

BAXTER TRACK AND PARKLANDS NORTH REF

Prepared for Hunter and Central Coast
Development Corporation

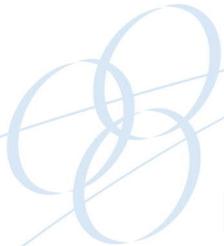
Prepared by EPS

**LOT 521, DP1017539 AND LOT 1022, DP1268228
MOUNT PENANG PARKLANDS, KARIONG, NSW**

EPS

Reference No. 11520 August 2021

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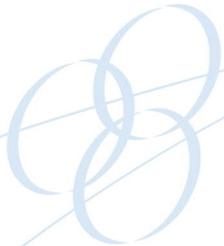


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DECLARATION

This Review of Environmental Factors provides a true and fair review of the activity in relation to its likely impact on the environment. It addresses to the fullest extent possible, all the factors listed in Clause 228 of the *Environmental Planning and Assessment Regulation Act* (as amended) and the Commonwealth Environmental Protection and Biodiversity Conservation Act (as amended).

Signed: 

Name: Alina Tipper

Position: Senior Environmental Consultant, EPS

Date: 17/08/2021



REF SIGNING PAGE

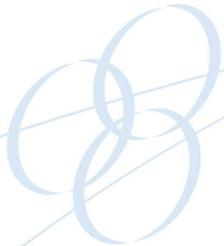
I, Anita Mitchell, Chief Executive of the Hunter and Central Coast Development Corporation, have examined and considered the Baxter Track and Parklands North Review of Environmental Factors in accordance with the provisions of s5.5 of the *Environmental Planning and Assessment Act 1979* and the *State Environmental Planning Policy (Infrastructure) 2007* and determine that the proposed development may be carried out as development without consent, subject to compliance with the conditions to manage environmental impacts outlined within the REF.

Signed: 

Name: Anita Mitchell

Position: Chief Executive of the Hunter and Central Coast Development Corporation

Date: 17 November 2021



EXECUTIVE SUMMARY

OVERVIEW

Hunter and Central Coast Development Corporation (HCCDC) is both the proponent of the proposal (i.e. the body proposing to carry out the proposal) and the public authority determining authority. HCCDC must comply with the legal provisions relating to both. This means that HCCDC can both prepare and review any environmental assessment document required under Part 5 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

HCCDC has completed this Review of Environmental Factors (REF) to consider the potential impacts and benefits of the construction and operation of a road upgrade and extension and associated infrastructure (the proposal) on Mount Penang Parklands.

The REF has been prepared in accordance with the provisions of Part 5 of the EP&A Act and will be used to assist HCCDC to examine and take into account all matters affecting or likely to affect the environment by reason of the proposed activity, and to determine whether an Environmental Impact Statement is required.

STRATEGIC CONTEXT FOR THE PROPOSAL

HCCDC was established by the *Growth Centres (Development Corporations) Act 1974* as an NSW Government Agency. HCCDC is responsible for promoting, co-ordinating, managing and securing the orderly and economic development of Mount Penang Parklands.

HCCDC owns and manages the Mount Penang Parklands. The site is situated adjacent to the M1 Sydney/ Newcastle on the Pacific Highway exit ramp to Gosford, about 70kms from the Sydney CBD and 10-minute drive west from the centre of Gosford.

The Mount Penang Parklands is currently zoned SP1 Special Activities under the *Gosford Local Environmental Plan 2014* (GLEP 2014) with a number of prescribed purposes for the land. The location of the various prescribed purposes is refined in the Gosford Development Control Plan 2013 (GDGP 2013).

To improve public access and service to the site and Frank Baxter Juvenile Justice Centre, HCCDC is facilitating the redevelopment of Baxter Track (including intersection with Kangaroo Road) and Parklands Road in line with Part 5.3.3.6 of Gosford Development Control Plan 2013.



THE PROPOSAL

The proposal involves the construction and operation of roads, existing road widening, and water, drainage and sewage services installation in the location shown on the indicative proposal plans attached as Appendix 1, primarily being:

- Baxter Track;
- Kangoo Road intersection with Baxter Track; and
- Parklands Road extension from McCabe Road to Baxter Track.

CONSTRUCTION TIMEFRAME

The proposal is forecast to start in approximately late 2021. The anticipated timeframe is as follows:

- Stage 1 – Baxter Track: 6 – 18 months from late 2021.
- Stage 2 – Parklands North: 24 months from late 2021.

PERMISSIBILITY

Under the *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP) HCCDC as a public authority may carry out defined infrastructure works described under the Infrastructure SEPP without consent. HCCDC's proposal falls within the following categories: 'roads and traffic', 'sewerage systems', 'stormwater management systems', and 'water supply systems' as defined under the Infrastructure SEPP and therefore can be carried out without consent by HCCDC as a public authority.

ENVIRONMENTAL IMPACT ASSESSMENT

An environmental assessment has been completed to consider whether the proposal is likely to significantly affect the environment. The assessment included assessment of soils and geology, hydrology, water quality & flooding, ecology, noise and vibration, air quality, non-Indigenous heritage, Aboriginal heritage, visual amenity, traffic and access, services and utilities, land uses, waste and resources and cumulative and consequential impacts.

This REF identified the proposal would have potential beneficial environmental impacts with the road and utility/services upgrades facilitating the future sustainable economic growth in the Project area for the benefit of the Central Coast LGA. The proposal would have a positive impact through improved access to the site.

This REF identified the key potential environmental adverse impacts associated with the proposal were:

- Noise emissions during construction;
- Visual impacts to nearby receivers during construction;

- 
- Traffic and access impacts during construction; and
 - Disruption to the use of land by some users of the Mount Penang Parklands.

The adverse impacts are confined to the construction period which is expected to be short term and within manageable limits. The adverse impacts would also be mitigated by construction management strategies implemented via a Construction Environmental Management Plan (CEMP) that would include specific plans for applicable environmental issues e.g.:

- Soil and Water Management Plan, including an acid sulphate soil management sub-plan, an erosion and sediment control sub-plan and groundwater and flood management subplan;
- Vegetation Management Procedure;
- Noise and Vibration Management Plan;
- Traffic Management Plan;
- Communication Management Plan; and
- Utility/Services Management Plan.

Based on the assessment of the proposal, and the mitigation measures proposed, the proposal is not likely to significantly affect the environment and therefore does not require the preparation of an Environmental Impact Statement (EIS).

COMMUNITY AND STAKEHOLDER CONSULTATION

Community and stakeholder consultation for the proposal is being undertaken by HCCDC and will continue until the proposal is completed to minimise any impacts during the construction phase.

REF CONCLUSION

In accordance with the requirements of Part 5 of the EP&A Act and the EP&A Regulation the proposal has been fully assessed. Based on the assessment of the proposal, and the mitigation measures proposed, the proposal is not likely to significantly affect the environment and therefore does not require the preparation of an Environmental Impact Statement (EIS).

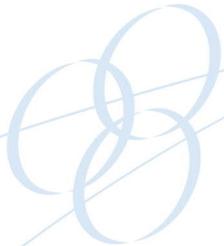
This REF includes an assessment of whether the proposal is likely to have a significant impact to matters of national environmental significance under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The proposal is not likely to have a significant impact on matters of national environmental significance and therefore referral to the Commonwealth Government under the EPBC Act would not be required.



As defined by the *Biodiversity Conservation Act 2016* the proposal is not expected to have significant impacts on threatened species, populations, ecological communities or their habitats consequently a species impact statement is not required.

The Aboriginal Heritage Due Diligence Assessment revealed an Aboriginal Heritage Impact Permit is not required.

The Statement of Heritage Impact revealed approval under the Heritage Act is required.



