7.5.4 Interests of external stakeholders (e.g. adjoining landowners, leaseholders):

Key stakeholders for the site include:

- Indigenous communities:
  - access to country
  - native title rights and economic opportunities (Widjabul Wia-bal)
- NSW RFS (bushfire, emergency response)
- Local government, including Tweed, Byron and Lismore shires (economic benefit, social wellbeing)
- Adjacent landowner with easements through which the TBHT passes (visitor impacts)
- Other adjoining landowners/park neighbours (visitor impacts, commercial opportunities, recreational use)

- Rous Water (impacts on water quality)
- Tourism industry (commercial opportunities)
- Local community members groups and site visitors (recreational use, visitor impacts)

## 7.6 Matters of National Environmental Significance

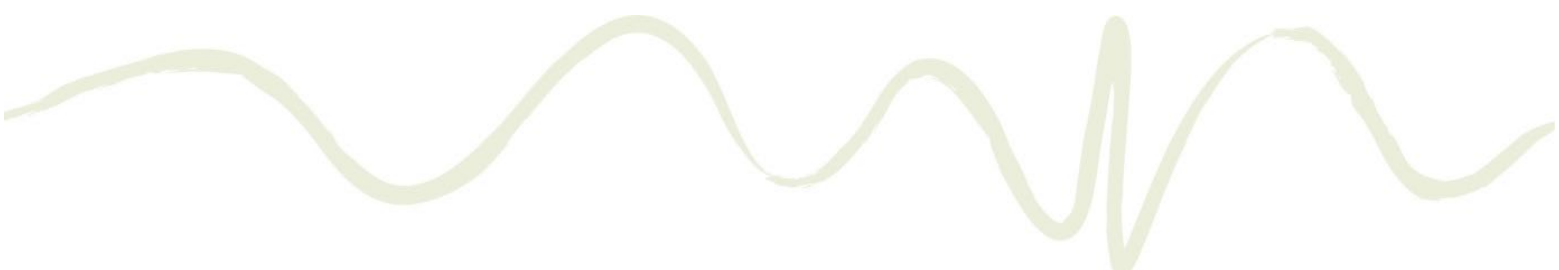
Matters of National Environmental Significance (MNES) protected under the EPBC Act include:

- World heritage properties
- National heritage places
- Wetlands of international importance (listed under the Ramsar Convention)
- Nationally threatened species and ecological communities
- Migratory species protected under international agreements
- Commonwealth marine areas
- The Great Barrier Reef Marine Park
- Nuclear actions (including uranium mines)
- A water resource, in relation to coal seam gas development and large coal mining development.

The results of the MNES database search and further information based on potential impacts of the TBHT are summarised below:

**Table 5. Matters of National Environmental Significance present near the TBHT**

MNES
<p><b>World heritage values of listed world heritage properties</b></p> <p>The world heritage values of the listed world heritage property, 'Gondwana Rainforests of Australia,' include many cultural historic values (Historic Nightcap Track and evidence of forestry operations), cultural Indigenous values (within land of the Widjabul Wia-bal People) and natural heritage values such as threatened flora, fauna and the threatened <i>Lowland Rainforest of Subtropical Australia</i>.</p> <p>A Significant Impact Assessment was completed for the WHA and determined that impacts would be low and manageable and that natural or cultural heritage values would not be significantly affected (refer to <i>Natural Heritage Values Assessment - Appendix A</i>).</p>
<p><b>National heritage places</b></p> <p>Refer above (WHA's are also National Heritage Places). A Significant Impact Assessment has been completed for the National Heritage Place and determined that impacts would be low and manageable, and that natural or Indigenous heritage values would not be significantly affected (refer to <i>Natural Heritage Values Assessment – Appendix A</i>).</p>
<p><b>Nationally threatened species and communities</b></p> <p>Habitat for two threatened ecological communities and 72 threatened species is identified within 5 km of the site. Eight threatened flora species were recorded during field assessment (Corokia, Rusty Rose Walnut, Red Boppel Nut, Rough-shelled Bush Nut, Onion Cedar, Small-leaved Hazelwood, Red Lilly Pilly, Peach Myrtle). Significant Impact Assessments have been completed for endangered species listed under the EPBC Act and determined that impacts would be low and manageable (refer to <b>Appendix A</b>).</p> <p>The threatened ecological community Lowland rainforest of subtropical Australia ('LRSA') is also present in select parts of the TBHT below 300 m ASL. Impacts to LRSA are minor in nature and would not substantially alter the structure, function or composition of lowland rainforest in a local context (refer to <b>Appendix A</b>). Impacts to LRSA would be very low based on substantial areas of rainforest occurring within the three reserves (~ 7,255 ha), where the TBHT would only require disturbance to a negligible area in this greater context.</p> <p>One listed threatened fauna species was recorded (Koala). The Grey-headed Flying-fox is also likely to use the site on an opportunistic or seasonal basis when myrtaceae canopy trees are in flower, while several other threatened fauna species may occur on an opportunistic or seasonal basis. Via the Test of Significance it was established impacts of the TBHT would be low and manageable for these species (refer to <b>Appendix A</b>). As the TBHT will pass through habitat of the Greater Glider, a significant impact assessment was prepared for this species (refer to</p>



**Appendix A).** The impact assessment concluded that habitat for the Greater Glider would not be significantly affected.

The Activity is unlikely to be significant to any threatened species in the locality over its life cycle in the context of three large conservation reserves where secure tenure allows for long term conservation.