1. INTRODUCTION

Hunter and Central Coast Development Corporation (HCCDC) was established by the *Growth Centres (Development Corporations) Act 1974* as an NSW Government Agency. HCCDC is responsible for promoting, co-ordinating, managing and securing the orderly and economic development of the Mount Penang Parklands.

HCCDC owns and manages Mount Penang Parklands including land legally described as Lot 521, DP1017539, Lot 1022, DP1268228 and Lot 475, DP823714. The Mount Penang Parklands is situated adjacent to the M1 Sydney/ Newcastle on the Pacific Highway exit ramp to Gosford, about 70kms from the Sydney CBD and 10-minute drive west from the centre of Gosford.

The 152ha Mount Penang Parklands comprises the following distinct precincts:

1. Kangoo Road Commercial Precinct (not owned by HCCDC);
2. Festival/Gardens Precinct;
3. Highway Commercial Precinct (not owned by HCCDC);
4. Bushland Precinct;
5. Baxter Track Precinct;
6. Heritage/Sports Precinct; and
7. Phillip House Precinct.

A precinct plan is provided at Figure 1-1.



Figure 1-1: Precinct Plan

The proposal involves works to upgrade the Baxter Track and its intersection with Kangoo Road, and the extension of Parklands Road from McCabe intersection north to Baxter Track.

The proposal involves works to:

- Mount Penang Parklands land owned by HCCDC;
- Land owned and managed by Central Coast Council; and
- Land owned and managed by the Department of Communities and Justice.

To drive economic growth in the region, HCCDC is facilitating the redevelopment of precincts within Mount Penang Parklands in line with Part 5.3 of Gosford Development Control Plan 2013.



To enable the future redevelopment and continued effective operation of Mount Penang precincts areas, upgrading and installing road, water, stormwater and associated services/utilities infrastructure is required.

HCCDC is both the proponent of the proposal (i.e. the body proposing to carry out the proposal) and the public authority determining authority. HCCDC must comply with the legal provisions relating to both. This means that HCCDC can both prepare and review any environmental assessment document e.g. Review of Environmental Factors (REF), required under Part 5 of the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act)

The REF has been prepared in accordance with the provisions of Part 5 of the EP&A Act and will be used to assist HCCDC to examine and take into account all matters affecting or likely to affect the environment by reason of the proposed activity, and to determine whether an Environmental Impact Statement (EIS) is required. Feedback from key stakeholders will be considered when HCCDC makes the determination.

1.1. PROPOSAL IDENTIFICATION

The proposal comprises:

1. **Baxter Track and Kangoo Road Intersection Roadworks** – this component of the proposal involves physical road upgrade works to Baxter Track together with associated upgrades of services/utilities in the road reserve. The road will be upgraded to meet Council requirements for a public road with the intention of dedicating to Council upon completion subject to Council concurrence.
2. **Parklands Road Extension** – this component of the proposal involves the extension of Parklands Road through the Baxter Track Precinct to intersect with the upgraded Baxter Track. The road will be upgraded to meet Council requirements for a public road with the intention of dedicating to Council upon completion subject to Council concurrence.

The proposal has been assessed in relation to the following three defined areas:

- **Project area:** This is the wider area in which the proposal is located. It provides the geographic context of the proposal.
- **Study area:** This is the study area specifically considered in detail for on-the-ground assessments (e.g. ecology and heritage).
- **Disturbance area:** This is the area which will be directly physically impacted on by the proposal.

Further detail on each of these areas is provided below.



Project area

The proposal is located on Mount Penang Parklands land within the Baxter Track Precinct, Festival/Gardens Precinct, Heritage/Sports Precinct and Kangoo Road Precinct.

The Project area includes land owned and managed by HCCDC, Central Coast Council and Department of Communities and Justice.

Study area

The Study area considered as part of the on-the-ground investigations into relevant environmental attributes for this REF is identified in Figure 1-2.

The Study area is located within the following areas:

- Baxter Track which follows the northern boundary of the Festival/Gardens Precinct and Baxter Track Precinct;
- Kangoo Road intersection with Baxter Track located on the corner of Kangoo Road Commercial Precinct and Festival/Garden Precinct;
- Land within the Festival/Gardens Precinct, Kangoo Road Commercial Precinct, Baxter Track Precinct and Heritage/Sports Precinct.

Photographs of the Study Area are shown in Appendix 2.

Disturbance area

Works for the proposal are primarily confined to disturbance areas i.e. the development footprint plus any anticipated ancillary construction impacts. The disturbance areas are identified in the plans in Appendix 1.

Throughout this document the following disturbance areas have been assessed:

1. **Baxter Track** – located in the Baxter Track Precinct and Festival/Garden Precinct. The works will be undertaken to the existing private road within the Mount Penang Parklands site and a new driveway for the justice precinct (outside the Mount Penang Parklands site).
2. **Kangoo Road Intersection**– located in the intersection of Kangoo Road and Baxter Track in the vicinity of the Kangoo Precinct and Festival/Gardens Precinct.
3. **Parklands Road** – located in the Heritage/Sports Precinct. The works to be undertaken will be the extension of the pre-existing road from McCabe Road to intersect with the upgraded Baxter Track.



Figure 1-2: Study Area Location Map



1.2. PURPOSE OF THE REPORT

Environmental Property Services (EPS) has prepared this REF on behalf of Hunter and Central Coast Development Corporation (HCCDC), the proponent of the proposal.

The REF's purpose is to provide HCCDC, the determining authority, with the required information to assess, to the fullest extent possible, all matters affecting, or likely to affect the applicable environment by the proposal's construction and operation, and to determine whether an EIS is required.

The proposal does not include any further intensification of existing uses.

1.3. BACKGROUND TO THE REF

The road and infrastructure works are development permitted without consent pursuant to the Infrastructure SEPP and HCCDC's role as a public authority.

Although the proposal does not require consent under Part 4 of the EP&A Act the proposal must be assessed under Part 5 of the EP&A Act subject to certain exceptions e.g. exempt development and Biodiversity certification, which do not apply to the proposal.



2. PROPOSAL NEED AND JUSTIFICATION

2.1. OBJECTIVES OF THE PROPOSAL

The proposal's primary objectives are to provide a road upgrade to Baxter Track to improve access for the continued effective operation of the other Mount Penang Parklands precincts. The roadworks will also provide upgraded access to Frank Baxter Juvenile Justice Centre, Kariong Intake and Transit Centre and the Parklands precinct.

2.2. OPTIONS CONSIDERED

Options considered included an alternative location for the proposal and the 'do nothing' option. These options are described in the following sections.

2.2.1. Alternative Location

The proposal includes roadworks upgrade of existing Kangoo and Baxter Track as well as an extension of the existing Parklands Road. The location of existing roads across the site have influenced the Mount Penang Parklands current urban design/ layout and are key to the Mount Penang Parklands' future development.

Relocating the existing road to a nearby alternative location would have significant impacts on the Mount Penang Parklands' current and future urban development, adjoining vegetation and built environment, including heritage items. As such, there is considered to be no alternative location for the proposed roadworks.

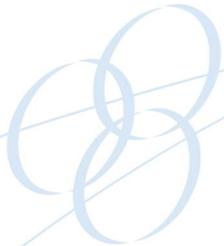
2.2.2. Do Nothing

This option involves essential infrastructure and services. The 'do nothing' option does not provide sufficient infrastructure and services to effectively provide for the Mount Penang Parklands' existing development and future redevelopment of the Mount Penang Parklands precincts.

2.3. PREFERRED OPTION JUSTIFICATION

The proposal is the preferred option for the following reasons:

- HCCDC is established by the *Growth Centres Act* as an NSW Government Agency. Section 7(1) of the *Growth Centres Act* makes HCCDC responsible for promoting, co-ordinating, managing and securing the orderly and economic development of the Project Area;
- The proposal is consistent with HCCDC's general powers prescribed by section 8(1) of the *Growth Centres Act*;

- 
- To drive economic growth in the region, HCCDC is improving access to the Baxter Track Precinct and other Precincts in line with the Central Coast Council's regional strategic planning and the specific planning controls for the Project area e.g. GDCP 2013, Part 5 Kariong, Mount Penang Parklands;
 - The proposal reflects relevant economic, environmental and social considerations. The majority of the proposal will either improve existing infrastructure and services in the same location or locate new infrastructure and services e.g. underground to facilitate the orderly and economic use of the site. The proposal will ensure the infrastructure and services are adequately provided for the future development of specified Mount Penang Parklands precincts. The proposal is consistent with the protection of the existing natural environment.

The preferred alignment has been selected based on the existing alignment of internal roads within the Mount Penang Parklands. The upgraded Baxter Track has been selected on the existing alignment of Baxter Track to minimise disturbance and impacts. The location of the extension of Parklands Road has been selected based on the existing Parklands Road and its most direct connection to Baxter Track. Locating the roads based on the existing alignments minimises fragmentation of the residual land parcels.

3. DESCRIPTION OF THE PROPOSAL

3.1. SCOPE OF CONSTRUCTION ACTIVITIES

Construction activities are required for the proposal i.e. roadworks and water and drainage infrastructure works.

The proposal’s construction activities are primarily located in the following zones:

1. **Baxter Track** – located in the Baxter Track Precinct and Festival/Garden Precinct. The works are to the existing private road within the Mount Penang Parklands Project area and a new driveway for the justice precinct (outside the Mount Penang Parklands Project area).
2. **Kangoo Road Intersection** – located in the intersection of Kangoo Road and Baxter Track in the vicinity of the Kangoo Precinct and Festival/Gardens Precinct.
3. **Parklands Road** – located in the Heritage/Sports Precinct. The works are the extension of the pre-existing road from McCabe Road to intersect with the upgraded Baxter Track.

Table 2-1 provides key elements of the proposal’s construction activities likely required for the Baxter Track/Kangoo Road roadworks and Parklands Road roadworks.

Table 2-1: Construction activities for the Baxter Track/Kangoo Road roadworks

Key Elements	Description
Pre-construction, construction and restoration physical works	<p>The works include (but are not limited to) the following key elements:</p> <ul style="list-style-type: none">• Site establishment;• Removal of trees and vegetation;• Construction of a watermain;• Trench excavation;• Full width new construction or upgrade of roads to Council minimum standard subsoil drainage, footpath formation and drainage;• Changes to the intersections to Council minimum standard;• Signage and line marking to Council’s minimum standard;• Installation of stormwater infrastructure including, kerbs, gutters, drainage pipelines, stormwater pits, gross pollutant trap;• Removal of excavated material if not suitable for re-use; and• Restoration of the works area.
Plant and Equipment	<ul style="list-style-type: none">• Excavators;• Tipper trucks;• Light vehicles;• Flat-bed delivery trucks;• Service vehicles;• Mobile cranes;• Rollers;• Skid steers;• Water carts;• Jackhammers;• Generators;

Key Elements	Description
	<ul style="list-style-type: none"> • Pressure testing equipment; • Compactor; • Concrete agitators (or similar); • Concrete pumps; • Concrete saws; • Air compressors; and • Various hand tools and small machinery.
Construction workforce	Up to approximately 15 full time equivalents for the duration of the works. The appointed contractor will determine the number of workers.
Construction period	Construction works could commence mid to late 2021. Construction works will take approximately 16 weeks.
Construction hours	Construction would generally occur during the standard working hours set out in the Interim Construction Noise Guideline (DECC, 2009): <ul style="list-style-type: none"> • Mondays to Fridays between 7am and 6pm. • Saturdays between 8am and 1pm. • No work would normally occur on Sundays or public holidays, unless outlined under an approved CEMP.
Traffic Management & Access	The appointed contractor will prepare a Construction Traffic, Transport and Access Management Plan in consultation with relevant stakeholders and in accordance with relevant standards as part of the CEMP. The traffic and transport management plan would provide information on traffic flow, vehicle moments, site access and parking arrangements during construction, and the measures to minimise the impacts on the relevant road network.
Public Utilities	Existing public utilities/services exist in the vicinity of the works. It will be the contractor's responsibility to locate all services prior to commencement of works.
Operation & Maintenance	The relevant infrastructure authority will be responsible for the ongoing maintenance and operational obligations, including fault rectification in accordance with the terms of their operating license

The indicative plan for the Baxter Track, Kangoo Road and Parklands Road roadworks is attached as Appendix 1.

The Baxter Track, Kangoo Road and Parklands Road roadworks will occur in the disturbance area within the Study area identified in Figure 1-1. Access to the disturbance area will likely be through the Kangoo Road/Baxter Track intersection and Parklands Road.

The order and timing of the construction activities is not finalised. The order and timing of the construction activities will be finalised with relevant stakeholders and the appointed construction contractor.



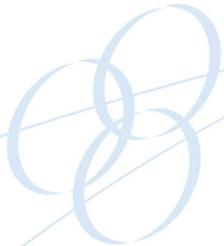
3.2. MANAGING CONSTRUCTION ACTIVITIES

A Construction Management Environmental Plan (CEMP) is required for the construction phase of this proposal. It will be prepared by the construction contractor prior to commencement of construction, incorporating relevant mitigation measures outlined in this REF.

3.3. OPERATIONAL REQUIREMENTS

Following completion of the proposed upgrade, HCCDC intend to dedicate Baxter Track to Central Coast Council (CCC). If the road reserve is not dedicated to CCC, HCCDC will continue its existing maintenance and operational obligations.

Following completion of the services/utilities infrastructure and the installation is assessed as operational, the infrastructure will become the property of the relevant infrastructure authorities supported by any necessary easements including CCC. The relevant infrastructure authority will be responsible for the ongoing maintenance and operational obligations, including fault rectification, in accordance with the terms of their operating license.



4. STATUTORY FRAMEWORK

The following Acts and Regulations are considered relevant to the proposal, are outlined in the sections below.

4.1. ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

The EP&A Act establishes the framework for assessment of environmental impacts and determining planning approvals for development in NSW. It also provides for the creation and implementation of State Environmental Planning Policies (SEPPs) and Local Environmental Plans (LEPs) which impact permissibility.

The *Growth Centres (Development Corporations) Act 1974* section 4(5) stipulates Hunter and Central Coast Development Corporation (HCCDC) as an NSW Government Agency. The *Interpretation Act 1987* section 13A classifies an NSW Government Agency as a statutory body representing the Crown. The EP&A Act section 1.4 definition of a public authority includes a statutory body representing the Crown.

Under the Infrastructure SEPP, HCCDC as a public authority may carry out defined infrastructure works described under the Infrastructure SEPP without consent (subject to preconditions, if any) on the Project Area.

Although the proposal does not require consent under Part 4 of the EP&A Act the proposal must be assessed under Part 5 of the EP&A Act subject to certain exceptions e.g. exempt development and Biodiversity certification, which do not apply to the proposal.

A precondition to the operation of Part 5 of the EP&A Act is the proposal must fall within the definition of an activity in section 5.1 of the EPA Act. An activity means:

- a. *the use of land, and*
- b. *the subdivision of land, and*
- c. *the erection of a building, and*
- d. *the carrying out of a work, and*
- e. *the demolition of a building or work, and*
- f. *any other act, matter or thing referred to in section 3.14 that is prescribed by the regulations for the purposes of this definition,*
but does not include:
- g. *any act, matter or thing for which development consent under Part 4 is required or has been obtained, or*
- h. *any act matter or thing that is prohibited under an environmental planning instrument, or*

- 
- i. *exempt development, or*
 - j. *development carried out in compliance with a development control order, or*
 - k. *any development of a class or description that is prescribed by the regulations for the purposes of this definition.*

HCCDC can utilise Part 5 of the EP&A Act because the proposal falls within the definition of an activity. HCCDC as the determining authority, before proceeding with an activity or granting approval to the activity, must consider the environmental impact of that activity. Section 5.5 of the EP&A Act specifies how assessment of environmental impact is to be completed.