All three parks provide potential habitat for several threatened species listed in the EPBC Act as Matters of National Environmental Significance (refer to Natural Heritage Values Report at **Appendix A**). Approximately 5 km of the TBHT also occurs within World Heritage Estate (Gondwana Rainforests of Australia). The referral steps were applied where impacts to WHA occur:

These steps determined that the TBHT would not significantly impact World Heritage values. Assessments of Significance for threatened species and communities were also completed in the Natural Heritage Values Report and concluded that there would be no significant impact habitat for threatened species or communities as a result of the Activity (refer also to **Section 9.7**). On this basis the Activity does not require referral to the Australian Government Department of Climate Change, Energy, the Environment, and Water (DCCEEW).

On the basis of the summary and assessments completed, the Activity does not require referral to the DCCEEW.

# 8. Impact Assessment

## 8.1 Physical and Chemical Impacts During Construction and Operation

	Applicable?*	Impact level (negligible, low, medium or high; negative or positive; or NA)	Reasons (describe the type, nature and extent of impact, taking into account the receiving environment & proposed safeguards which will limit the impact)	Safeguards/mitigation measures
1. Is the proposal likely to impact on soil quality or land stability?	Y	<p><b>Roadworks</b> Low: negative (short term)</p> <p><b>Trackwork &amp; Camps</b> Medium: negative</p>	<p>The roadworks will restore the existing roads to access the TBHT. As the roads are existing, the impacts are limited to previously disturbed areas. Works would create exposed soils; erosion and sediment safeguards would limit impacts.</p> <p>The construction of walking tracks requires clearing of vegetation and construction of a class 4 track including benching, stairs, lookouts and demolition/ construction of creek crossings. Clearing and earthworks would disturb soils within the construction footprint. Erosion and sediment safeguards would limit impacts.</p> <p>The construction of the camps requires clearing of vegetation and the minor excavation for the construction of shelters and toilets. The works would disturb the soil profile; erosion and sediment safeguards would limit impacts.</p>	<ul style="list-style-type: none"> <li>An Erosion and Sedimentation Control Plan will be prepared and would comply with the "Blue Book" (Soils and Construction, Managing Urban Stormwater Volume 1, 4<sup>th</sup> Edition 2004).</li> <li>Access will be restricted and clearly defined for all construction personnel.</li> <li>Vegetation clearing will be minimised to the immediate footprint only.</li> <li>Construction will be phased so that land disturbance is confined to areas of workable size. This will limit the duration disturbed areas are exposed to erosion. Stabilisation will be applied to the first disturbed area before the next section is commenced. Any disturbed areas that will not be stabilised within 30 days will be revegetated and any that fail to establish will be re-sown.</li> <li>The removal of vegetation and soil will be minimised as much as practicable.</li> <li>Disturbed surfaces will be compacted and stabilised in anticipation of a rain event to reduce the potential for erosion.</li> <li>Creek banks will be stabilised adjacent to the proposal and where large trees would be removed with rock scour protection on lower part of bank and geotextile/ revegetation combination on upper bank.</li> <li>While significant wind erosion is extremely unlikely given the dense vegetation surrounding the TBHT, wind erosion on the site will be managed by limiting traffic on disturbed areas, utilising water trucks, covering stockpiles with anchored geofabric, and providing dust covers on trucks and dumpers. If wind speed exceeds 10 m/s, increase watering or cease dust generating activities until dust controls are operating effectively. Other measures may be</li> </ul>

	Applicable?*	Impact level (negligible, low, medium or high; negative or positive; or NA)	Reasons (describe the type, nature and extent of impact, taking into account the receiving environment & proposed safeguards which will limit the impact)	Safeguards/mitigation measures
				employed as outlined within Soils and Construction Volume 1 Landcom manual.
2. Is the Activity likely to affect a waterbody, watercourse, wetland or natural drainage system?	Y	<b>All Works</b>  Low: negative (short term)	The roadworks, clearing and earthworks presents a risk to the sedimentation of waterways. As discussed above, safeguards requiring erosion and sediment controls would limit this impact.  The walking track requires a number of creek crossings and structural repairs to a timber vehicular bridge at Sand Ridge Road. The creek crossings use low impact stepping stones that, where necessary, will be dyna bolted into the bedrock. The Bridge repairs will not require bank or bed excavation within a watercourse.	<ul style="list-style-type: none"> <li>Disturbed surfaces will be compacted and stabilised in anticipation of a rain event to reduce the potential for erosion.</li> <li>Construction machinery will be restricted from being operated or stored near creek banks.</li> <li>Disturbance of creek beds during stepping stone replacement to be minimised.</li> <li>All riparian zone work including stepping stone replacement will occur only during periods of low flow.</li> <li>Appropriate sedimentation and erosion controls will be installed and maintained always during construction and operations to limit impacts on adjacent vegetation and waterways.</li> </ul>
3. Is the Activity likely to change flood or tidal regimes, or be affected by flooding?	N	NA	Construction of the watercourse crossings have the potential to be impacted by flash flooding.	<ul style="list-style-type: none"> <li>All works within watercourses will be undertaken during periods of no or low flow.</li> <li>Regular consultation of weather forecasts and flood warnings to occur.</li> </ul>
4. Is the Activity likely to affect coastal processes and coastal hazards, including those projected by climate change (e.g. sea level rise)?	N	NA	NA	NA
5. Does the Activity involve the use, storage, or transport of hazardous substances or the use or generation of chemicals, which may build up	Y	Negligible	A low level of fuel usage would be required to power machinery and vehicles. No other hazardous materials would be required for the activities. Safeguards would mitigate potential impacts.	<ul style="list-style-type: none"> <li>Waste materials requiring removal from site will be classified, handled and stored on-site in accordance with the 'Waste Classification Guidelines: Part 1 Classifying Waste' (DECCW, 2009) until collection by a contractor for disposal.</li> <li>All working areas will be monitored to ensure the site and any compounds required are kept free of rubbish and cleaned at the end of each working shift.</li> </ul>