Under section 5.5 of the EP&A Act, HCCDC must examine and consider to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity. Clause 228 of the *Environmental Planning & Assessment Regulation 2000* list the factors that HCCDC must consider when judging the likely impact of an activity on the environment. This REF is provided to HCCDC to comply with its statutory obligations.

Under Part 5 of the EP&A Act an Environmental Impact Statement (EIS) is only required if HCCDC, as the determining authority, forms the view that the activity which it is considering is likely to significantly affect the environment (section 5.7 of the EP&A Act).

4.2. STATE ENVIRONMENTAL PLANNING POLICIES

4.2.1. State Environmental Planning Policy (Infrastructure) 2007

The aim of Infrastructure SEPP is to facilitate the effective delivery of infrastructure across NSW (section 2 Infrastructure SEPP).

Section 8 ('Relationship to other environmental planning instruments') of the Infrastructure SEPP provides that if there is an inconsistency between the Infrastructure SEPP and any other environmental planning instrument, the Infrastructure SEPP prevails to the extent of the inconsistency.

Under the Infrastructure SEPP HCCDC, as a public authority, may carry out defined infrastructure works described under the Infrastructure SEPP without consent (subject to preconditions, if applicable) on the Project Area and other land. HCCDC's proposal falls within the following Infrastructure SEPP categories:

- Part 3 - Development controls, Division 17 - Roads and traffic, Subdivision 1 - Roads and roads infrastructure facilities, Clause 94(1): "*Development for the purpose of a road or road infrastructure facilities may be carried out by or on behalf of a public authority without consent on any land.....*"

- 
- Part 3 - Development controls, Division 18 - Sewerage systems, Clause 106(3B):
“Development for the purpose of sewerage reticulation systems may be carried out without consent on any land in the prescribed circumstances.”
 - Part 3 - Development controls, Division 20 - stormwater management systems, Clause 111(1): *“Development for the purpose of stormwater management systems may be carried out by or on behalf of a public authority without consent on any land.”*
 - Part 3 - Development controls, Division 24 - Water supply systems, Clause 125(1):
“Development for the purpose of water reticulation systems may be carried out by or on behalf of a public authority without consent on any land.”

While HCCDC may carry out defined infrastructure works without consent the infrastructure SEPP precludes HCCDC from carrying out the development in particular circumstances unless HCCDC has provided written notice of the intention to carry out the development (together with a scope of works) to the relevant authority and taken into consideration any response to the notice that is received from the relevant authority within 21 days after the notice is given. Further information is provided in Section 5.2.

4.3. LOCAL ENVIRONMENTAL PLANS

4.3.1. Gosford Local Environmental Plan 2014

The GLEP 2014 applies to the Project Area. As shown in Figure 4-1, the proposal is located in the area zoned Zone SP1 Special Activities and Zone SP2 Infrastructure. The purposes shown on the Land Zoning Map for SP1 Special Activities are Bulky goods premises; Business premises (other than medical centres); Childcare centres; Community facilities; Educational establishments; Function centres; Heliports; Kiosks; Landscape and gardening supplies; Markets; Offices; Recreation facilities; Retail premises; Restaurants; Tourist and visitor accommodation. The purposes shown on the Land Zoning Map for SP2 Infrastructure are aquaculture, roads, and the purposes shown on the land zoning map (i.e. correctional centre), including any development that is ordinarily incidental or ancillary to development for that purpose.

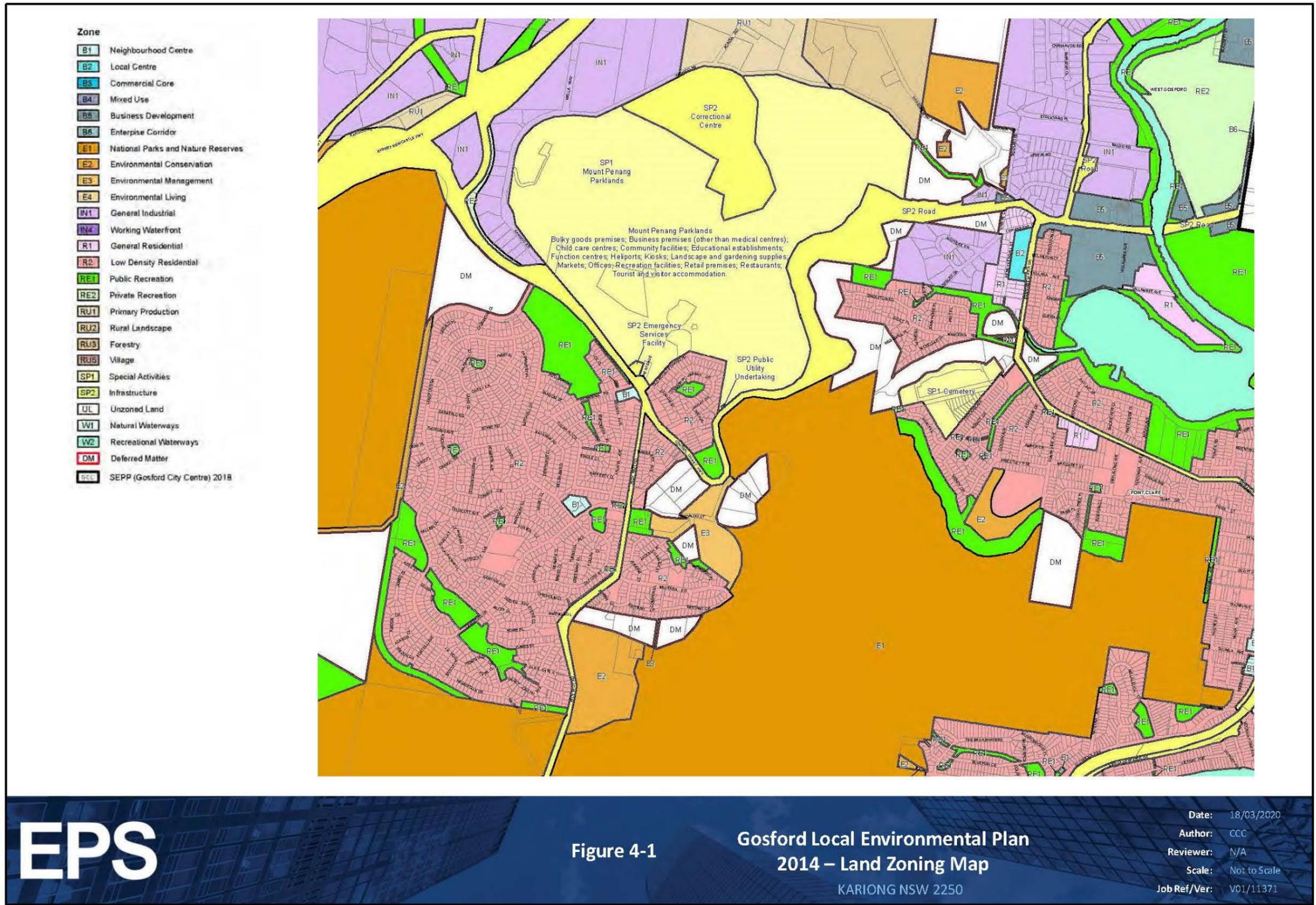


Figure 4-1: Gosford Local Environmental Plan 2014 – Land Zoning Map



Clause 1.9(1) of the GLEP 2014 states:

“This Plan is subject to the provisions of any State environmental planning policy that prevails over this Plan as provided by section 36 of the Act.”