	Applicable?*	Impact level (negligible, low, medium or high; negative or positive; or NA)	Reasons (describe the type, nature and extent of impact, taking into account the receiving environment & proposed safeguards which will limit the impact)	Safeguards/mitigation measures
residues in the environment?				<ul style="list-style-type: none"> <li>Storage and handling of any dangerous goods will be undertaken in accordance with The Storage and Handling of Dangerous Goods Code of Practice 2005.</li> <li>Sufficient spill kits will always be kept on-site.</li> <li>Refuelling to be undertaken away from areas where a spill could reach watercourses.</li> </ul>
6. Does the Activity involve the generation or disposal of gaseous, liquid or solid wastes or emissions?	Y	Negligible	The proposed Activity would not generate or require the disposal of any wastes beyond standard operational volumes. Waste would be minimised with the adoption of guidelines and safeguards would mitigate potential impacts. Vegetation 'waste' would be relocated into adjacent habitat to decompose and provide fauna habitat.	<ul style="list-style-type: none"> <li>The resource hierarchy detailed by the <i>Waste Avoidance Resource Recovery Act 2001</i> will be adopted.</li> </ul>
7. Will the Activity involve the emission of dust, odours, noise, vibration or radiation in the proximity of residential or urban areas or other sensitive locations?	Y	Low: Negative (short term)	The proposed Activity would not involve the generation of dust, noise or vibration beyond standard operational levels. Safeguards would mitigate potential impacts. No permanent sensitive receivers are located within 200 m of the Activity, and measures taken to reduce impacts to park visitors.	<ul style="list-style-type: none"> <li>All works will be undertaken in accordance with the Interim Construction Noise Guideline (DECC, 2009) and within recommended standard hours of construction.</li> <li>Notification of any significant impacts to visitor facilities will be provided at least five days prior to the commencement of construction activities.</li> <li>The construction team will be briefed to create awareness of the locality of sensitive receivers and the importance of minimising noise emissions.</li> <li>Mufflers and appropriate covers will be fitted to all plant and machinery used during the works where appropriate.</li> <li>The contractor will be required to minimise and contain noise outputs using best practice (e.g. by avoiding generating unnecessary noise on-site) and high-quality plant and equipment.</li> </ul>

\* If yes, check box and all columns need to be completed. If no, leave unchecked and write 'NA' in the third and fourth columns.

## 8.2 Biological Impacts During Construction and Operation

	Applicable?*	Likely impact (negligible, low, medium or high; negative or positive; or NA)	Reasons (describe the type, nature and extent of the impact, the nature of the receiving environment and any proposed safeguards which will limit the impact)	Safeguards/mitigation measures
1. Is any vegetation to be cleared or modified? (includes vegetation of conservation significance or cultural landscape value)	Y	Low: Negative (long term)	<p>The proposed activities will require clearing of vegetation as summarised in Table 3.</p> <p>Vegetation impacts are considered low in the context of the three parks in that clearing impacts are discrete, of low impact and would not result in the removal of mature trees or result in canopy disturbance. Clearing impacts are unlikely to significantly affect vegetation structure or integrity.</p>	<ul style="list-style-type: none"> <li>Limiting impacts on adjacent areas of native vegetation (e.g. by installation of temporary fencing or flagging).</li> </ul>
2. Is the Activity likely to have a significant effect on threatened flora species, populations, or their habitats, or area of outstanding biodiversity value (refer to threatened species assessment of significance (5 part test))?	Y	Low: Negative (long term)	<p>Impacts to habitat for threatened flora species will occur from track construction along several parts of the TBHT (refer to <i>Natural Heritage Values Assessment - Appendix A</i>).</p> <p>Tests of significance determined that the TBHT would be unlikely to significantly impact on habitat for any threatened flora species.</p> <p>However, there is the potential for walkers to introduce pathogens that will adversely affect threatened species. This can be managed (see safeguards in 8.2.8).</p>	<ul style="list-style-type: none"> <li>Limiting impacts on adjacent areas of native vegetation (e.g. by installation of temporary fencing or flagging).</li> <li>Developing an 'unexpected finds' procedure for threatened flora or fauna features to reduce impacts and establish protocols for reconsideration or re-design of construction processes.</li> <li>Re-survey and flagging of threatened flora (given that flagging completed for this report may be removed or deteriorate) prior to construction.</li> <li>Have field ecologists work collaboratively with the construction contractor in sensitive habitats to avoid any impacts to threatened flora.</li> <li>Developing and implementing measures to minimise the potential for the spread of Myrtle Rust. This is best completed by preparation of a project specific Myrtle Rust Management Plan to cover the construction phases and operational phases of the project, based on recent best practice guidelines (refer DPIE 2020).</li> <li>Seedlings of affected Tree Guinea Flower (<i>Hibbertia</i></li> </ul>

	Applicable?*	Likely impact (negligible, low, medium or high; negative or positive; or NA)	Reasons (describe the type, nature and extent of the impact, the nature of the receiving environment and any proposed safeguards which will limit the impact)	Safeguards/mitigation measures
				<p><i>hexandra</i>) are salvaged and replanted within adjacent habitat to the trail footprint.</p> <ul style="list-style-type: none"> <li>Salvage/ translocation of small plants (e.g. palms, tree ferns) is completed where practical.</li> </ul>
3. Does the Activity have the potential to endanger, displace or disturb fauna (including fauna of conservation significance) or create a barrier to their movement?	Y	Low: Negative (short term)	During the construction process, temporary disturbance to fauna will occur from vegetation clearing and disturbance and from noise, plant and personnel. No barriers to movement would occur, and fauna would retain the ability to disperse freely throughout the construction footprint.	<ul style="list-style-type: none"> <li>Pre-clearing surveys (to minimise impacts on fauna habitat such as active nests or dreys) and identification of any fauna features (eg. Brush Turkey mounds) which may require minor track realignment.</li> </ul>
4. Is the Activity likely to have a significant effect on threatened fauna species, or their habitats, or areas of outstanding biodiversity value (refer to threatened species assessment of significance (5 part test))?	Y	Low: Negative	<p>Nominal impacts to habitat for threatened fauna species will occur from trail construction along several parts of the TBHT (refer to <i>Natural Heritage Values Assessment - Appendix A</i>).</p> <p>Tests of significance determined that the TBHT would be unlikely to significantly impact on habitat for any threatened fauna species.</p>	As above.
5. Is the Activity likely to impact on an ecological community of conservation significance?	Y	Low: Negative	<p>Areas of New England Blackbutt forest are considered of conservation significance given high elevation areas within Nightcap and Mt Jerusalem NPs are likely to represent the most easterly geographic range of this community. Impacts on this community are very low, given the low levels of construction required.</p> <p>No other vegetation communities are of particular conservation significance. For threatened ecological</p>	<ul style="list-style-type: none"> <li>Limiting impacts on adjacent areas of native vegetation (e.g. by installation of temporary fencing or flagging).</li> </ul>

	Applicable?*	Likely impact (negligible, low, medium or high; negative or positive; or NA)	Reasons (describe the type, nature and extent of the impact, the nature of the receiving environment and any proposed safeguards which will limit the impact)	Safeguards/mitigation measures
			communities refer below.	
6. Is the Activity likely to have a significant effect on an endangered ecological community or its habitat (refer to threatened species assessment of significance (5 part test))?	Y	Low: Negative	Impacts to areas of Lowland Rainforest Threatened Ecological Community (nationally listed as critically endangered) will occur from trail construction along several parts of the TBHT (refer to <i>Natural Heritage Values Assessment - Appendix A</i> ).  Tests of significance determined that the TBHT would be unlikely to significantly impact on lowland rainforest.	<ul style="list-style-type: none"> <li>Limiting impacts on adjacent areas of native vegetation (e.g. by installation of temporary fencing or flagging).</li> </ul>
7. Is the Activity likely to cause a threat to the biological diversity or ecological integrity of an ecological community?	Y	Low: Negative	All ecological communities traversed by the TBHT occur extensively within the three reserves. The Activity would result in minor discreet disturbance within these communities and would be unlikely to significantly impair ecological integrity and function.	Avoidance and mitigation strategies as identified above.
8. Is the Activity likely to introduce noxious weeds, vermin, feral species or genetically modified organisms into an area?	Y	Low: Negative	The Activity would be unlikely to introduce new weeds or pests to the site which would significantly impact biodiversity values, with the adoption of appropriate mitigation measures.	<p>Construction safeguards:</p> <ul style="list-style-type: none"> <li>Measures will be implemented during construction works so that machinery and plant do not introduce weed seed, pests or propagules to the site (e.g. by adoption and implementation of the 'Arrive Clean, Leave Clean' guidelines (DoE 2015).</li> <li>Prior to construction works commencing, areas of known weed infestations (introduced grasses, Lantana) will be treated by a qualified operator to reduce the spread of weed seed.</li> <li>Measures will be implemented during construction works to ensure hygiene protocols for minimising the introduction and spread of Myrtle Rust/ Chytrid Fungus/ Cinnamon Fungus are developed and maintained in</li> </ul>

	Applicable?*	Likely impact (negligible, low, medium or high; negative or positive; or NA)	Reasons (describe the type, nature and extent of the impact, the nature of the receiving environment and any proposed safeguards which will limit the impact)	Safeguards/mitigation measures
				<p>accordance with current best practice and/or NPWS policies or guidelines (e.g. Saving Our Species Hygiene Guidelines DPIE 2020).</p> <ul style="list-style-type: none"> <li>■ To minimise transmission of Cinnamon Fungus/ Myrtle Rust, materials will be sourced from clean sites where these pathogens are absent.</li> <li>■ All construction materials and plant/ equipment will be certified to come from areas free of any known Yellow Crazy Ant infestations.</li> </ul> <p>Operational safeguards:</p> <ul style="list-style-type: none"> <li>■ Weeds are controlled/ managed as required.</li> <li>■ The TBHT website provides details on appropriate protocols to reduce spreading weeds along the TBHT.</li> <li>■ Installation of shoe cleaning stations (with signage and information provided both on site and on the TBHT website) to reduce the spread of weeds.</li> <li>■ Shoe cleaning stations are maintained appropriately.</li> <li>■ Information on appropriate Myrtle Rust minimisation measures is provided on the TBHT website and updated according to new information/best practice.</li> <li>■ Feral animal baiting (wild dogs, foxes) is completed as required.</li> </ul>
9. Is the Activity likely to affect any declared area of outstanding biodiversity value?	N	NA	NA	NA
10. Is the Activity consistent with any applicable recovery plans	Y	Low: Negative (long term)	Approved recovery plans have been prepared for several threatened species within the TBHT area (refer to <i>Natural Heritage Values Assessment - Appendix A</i> ). While	Avoidance and mitigation strategies as identified above.