Clause 5.12(1) of the GLEP 2014 states:

“This Plan does not restrict or prohibit, or enable the restriction or prohibition of, the carrying out of any development, by or on behalf of a public authority, that is permitted to be carried out with or without development consent, or that is exempt development, under State Environmental Planning Policy (Infrastructure) 2007.”

Development consent for the proposal under the GLEP 2014 is not required because the proposal is permitted without consent pursuant to the Infrastructure SEPP.

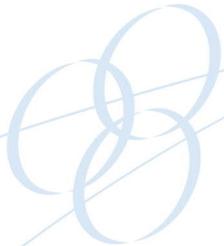
The REF has considered applicable factors stipulated in the GLEP 2014.

4.3.2. Gosford Development Control Plan 2013

Gosford Development Control Plan 2013 (GDCP 2013) applies to the Project Area. The GDCP 2013 provides detailed planning and design guidelines to support the planning controls in the GLEP 2014. The GDCP 2013 describes how to go about a land use and provides additional development controls and standards for addressing and managing issues at a local level and provides information to meet Council requirements for sustainable, quality development.

The GDCP 2013 Part 5.3 – Kariong, Mount Penang Parklands applies specific development controls to the Project Area. Part 5.3 requires basic infrastructure and services, such as water, stormwater, power, telephone lines, gas and roads be delivered generally in accordance with the following servicing strategy reports as amended from time-to-time i.e.:

- Draft Transport Assessment, AECOM, November 2013. Refer Gosford City Council Document No. 19486945;
- Water and Sewer Servicing Strategy. ADW Johnson, November 2013. Refer Gosford City Council Document No. 19486945;
- Roads, Stormwater and Utilities Servicing Strategy, ADW Johnson, November 2013. Refer Gosford City Council Document No. 19486945;
- Flora and Fauna Assessment, Mount Penang Parklands, Travers Bushfire and Ecology, February 2014. Refer Gosford City Council Document No. 19486945; and
- Bushfire Protection Assessment, Mount Penang Parklands, Travers Bushfire & Ecology, February 2014. Refer Gosford City Council Document No. 19486945.



The proposal is generally consistent with the Gosford DCP general development controls and the Gosford DCP Part 5.3 – Kariong, Mount Penang Parklands, specific development controls.

4.4. STATE AND COMMONWEALTH LEGISLATION

4.4.1. Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides for the protection of the environment, especially those aspects of the environment that are matters of National Environmental Significance (NES). Under the EPBC Act, actions that have, or are likely to have a significant impact on a NES require approval from the Australian Government Minister for the Environment (the Minister). The likely impact on the nine NES protected under the EPBC Act are outlined in the flora and fauna assessment in Appendix 3.

4.4.2. Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (BC Act) identifies threatened species, populations, endangered ecological communities, critical habitats and key threatening processes. The BC Act establishes a framework to avoid, minimise and offset the impacts of proposed development and land use change on biodiversity.

Clause 7.8 of the BC Act states:

- (1) This section applies to environmental assessment under Part 5 of the Environmental Planning and Assessment Act 1979.*
- (2) For the purposes of Part 5 of the Environmental Planning and Assessment Act 1979, an activity is to be regarded as an activity likely to significantly affect the environment if it is likely to significantly affect threatened species.*
- (3) In that case, the environmental impact statement under Part 5 of the Environmental Planning and Assessment Act 1979 is to include or be accompanied by:
 - (a) a species impact statement, or*
 - (b) if the proponent so elects—a biodiversity development assessment report.**
- (4) If the likely significant effect on threatened species is the only likely significant effect on the environment, an environmental impact statement may be dispensed with and Part 5 of the Environmental Planning and Assessment Act 1979 applies as if references to an environmental impact statement were references to a species impact statement or biodiversity development assessment report.*

As such a flora and fauna assessment has been prepared and is attached at Appendix 3.



4.4.3. Protection of the Environment Operations Act 1997

The object of the Act is to achieve the protection, restoration and enhancement of the quality of the NSW environment. There is a broad allocation of responsibilities under the Act between the Environmental Protection authority (EPA), local councils and other public authorities. The EPA is made the regulatory authority for:

- activities listed in Schedule 1 to the Act and the premises where they are carried out;
- activities carried out by a State or public authority; and
- other activities in relation to which a licence regulating water pollution is issued.

In nearly all other cases, the regulatory authority is the relevant local council.

No licences/approvals are required for the works under the POEO Act.

4.4.4. Water Act 1912

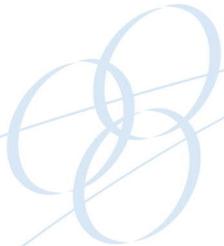
The taking of water and its subsequent use has historically been managed through a licensing framework under the *Water Act 1912*. This licensing framework is transitioning to a new licensing and approval framework under the *Water Management Act 2000* (WM Act).

This transition occurs for particular water sources when a water sharing plan which applies to those water sources commences. This transition process is largely complete. The *Water Act 1912* can still apply to:

- take water from a river, lake or aquifer;
- capture rainfall run-off;
- construct and use a work for the purpose of water conservation, irrigation, water supply or drainage;
- sink a bore, well or excavation which may connect with an aquifer - known as aquifer interference activities; and
- dispose of water.

The proposal will include excavation works. Groundwater may be intercepted, and dewatering required. If groundwater is intercepted and dewatering required it is unlikely that it would exceed the stipulated amount of 3 ML/year and therefore the need for a licence under Part 5 of the *Water Act 1912*.

No further consideration of the Act is required.



4.4.5. Water Management Act 2000

The WM Act governs the issue of new water licences and the trade of water licences and allocations for those water sources (rivers, lakes and groundwater) in NSW where water sharing plans have commenced.

The proposal is located within the Water Sharing Plan for the Central Coast Unregulated Water Sources 2009, managed under the WM Act.

Under the WM Act, should an amount of water need to be extracted from a surface water source defined in gazetted water sharing plan that exceeds the stipulated amount then licence/approvals must be obtained.

The proposal does not include a requirement for access for water under the WM Act.

The Central Coast Council is a water supply authority under the WM Act. Where any development or engineering works are to be undertaken, the owner or developer is responsible for ensuring the water supply authority's assets are considered.

An owner or developer must make satisfactory arrangements for the provision of services to the new development, which may also involve payment of water developer contributions. To identify the appropriate arrangements, the developer must apply for a 307 Certificate under Section 305 WM Act.

The proposal does include a requirement for water supply works under the WM Act. A section 307 approval under the WM Act for works is required.

4.4.6. Waste Avoidance and Resource Recovery Act 2001

The *Waste Avoidance and Resource Recovery Act 2001* (WARR Act) promotes waste avoidance and resource recovery in New South Wales. Under this Act, the resource management hierarchy principles in order of priority are:

- avoidance of unnecessary resource consumption;
- resource recovery (including reuse, reprocessing, recycling and energy recovery); and
- disposal.

HCCDC is committed to ensuring responsible management of waste and the reuse of such waste through appropriate measures, in accordance with the resource management hierarchy principles.

No further consideration of the Act is required.



4.4.7. Roads Act 1993

The *Roads Act 1993* makes provisions with respect to public roads. Under this Act, approval is required for works within a public road reserve including but not limited to road pavement works, kerb and gutter, footway works, footpath, vehicular access crossing (other than for single dwellings or garages and with no structures in road reserve) and drainage works within road reserve.

A Section 138 approval/s under the Roads Act 1993 is required for any works involving Kangoo Road.

A Section 138 is not required for Baxter Track or Parklands Road extension because the road is not a public road at this stage.

4.4.8. Heritage Act 1977

The *Heritage Act 1977* (Heritage Act) aims to conserve the environmental heritage in NSW. Under this Act, environmental heritage is defined as including buildings, works, relics or places which are of historic, scientific, cultural, social, archaeological, architectural, natural or aesthetic significance to the State.

The State Heritage Register (SHR) was established under Section 22 of the Heritage Act and is a list of places and objects of particular importance to the people of NSW, including archaeological sites. Listing on the SHR controls activities such as alteration, damage, demolition, and development. The Project Area is included in the following SHR listing:

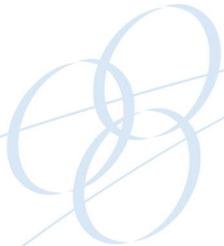
- Mount Penang Parklands (SHR #O1667).

The Statement of Heritage Impact revealed approval under the Heritage Act is required.

4.4.9. National Parks and Wildlife Act 1974

Under the *National Parks and Wildlife Act 1974* (NPW Act), approval is required to knowingly destroy, deface, damage or knowingly cause or permit, the destruction of, or damage to, an Aboriginal object or Aboriginal place.

An Aboriginal Due Diligence Assessment, incorporating consultation with a Registered Aboriginal Party, in accordance with the Aboriginal Cultural Heritage Consultation Requirements for proponents (DECCW, 2010) and a search of the Aboriginal Heritage Information Management System (AHIMS), is attached as Appendix 4.



Further information is provided in Section 6.7.

4.4.10. Biosecurity Act 2015

The *Biosecurity Act 2015* (BSA Act) has replaced the *Noxious Weed Act 1993* and all noxious weeds are now regulated by the BSA Act. Noxious weeds are renamed as priority weeds and are now regulated with a general biosecurity duty to prevent, eliminate or minimize any biosecurity risk they may pose. These weeds reduce diversity of native plant and animal species. The BSA Act is implemented and enforced by the Local Control Area for the Local Government Area (LGA).

Weeds would be managed and disposed of in accordance with the requirements of the BSA Act and regulation.

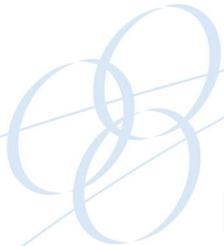
Further information is provided in Section 6.3.

4.5. SUMMARY OF APPROVAL REQUIREMENTS

Table 4-1 provides a summary of the likely approvals/licences. The construction contractor's final construction plans may trigger the requirement for additional approvals and licences.

Table 4-1: Summary of required approvals/licences

Act	Approval Requirement	Relevance to the Proposal
Heritage Act 1977	<p>Approval under section 57(1) for works to a place, building, work, relic, moveable object, precinct, or land listed on the State Heritage Register. The form of the application is specified by section 60.</p> <p>Section 57(2) provides that an exemption from the approval requirements of section 57(1) can be sought in certain circumstances.</p> <p>An excavation permit is required under sections 139(1) and (2) to disturb or excavate any land containing or likely to contain a relic. The form of the application is specified by section 140.</p>	<p>The Statement of Heritage Impact recommends an approval under s60 of the Heritage Act prior to works commencing.</p>



Act	Approval Requirement	Relevance to the Proposal
	Section 139(4) provides that exceptions from the approval requirements of sections 139(1) and (2) can be sought in certain circumstances.	
National Parks and Wildlife Act 1974	An Aboriginal Heritage Impact Permit (AHIP) under section 90 of the Act to harm or desecrate an Aboriginal heritage object.	An AHIP is not required based on the findings of the Due Diligence assessment.
Roads Act 1993	Approval under sections 138 for works in a public road reserve.	The proposed construction occurs within Kangoo Road therefore a Section 138 approval is required.
Water Management Act 2000	Application for 307 Certificate under Section 305 Water Management Act 2000.	Council is the water supply authority under the Water Management Act 2000. The proposal involves connection into Council water main along Kangoo Road therefore 307 certificate is required.



5. STAKEHOLDER AND COMMUNITY CONSULTATION

5.1. CONSULTATION PRIOR TO THE REF PREPARATION

Consultation during the proposal's planning and design is being carried out by HCCDC and will include:

- Presenting the proposal to the Mount Penang Parklands tenants at a tenant meeting; and
- Extensive consultation with the Central Coast Council and Department of Communities and Justice regarding the proposal.

HCCDC will continue liaising with the Mount Penang Parklands tenants and relevant stakeholders.

5.2. INFRASTRUCTURE SEPP REQUIREMENTS

HCCDC's Infrastructure SEPP Part 2 General: Division 1 Consultation requirements are evaluated in Appendix 5.

In summary, Sections 13 to 16 of Part 2: Division 1 Consultation require written notice of the intention to carry out a development (together with a scope of works) to be given to council or the relevant public authority, subject to the exceptions outlined in Section 17.

Section 17(1)(a) provides that a development that requires an approval from a council or public authority for the development to be carried out lawfully, is not subject to the provisions of Sections 13 to 16.

HCCDC is not required to give written notice of the intention to carry out the development (together with a scope of works) to the Central Coast Council because HCCDC requires an approval from Central Coast Council as the water authority.

5.3. POST DETERMINATION CONSULTATION

Should HCDCC proceed with the proposal, consultation with the Mount Penang Parklands' tenants, community and key stakeholders would be ongoing in the lead up to, and during, construction. The consultation activities would ensure that:

- 
- The Mount Penang Parklands' tenants, community and stakeholders have a high level of awareness of all processes and activities associated with the proposal;
 - Accurate and accessible information is made available;
 - A timely response is given to issues and concerns raised by the community; and
 - Feedback from the community is encouraged.

Construction communication measures could include a 24-hour construction information telephone line and email address, targeted consultation methods (such as letters, notifications, signage and face-to-face communications) and the HCDCC website including updates on the progress of the proposal.

A construction communication management plan would be prepared as part of the Construction Environmental Management Plan (CEMP) including a detailed list of the measures that would be implemented during construction to communicate with, and respond to, stakeholders.



6. ENVIRONMENTAL ASSESSMENT

The environmental assessment is for the proposal's construction phase and operation phase.

Clause 228 of the EP&A Reg 2000 lists, for the purposes of Part 5 of the EP&A Act, the factors to be taken into account when considering the likely impact of an activity on the environment. Appendix 6 considers the potential impacts of the proposal against these factors.

6.1. SOILS AND GEOLOGY

6.1.1. Existing Environment

Geology

The Project area is situated in the Somersby Plateau, which is characterised as Triassic quartz sandstone with thin conglomerates and shale ridge caps. Older Triassic lithic and quartz sandstones are found exposed in valleys and along the coast. Deep yellow earths or rocky outcrops are located on the plateau tops. Uniform and texture-contrast soils are common on sandstones and shale slopes. Loamy sand in alluvium are located along creeks.

Acid Sulfate Soils

The proposal is located on land mapped as 'Class 5' Acid Sulfate Soils (ASS).

Contamination

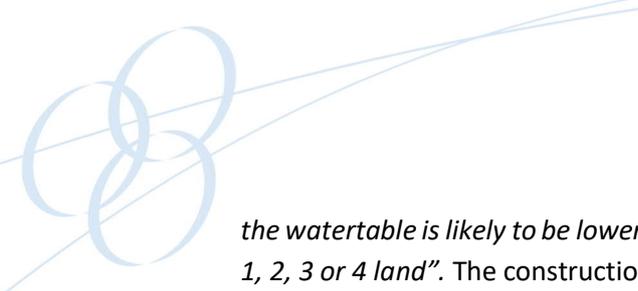
A search of the NSW Environment Protection Authority (EPA) Contaminated Land Record revealed there is no records of contamination in the Project area.

There is no identified contamination in the Project area however previous historical land uses that may have caused contamination within parts of the Project Area include agricultural/horticultural land uses.