	Applicable?*	Likely impact (negligible, low, medium or high; negative or positive; or NA)	Reasons (describe the type, nature and extent of the impact, the nature of the receiving environment and any proposed safeguards which will limit the impact)	Safeguards/mitigation measures
or threat abatement plans?			vegetation/habitat loss for the TBHT is inconsistent (to some degree) with approved recovery plans, impacts are minor within the context of the three reserves.	
11. Is the Activity likely to affect any environmental asset of intergenerational significance under the NPW Act?	Y	Low: Negative	<p>The Activity is unlikely to significantly impact any of the three mapped environmental assets of intergenerational significance listed under the NPW Act (being Peach Myrtle, Coast Euodia and Koala) as:</p> <ul style="list-style-type: none"> <li>■ No known areas of Coast Euodia were recorded along the TBHT.</li> <li>■ No Peach Myrtle will be directly impacted. While infection by Myrtle Rust poses a significant risk of hampering reproductive success, prescribed mitigation measures will minimise the likelihood of Myrtle Rust infection.</li> <li>■ Dispersal ability for the Koala would not be impaired over the home ranges occupied by the species. The TBHT would not result in any loss of mature trees and human impacts from the operation of the TBHT are likely to be minor and represent a relatively low intensification of use in the reserves which would be unlikely to affect foraging or breeding behaviours.</li> <li>■ The TBHT utilises an existing walking track (Historic Nightcap Track). Any amendments to the track will be constructed sensitively (by hand) and erosion and sediment controls will be established and maintained for the duration of construction to ensure environmental impacts are minimised.</li> </ul>	<ul style="list-style-type: none"> <li>■ Limiting impacts on adjacent areas of native vegetation (e.g. by installation of temporary fencing or flagging).</li> <li>■ Developing an 'unexpected finds' procedure for threatened flora or fauna features to reduce impacts and establish protocols for reconsideration or re-design of construction processes.</li> <li>■ Re-survey and flagging of threatened flora (given that flagging completed for this report may be removed or deteriorate) prior to construction.</li> <li>■ Have field ecologists work collaboratively with the construction contractor in sensitive habitats to avoid any impacts to threatened flora.</li> <li>■ Developing and implementing measures to minimise the potential for the spread of Myrtle Rust. This is best completed by preparation of a project specific Myrtle Rust Management Plan to cover the construction phases and operational phases of the project, based on recent best practice guidelines (refer DPIE 2020).</li> </ul> <p>The full suite of mitigation measures are listed in <b>Section 7.4</b> of the Natural Heritage Values Assessment (refer to <b>Appendix A</b>).</p>

### 8.3 Community Impacts During Construction and Operation

	Applicable*	Likely Impact (negligible, low, medium or high; negative or positive; or NA)	Reasons (describe the type, nature and extent of the impact, the nature of the receiving environment and any proposed safeguards which would limit the impact)	Safeguards/mitigation measures
1. Is the Activity likely to affect community services or infrastructure?	Y	Negligible	Due to the isolated nature of the Activity, it is unlikely that any works would affect any community services or infrastructure, beyond short term disruptions to site visitors.	<ul style="list-style-type: none"> <li>Exclusion zones will be established around any overhead powerlines near the site or along access routes if pre-site work risk assessment determines it is necessary to do so.</li> </ul>
2. Does the Activity affect sites of importance to local or the broader community for their recreational or other values or access to these sites?	Y	<b>All activities</b> Low: Negative (short term) High: Positive (medium/long term)	<p>Nightcap NP, Mount Jerusalem NP and Whian Whian SCA are valued community resources utilised by both locals and visitors. The upgrade would cause minor short term disruptions as a result of the works. The Activity may require closure of existing tracks, trails and roads while the works are being undertaken.</p> <p>Once completed the works would provide high quality bushwalking infrastructure to both multi-day hikers and day visitors. The works would also improve accessibility throughout the park for ongoing maintenance.</p>	<ul style="list-style-type: none"> <li>Notification of any site closures and impacts to visitor facilities will be provided in advance prior to the commencement of construction activities via the NPWS website.</li> <li>Erect traffic management control measures or barricades as per approved Traffic Control Plan (TCP).</li> </ul>
3. Is the Activity likely to affect economic factors, including employment, industry and property value?	Y	<b>All activities</b> Low: Negative (short term) High: Positive (medium/long term)	In the short term the works and any temporary access restrictions may potentially impact commercial tour operations operating within Nightcap NP. However, once completed it is expected that the facilities would generate significant tourism to the benefit of both park operators and commercial tour operators.	<ul style="list-style-type: none"> <li>Provide advance notice to commercial operators, a minimum of 12 weeks prior to works commencing.</li> </ul>
4. Is the Activity likely to have an impact on the safety of the community?	Y	Medium: Positive	The Activity would result in greater ability to manage tourist activities at the site, provide safer and enhanced visitor experiences and reduce site risks for staff, volunteers, contractors and park visitors.	<ul style="list-style-type: none"> <li>Notification of any site closures and impacts to visitor facilities would be provided in advance prior to the commencement of construction activities via the NPWS website.</li> </ul>
5. Is the Activity likely to cause a bushfire risk?	Y	<b>All activities</b> Negligible	During construction safeguards will mitigate potential impacts. Ongoing operation of the facilities will be in accordance with the parks' fire management	<ul style="list-style-type: none"> <li>No burning of timber or other wastes will occur during construction and operational phases.</li> </ul>

	Applicable*	Likely Impact (negligible, low, medium or high; negative or positive; or NA)	Reasons (describe the type, nature and extent of the impact, the nature of the receiving environment and any proposed safeguards which would limit the impact)	Safeguards/mitigation measures
			strategies, including consideration of closure of the park during times of high bushfire risk. The plan of management (as amended) prohibits open fires at the camps.	<ul style="list-style-type: none"> <li>Contingencies to address the risk of bushfire including spark arrestors and suspending works in high bushfire danger periods.</li> <li>The TBHT will be closed to patrons during periods of Extreme or Catastrophic Fire Danger.</li> <li>No campfires are permitted on the TBHT, consistent with the plan of management.</li> </ul>
6. Will the Activity affect the visual or scenic landscape?  This should include consideration of any permanent or temporary signage (e.g. signs advertising an event and related sponsorship).	Y	<p><b>All activities</b> Negligible (short term)</p> <p><b>All activities</b> Low: Positive (medium/long term)</p>	Short term changes to visual amenity of the parks would be expected throughout construction. However following construction, any signs of disturbance would reduce over time as construction areas 'settle'. Furthermore, the design of the facilities is low impact and will blend with the natural environment. The upgrade would result in a significant improvement in the visual amenity and accessibility of the scenery of the parks for campers and day visitors.	<ul style="list-style-type: none"> <li>The final landform will be designed to improve the visual amenity of the site.</li> </ul>
7. Is the Activity likely to cause noise, pollution, visual impact, loss of privacy, glare or overshadowing to members of the community, particularly adjoining landowners?	Y	<b>All activities</b> Low: Negative (short-term)	<p>Works in the southern portion of the TBHT may cause short-term disruptions to site visitors at Minyon Falls/Rummery Park. Safeguards will mitigate additional potential impacts. No other community members or landowners would be impacted.</p> <p>Nightcap Road passes through several private properties. The road will only be used during the construction period and for general maintenance (and emergency access). All relevant landowners are aware of these impacts and a legal agreement for use of the road will be established.</p>	<ul style="list-style-type: none"> <li>All works will be undertaken in accordance with the Interim Construction Noise Guideline (DECC, 2009) and within recommended standard hours of construction.</li> <li>Notifications of any impacts to normal camping or visitor access would be displayed at least five days prior to the commencement of construction activities.</li> <li>Briefing of the construction team to create awareness of the locality of sensitive receivers and the importance of minimising noise emissions.</li> <li>Mufflers and appropriate covers will be fitted to all plant and machinery used during the works where appropriate.</li> <li>The contractor will be required to minimise and contain noise outputs using best practice (e.g. by avoiding generating unnecessary noise onsite) and high-quality</li> </ul>

	Applicable*	Likely Impact (negligible, low, medium or high; negative or positive; or NA)	Reasons (describe the type, nature and extent of the impact, the nature of the receiving environment and any proposed safeguards which would limit the impact)	Safeguards/mitigation measures
				plant and equipment. ■ Use of Nightcap Road will be subject to conditions in landowner use agreements.

## 8.4 Natural Resource Impacts During Construction and Operation

	Applicable*	Likely Impact (negligible, low, medium or high; negative or positive; or NA)	Reasons (describe the type, nature and extent of the impact, the nature of the receiving environment and any proposed safeguards which would limit the impact)	Safeguards/mitigation measures
1. Is the Activity likely to result in the degradation of the park or any other area reserved for conservation purposes?	Y	<b>All Activities</b> Medium: Negative (short term) Low: Positive (long term)	The proposed Activity will require the removal of native vegetation for the construction of the camps and the walking trail and side tracks (refer <b>Section 9.2</b> ). The TBHT has been sited to avoid impact to any significant flora or fauna and is of a design that fits with the landscape to minimise impacts. The works would improve accessibility throughout areas of the park and allow for better management of the park and visitors.	None required.
2. Is the Activity likely to affect the use of, or the community's ability to use, natural resources?	N	NA	NA	NA
3. Is the Activity likely to involve the use, wastage, destruction or depletion of natural resources including water, fuels, timber or	N	NA	NA	NA

	Applicable*	Likely Impact (negligible, low, medium or high; negative or positive; or NA)	Reasons (describe the type, nature and extent of the impact, the nature of the receiving environment and any proposed safeguards which would limit the impact)	Safeguards/mitigation measures
extractive materials?				
4. Does the Activity provide for the sustainable and efficient use of water and energy?	Y	<b>All activities</b> Negligible	The Activity will include the installation of rainwater tanks at each camp.	None required.



## 8.5 Aboriginal Cultural Heritage Impacts During Construction and Operation

	Applicable*	Likely Impact (negligible, low, medium or high; negative or positive; or NA)	Reasons (describe the type, nature and extent of the impact, the nature of the receiving environment and any proposed safeguards which would limit the impact)	Safeguards/mitigation measures
1. Will the Activity disturb the ground surface or any culturally modified trees?	Y	Medium	<p>Track works and camp construction will require ground disturbance and minor excavation/removal of soil and rock.</p> <p>No works will occur in proximity to any culturally modified trees.</p>	<ul style="list-style-type: none"> <li>■ If suspected Aboriginal material has been uncovered because of development activities within the Project Area:               <ul style="list-style-type: none"> <li>a. work in the surrounding area is to stop immediately</li> <li>b. a temporary fence is to be erected around the site, with a buffer zone of at least 10 m around the known edge of the site</li> <li>c. an appropriately qualified archaeological consultant is to be engaged to identify the material</li> <li>d. if the material is found to be of Aboriginal origin, the Aboriginal community is to be consulted in a manner as outlined in the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010)</li> <li>e. should the works be deemed to have harmed the Aboriginal objects the Heritage NSW should be notified immediately via the NSW Environment Line.</li> </ul> </li> <li>■ Aboriginal site monitors are engaged to support the unexpected find procedure at each camp to assist construction staff to identify Aboriginal objects should they be present.</li> <li>■ Although it is unlikely that Aboriginal Human Remains will be located at any stage during earthworks within the Project Area, should this event arise it is recommended that all works must halt in the immediate area to prevent any further impacts to the remains.</li> <li>■ All NPWS staff and contractors would be made aware of their responsibilities under the NPW Act and made aware of appropriate procedures in the event of Aboriginal objects or</li> </ul>