6.1.2. Impact Assessment

The proposal's construction works will require ground disturbance and exposure of soil in Baxter Track/Kangoo Road and Parklands Road roadworks disturbance area. Consequently there is potential for soil erosion and sediment transport during the construction period. Areas subject to disturbance by excavation and trenching will be subject to ongoing potential erosion until they are stabilised.

Under Clause 7.1(2) of the Gosford LEP, 'Class 5' ASS applies to: *"Works within 500 metres of adjacent Class 1, 2, 3 or 4 land that is below 5 metres Australian Height Datum and by which*



the watertable is likely to be lowered below 1 metre Australian Height Datum on adjacent Class 1, 2, 3 or 4 land". The construction works will not be within 500 metres of adjacent Class 1, 2, 3 or 4 land and will not result in alterations to the long-term level of the watertable.

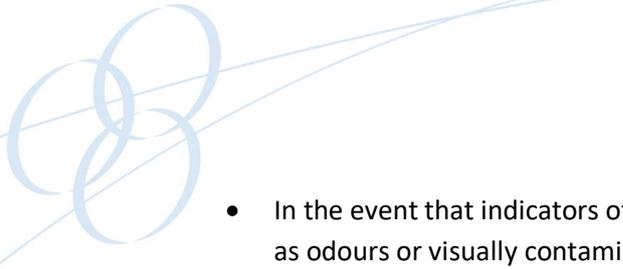
Excavation may disturb contaminated soils and hazardous materials present in soil. If inadequately managed, the disturbance of any areas of contamination has the potential to impact on human health and the natural environment.

The proposal's operation works are likely confined to infrequent and limited maintenance of the proposal's infrastructure and services consequently the potential to adversely impact the Project area's and surrounding locality's soils and geology during the proposal's operation is minimal.

6.1.3. Mitigation Measures

Reasonable and feasible mitigation measures should be implemented to manage and mitigate potential erosion and sedimentation adverse impacts by construction works and operation works and potential adverse impacts on human health and the natural environment from disturbance of contaminated soils and or hazardous material. Mitigation measure could include:

- A Soil and Water Management Plan, including an Acid Sulphate Soil Management sub-plan and an Erosion and Sediment Control (ESCP) sub-plan (prepared in accordance with Landcom's (2004) Managing Urban: Stormwater Soils and Construction), be prepared as part of the Construction Environmental Management Plan (CEMP);
- The ESCP will include appropriate sediment controls for wherever soil disturbance that could result in sediment run-off takes place;
- Erosion and sediment controls will be established prior to the commencement of construction and remain in place until the surface has been stabilised;
- Sediment controls will be placed at the entry points to any culverts and stormwater channels to prevent sediment entering the stormwater system;
- Erosion and sediment control devices will be regularly checked and maintained to ensure they remain effective for the duration of the construction period;
- Stabilisation by revegetation for disturbed areas will occur as soon as practicable within after completion of construction;
- Restoration following the completion of the works will aim to be as close as possible to the pre-works state;
- The road will be swept where it becomes dirty from tracking dirt, which will be minimised where possible;
- An 'unexpected finds protocol' would be prepared to assist with the identification, reporting, assessment, management, health and safety implications, remediation, and/or disposal (at an appropriately licensed facility) of any potentially contaminated soil and/or water; and

- 
- In the event that indicators of contamination are encountered during construction (such as odours or visually contaminated materials), work in the affected area would cease immediately, and the procedures detailed in the unexpected finds protocol would be implemented.

The implementation of the mitigation measures will ensure the potential adverse impact on the Project area's and surrounding locality's soil and geology by the proposal's construction works and operation works is minimal.

6.2. HYDROLOGY, WATER QUALITY & FLOODING

6.2.1. Existing Environment

The Baxter Track/Kangoo Road roadworks disturbance area is predominately gravel road and vegetation pervious to rainwater infiltration. The Parklands Road roadworks disturbance area is predominantly cleared agricultural land.

The Project area is not flood liable and does not have a history of flooding.

6.2.2. Impact Assessment

A small drainage line (remnant Piles Creek Tributary) crosses Baxter Track. The proposal's construction works within the Baxter Track/Kangoo Road and Parklands Road roadworks disturbance area will not alter the alignment of drainage lines of any existing dams or creeks, and it is not anticipated to impact surrounding water bodies.

Blockages within the stormwater system in the Baxter Track/Kangoo Road and Parklands Road roadworks disturbance area could potentially affect stormwater levels upstream and downstream. If inadequately managed, construction can result in temporary impacts to the behaviour of local surface water systems.

Construction of the proposal will involve disturbance of the ground surface. The main potential impacts to water quality relate to soil disturbance and runoff during construction. Pollutants such as sediment, soil nutrients and construction waste have the potential to mobilise and enter the stormwater system particularly during high rainfall events.

Potential impacts associated with increased sediment loading include increased turbidity and an increased potential for the transport of contaminants bound to sediment particles. The transportation of contaminated soil from the construction sites could also affect water quality if any contaminants escape containment measures.



Water quality impacts could also potentially occur during construction as a result of contamination by fuel or chemical spills from construction vehicles.

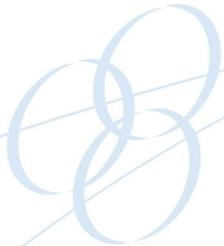
The proposal's operation works are likely confined to infrequent and limited maintenance of the proposal's infrastructure consequently the potential to adversely impact the Project area's and surrounding locality's soils, hydrology and water quality during the proposal's operation is minimal.

6.2.3. Mitigation Measures

Reasonable and feasible mitigation measures should be implemented to manage and mitigate potential adverse impacts on the hydrology, waterways and flooding by construction works and operation works. Mitigation measure could include:

- A Soil and Water Management Plan, including a Groundwater Management sub-plan and Erosion and Sediment Control sub-plan (prepared in accordance with Landcom's (2004) Managing Urban: Stormwater Soils and Construction) would be prepared as part of the CEMP;
- A Contamination and Hazardous Materials Plan would be prepared as part of the CEMP;
- Fuels and chemicals will be stored and transported in accordance with the Australian Standard AS 1940-2004: The Storage and Handling of Flammable and Combustible Liquids and the Dangerous Goods Act 1975;
- The ground surface will be reinstated progressively;
- Refuelling, fuel decanting and vehicle maintenance work will take place off-site where possible;
- Chemicals, fuels and waste will not be stored or collected for disposal within or adjacent to drainage lines, waterbodies or unsealed surfaces;
- A 'spill kit' will be kept onsite at all times to be used in the event of a chemical or fuel spill;
- Access to site will be contained to approved construction works area or access tracks to minimise site disturbance;
- Erosion will be limited using slit fences and socks to manage runoff fetches and velocities; and
- Silt fences, straw bales, turf strips and other sediment filters will be located downstream of disturbed areas.

Construction works and operation works are unlikely to adversely impact any nearby surface water, waterways or groundwater.



6.3. ECOLOGY

6.3.1. Existing Environment

The ecological field assessment found:

- 0.54ha of Native Vegetation including:
 - 0.31ha of MU 26 – Exposed Hawkesbury Woodland; and
 - 0.23ha of MU E1 – Coastal Wet Gully Forest.
- 4.88ha of Exotic Pasture/Vegetation;
- 0.63ha of Landscape Plantings/Gardens; and
- 0.08ha of Unmanaged Drainage Line.

No threatened flora or fauna were detected within the Project Area.

6.3.2. Impact Assessment

The proposal will involve the removal and/or modify native and non-native vegetation within 6.13ha of the Project Area as detailed in the Biodiversity Assessment in Appendix 3.