	Applicable*	Likely Impact (negligible, low, medium or high; negative or positive; or NA)	Reasons (describe the type, nature and extent of the impact, the nature of the receiving environment and any proposed safeguards which would limit the impact)	Safeguards/mitigation measures
				remain being discovered during the construction process.
2. Does the Activity affect known Aboriginal objects or Aboriginal places?	Y	Low	Aboriginal objects or places have been avoided through a combination project design (and re-design) and consultation.	<ul style="list-style-type: none"> <li>As above</li> </ul>
3. Is the Activity located within, or will it affect, areas: <ul style="list-style-type: none"> <li>within 200m of water*</li> <li>within a sand dune system*</li> <li>on a ridge top, ridge line or headland</li> <li>within 200m below or above a cliff face</li> <li>within 20m of or in a cave, rock shelter or a cave mouth?</li> </ul> *See the <a href="#">Guidelines for Preparing a REF</a> for definitions. If Aboriginal objects or landscape features are present, can impacts be avoided?	Y	Medium	<p>The THBT passes through culturally significant Aboriginal country with a long history of use, including these landscapes with a high likelihood of Aboriginal occupation and use.</p> <p>Through a detailed consultation process, the TBHT has been designed to the satisfaction of traditional owners and custodians and appropriate safeguards prescribed.</p> <p>Impacts to Aboriginal objects and places have been avoided via the design and consultation process</p>	<ul style="list-style-type: none"> <li>As above</li> </ul>
4. Is the Activity likely to affect wild resources or access to these resources, which are used or valued by the Aboriginal community?	Y	Low	The construction and operation of the TBHT would be unlikely to significantly affect resources which may be used by the Aboriginal community.	None required.

## 8.6 Other Cultural Heritage Impacts During Construction or Operation

	Applicable*	Likely Impact (negligible, low, medium or high; negative or positive; or NA)	Reasons (describe the type, nature and extent of impact, taking into account the receiving environment & proposed safeguards which would limit the impact)	Safeguards/mitigation measures
1. What is the impact on places, buildings, landscapes or moveable heritage items?	N	NA	NA	NA
2. Is any vegetation of cultural landscape value likely to be affected (e.g. gardens and settings, introduced exotic species, or evidence of broader remnant land uses)?	N	NA	NA	NA

## 8.7 Matters of National Environmental Significance under the EPBC Act

	Applicable*	Impact level (negligible, low, medium or high; negative or positive; or NA)	Reasons (describe the type, nature and extent of impact, taking into account the receiving environment & proposed safeguards which would limit the impact)	Safeguards/mitigation measures
Is the Activity likely to impact on matters of national environmental significance as follows:				
<ul style="list-style-type: none"> <li>■ listed threatened species or ecological communities</li> </ul>	Y	Low	The minor nature of the Activity would not significantly affect habitat for any threatened species (refer to Significance Impact Assessments in <i>Natural Heritage Values Report - Appendix A</i> ).	Refer to <b>Table 9.2</b> .
<ul style="list-style-type: none"> <li>■ listed migratory species</li> </ul>	Y	Low	The low impacts of the Activity in a local context is not likely to affect habitat or migratory pathways for any migratory species.	None required.
<ul style="list-style-type: none"> <li>■ the ecology of Ramsar wetlands</li> </ul>	N	NA		
<ul style="list-style-type: none"> <li>■ Commonwealth marine environment</li> </ul>	N	NA		
<ul style="list-style-type: none"> <li>■ world heritage values of world heritage properties</li> </ul>	Y	Negligible	Approximately 5 km of the TBHT occurs within a World Heritage Area (Gondwana Rainforests of Australia) within Nightcap NP. The Activity would require negligible disturbance of the ~ 4,900 ha of the WHA and would not significantly impact upon the values of the Gondwana Rainforests of Australia (refer to <i>Natural Heritage Values Report - Appendix A</i> ).	Refer to <b>Table 9.2</b> and <b>Table 9.5</b>
<ul style="list-style-type: none"> <li>■ the national heritage values of national heritage places</li> </ul>	Y	Negligible	As above	Refer to <b>Table 9.2</b> and <b>Table 9.5</b>

## 8.8 Cumulative impacts

The Activity is part of a larger NPWS project that included the establishment of a formal day-use area at Manns Road in Mount Jerusalem National Park and significant upgrade of the lookout, picnic area and carparking at Minyon Falls. These proposals have been covered by separate REFs and works have been completed. The total additional area of vegetation clearing from these components of the project is: 2.5ha.

Other NPWS works in the vicinity of the proposal include concerted weed and feral animal control following the 2019-20 bushfires.

Nightcap National Park was severely affected by the 2022 storm events. Minyon Grass picnic area and Minyon Falls walking track suffered multiple landslips on very steep terrain. Geotechnical assessment will be used to determine the stability of the underlying soil and rock, and is an important step to inform the rebuilding process. These areas will remain closed until the end of June 2023. Subject to the outcomes of the geotechnical assessment, their repair will involve additional vehicle movement on Minyon Falls Road.

Surrounding Councils are still in the process of carrying out extensive road repairs following the 2022 flood events. Byron Shire's re-sealing of Minyon Falls Road, including sealing approximately 240 m of the road in Nightcap National Park (with consent of NPWS), has re-established access to the upgraded Minyon Falls picnic area and Rummery Park campground.

When considered with other projects, is the proposed activity likely to affect...	Applicable? *	Impact level (negligible; or low, medium or high adverse; or positive; or NA)	Reasons (describe the type, nature and extent of impact, taking into account the receiving environment & proposed safeguards which will limit the impact)	Safeguards/mitigation measures
1. natural landscape or biodiversity values through cumulative impacts?	Y	Low negative	Some minor additional clearing of native vegetation but also larger loss of native vegetation due to landslips and other damage from the early 2022 storm and flood events.	See 8.2 above
2. cultural (Aboriginal, shared and historic heritage) values through cumulative impacts?	Y	Negligible	Aboriginal communities have been closely involved in all stages of the project, including the upgrade at Minyon Falls and the creation of the Unicorn Falls day use area. No cultural values are at risk.	See 8.5 above
3. social (amenity, recreation, education) values through cumulative impacts?	Y	Low negative (short-term); High positive (medium-long term)	When completed, the additional walking track and campgrounds will serve to disperse the crowds at Minyon Falls. However, in the short-term, the Activity may require closure of existing tracks, trails and roads while the works are completed, at a time when other tracks and trails are closed due to flood damage.	See 8.3 above



When considered with other projects, is the proposed activity likely to affect...	Applicable? *	Impact level (negligible; or low, medium or high adverse; or positive; or NA)	Reasons (describe the type, nature and extent of impact, taking into account the receiving environment & proposed safeguards which will limit the impact)	Safeguards/mitigation measures
4. the community through cumulative impacts on any other part of environment (e.g. due to traffic, waste generation or perceived over-development??	Y	Low negative (construction phased only)	Minor additional traffic on local roads. The TBHT aims to be low key and is suited to the remote setting of the parks and so would not be perceived as over-development..	

## 9. Summary of Impacts and Conclusion

Category of Impact	Significance of Impacts		
	Extent of Impact	Nature of Impact	Environmentally Sensitive Features
<b>Physical and chemical</b>	Low adverse.	Vegetation clearing: permanent impacts which are minor in the context of the three reserves. Minor soil disturbance.	Watercourses, threatened species habitat.
<b>Biological</b>	Low adverse.	Vegetation clearing: permanent impacts which are minor in the context of the three reserves.	Habitat for threatened species and communities.
<b>Natural resources</b>	Negligible.	Minor.	Negligible.
<b>Community</b>	Low adverse.	Minor and short term. Safeguards would mitigate impacts.	Park users, indigenous community and adjacent landowners.
<b>Cultural heritage</b>	Negligible.	Minor.	Culturally sensitive sites avoided via assessment consultation process.

In conclusion:

- there is not likely to be a significant effect on the environment and so an environmental impact statement is **not** required.
- there is not likely to be a significant effect on threatened species, populations, ecological communities or their habitats and so a species impact statement is **not** required.
- the Activity is not likely to significantly impact matters of national environmental significance listed under the Commonwealth Environment Protection and Biodiversity Conservation Act and so referral to the Australian Government is **not** required.
- the Activity will not require certification to the Building Code of Australia, Disability (Access to Premises – Buildings) Standards 2010 or Australian Standards in accordance with the OEH [Construction Assessment Procedure](#).



## 10. Supporting Documentation

<b>Document title</b>	<b>Author</b>	<b>Date</b>
<i>Appendix A - Natural Heritage Values Assessment</i>	GeoLINK	20/07/2022
<i>Appendix B - Aboriginal Heritage Due Diligence Assessment Addendum</i>	Everick Heritage	14/07/2022
<i>Appendix C - Aboriginal Cultural Heritage Assessment</i>	Everick Heritage	07/05/2021
<i>Appendix D - Bridge Load Capacity Assessment</i>	Greg Alderson & Associates	29/06/2020
<i>Illustration 1.1 Locality Plan</i>	GeoLINK	20/07/2022
<i>Illustration 1.2 Site Plan</i>	GeoLINK	20/07/2022
<i>Illustration 3.1 World Heritage and Old Growth Forests</i>	GeoLINK	20/07/2022



## 11. Declaration

As the person responsible for the preparation of the REF, I certify that, to the best of my knowledge, this REF is in accordance with the EP&A Act, the EP&A Regs and the Guidelines approved under section 170 of the EP&A Regs, and the information it contains is neither false nor misleading.

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Signature

Name (printed)

Position

Date

The REF must also be certified by the **proponent**. Where NPWS Park Operations is the proponent, the REF must be endorsed by the Area Manager as the proponent.

**By endorsing the REF, the proponent confirms that the information in the REF is accurate and adequate to ensure that all potential impacts of the activity can be identified.**

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Signature

Name (printed)

Position

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## References

Byron Shire Council (2020) [Local Strategic Planning Statement](#), Byron Shire Council website, accessed 26 August 2022

Department of Planning and Environment (DPE) (2017) [North Coast Regional Plan 2036](#), NSW Department of Planning and Environment website, accessed 26 August 2022.

Lismore City Council (2020) [Inspire Lismore 2040: Local Strategic Planning Statement](#), Lismore City Council website, accessed 26 August 2022

GeoLINK (2022). *Natural Heritage Values Assessment - Tweed Byron Hinterland Trail*. Report to NPWS.

Greg Alderson & Associates (2020). *Bridge Load Capacity Assessment. Sand Ridge Road, Mount Jerusalem National Park*. Report to NPWS.

Hill, T., A. Piper, R. Mazlin & M. Finlayson (2021). *Tweed Byron Hinterland Trail, Nightcap Range NSW: Aboriginal Cultural Heritage Assessment*. Everick Heritage Pty Ltd unpublished report prepared for NSW National Parks and Wildlife Service.

NPWS( 2019a) *Parks and Reserves of the Tweed Caldera Plan of Management*

NPWS (2019b) *Whian Whian State Conservation Area Plan of Management*).

NPWS (2022). *Master Plan - Tweed Byron Hinterland Trail*.

Riley, S. & A. Piper. (2022). *Tweed Byron Hinterland Trail Addendum. Aboriginal Heritage Due Diligence Assessment*. Everick Heritage Pty Ltd unpublished report prepared for National Parks and Wildlife Service.

Tweed Shire Council (2020) [Local Strategic Planning Statement](#), Tweed Shire Council website, accessed 26 August 2022.

Add second bridge report





## Appendix A

# Natural Heritage Values Assessment



## **Appendix B**

# **Aboriginal Heritage Due Diligence Assessment Addendum**



## Appendix C

# Aboriginal Cultural Heritage Assessment



## Appendix D

# Bridge Load Capacity Assessment