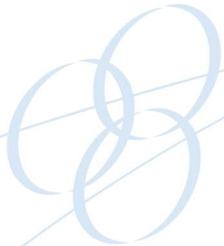
Vegetation observed in the area is predominantly characterised as exotic pasture vegetation that is grazed by livestock. Outside the paddocks the vegetation is predominantly disturbed remnant vegetation comprising exotic species, landscaped/managed gardens and two patches of disturbed remnant vegetation within the road verge where Baxter Track intersects with Kangoo Road.

The majority of this vegetation are considered low value areas largely containing no canopy and non-native grasses and forbs. The vegetation is not associated with, and will not impact any listed TEC.

A total of 21 fauna species were observed opportunistically during the field survey.

The following observations were made:

- No indications of Koala utilisation were recorded on any of the trees;
- Twenty three *Oryctolagus cuniculus* (European Rabbit) were detected;
- Noisy Miner, Magpie Lark, Magpie, Variegated Fairy Wren, Rainbow Lorikeet, Australian Raven, and Rainbow Lorikeet were observed; and
- No frogs were heard nor spotted during the surveys, although there is a man-made dam and first order stream that runs through the Project Area with suitable habitat present.



The native trees provide seasonal blossom for nectar feeding species, and other bird species may forage for insects among the trees. Birds and microbats foraging for insects on the open grass and grazing mammals are the only species likely to utilise this habitat. The groundcover does provide foraging habitat for grazing animals.

As the proposal will remove and/or modify all vegetation within 6.13ha, it will result in the removal/modification of all low condition disturbed terrestrial habitat within the Project Area. However, past clearing has removed most of the trees in the Project Area, and due to the current land use, the area is frequently mowed/managed and grazed. Due to this, the fauna habitat is largely absent.

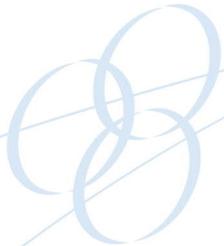
6.3.3. Mitigation Measures

The ecological constraints were fed into the concept design for consideration to minimise and avoid disturbance to native vegetation as far as practicable.

The Biodiversity Assessment made a number of recommendations to reduce the impact of the removal of 0.63ha of native planted vegetation, 0.54ha of moderate-quality native vegetation, and 4.96ha of exotic vegetation.

The following mitigation measures are proposed:

- All contractors will be specifically advised of the designated work area. The following activities are not to occur outside of designated work areas to minimise environmental impacts:
 - Storage and mixing of materials;
 - Liquid disposal;
 - Machinery repairs and/or refuelling;
 - Combustion of any material; and
 - Any filling or excavation including trenching, topsoil skimming and/or surface excavation.
- All construction vehicles/machinery are to use the designated access from main roads. Speeds will be limited to reduce the potential of fauna strike and to reduce dust generation;
- Plant and machinery would be cleaned of any foreign soil and seed prior to being transported to the Project Area to prevent the potential spread of weeds and *Phytophthora cinnamomi*;
- If machinery is transported from an area of confirmed infection of *Phytophthora cinnamomi* to the Project Area, stringent wash down must be completed before leaving the area, removing all soil and vegetative material from cabins, trays, and under carriages;

- 
- All liquids (fuel, oil, cleaning agents, etc.) will be stored appropriately and disposed of at suitably licensed facilities. Spill management procedures will be implemented as required;
 - Rubbish will be collected and removed from the Project Area; and
 - During the creation of access tracks, erosion or sediment measures will be considered and installed as required.
 - Identification of potential erosion areas;
 - Installation and maintenance of flow, erosion, sediment and nutrient control within the Project Area during construction ahead of pavement and kerb establishment;
 - Separation of 'dirty' construction water from the 'clean' natural overland flow water;
 - Coordinated work practices aimed at minimising land disturbance;
 - Minimise vegetation disturbance to surrounding retained vegetation; and
 - Routine site inspections of drains, channels, sediment control structures and water quality.
 - The extent of vegetation clearing is to be clearly identified on construction plans.
 - Clearing limits should be demarcated with highly visible flicker tape to ensure clearing does not extend beyond the required area.
 - Prior to the commencement of any vegetation removal, a preclearance survey will be conducted by the Project Ecologist to identify and flag any areas containing threatened flora (*T. juncea*), and significant habitat features, which include but are not limited to:
 - Tree hollows
 - Nests
 - Arboreal termitaria
 - Any areas observed to be currently utilised by BC Act or EPBC Act listed threatened fauna
 - During the pre-clearance survey, any significant habitat features or trees that are known to have resident fauna present and all hollow-bearing trees will be:
 - Marked around the trunk of the tree at approximately 1.5 metres high with a 'H' marked several sides of the trunk using fluorescent spray marking paint; and/ or
 - Marked with highly visible flagging tape

At the time of hollow-bearing tree mark up, the civil contractor and project ecologist are to walk the pegged (or with suitably accurate survey instrumentation) alignment and determine the exact number of habitat trees to be removed. For each tree consideration must be afforded for alternates to felling the tree such as minor adjustments in trenching and construction buffers at the tree location.

- Tree removal is to be strictly limited to the Project Area;
- The mulch/tub grindings generated from the removal of vegetation on Project Area is to be reused on Project Area;
- Felled trees must be stockpiled and processed within marked clearing boundaries;
- All removal of hollow-bearing trees or significant habitat features is to be supervised by the Project Ecologist;

- Hollow bearing trees or trees containing significant habitat features are to be knocked with an excavator bucket followed by a waiting and observation period to alert any resident fauna that have not moved on from the tree and to encourage the fauna to vacate;
- All trees are to be slowly lowered (soft felled) where possible - machinery will ease the tree down to ground level by controlling the speed at which the tree descends to the ground, this will reduce impact to tree hollows and any potential fauna that may still be present during the removal process. Alternatively, trees may be sectionally dismantled or a similar technique that involves slowly lowering potential habitat (hollow limbs, termitaria) to the ground;
- Following felling and when safe, the supervising Project Ecologist shall inspect the tree and hollows for displaced fauna;
- The Project Ecologist is to confirm and record the number and size class of 'potential' hollows previously identified during pre-clearance surveys;
- In the case of any displaced fauna, Project Ecologist is to contact local wildlife carer;
- Trees must be left in situ for a minimum of one night before being removed, mulched or stockpiled, to allow any displaced fauna not observed during the post felling inspection to safely escape under the cover of darkness;
- Felled trees must be stockpiled and processed within marked clearing boundaries;
- Tree hollows are to be salvaged and stockpiled for reuse as fauna habitat wherever possible.
- Native canopy trees to be removed on Project Area can be used as mulch overlaid over the proposed pipeline.
- Understorey vegetation can only be mulched if project ecologist is present to supervise the selection of native flora and avoid exotic vegetation.
- Exotic vegetation must not be used as mulch on Project Area.
- If natural regeneration has not occurred within 6 months, hydromulching (native seed selection) can be utilised.

6.4. NOISE AND VIBRATION

6.4.1. Existing Environment

The existing primary noise and vibration sources in the Baxter Track/Kangoo Road and Parklands Road disturbance area are road traffic and pedestrian noise emanating from Kangoo Road and the Central Coast Highway. Other noise sources include Kariong High School, Kariong Correctional Centre (Frank Baxter Juvenile Justice Centre), and Riding for the Disabled Centre.

Events are held sporadically in the Mount Penang Parklands, such as markets and festivals. These generate substantial noise and vibration from sources such as amplified music, high volumes of pedestrian traffic, and heavy and light vehicle movements.



6.4.2. Impact Assessment

The proposal's construction works requires the use of heavy and light machinery/tools which can generate noise and vibration levels at nearby receptors. At any location, the potential impacts may vary greatly depending on factors such as the proximity of receivers, the duration of works, the magnitude of the noise levels, the time at which the construction is undertaken, and the character of the noise or vibration emissions.

The proposal's construction noise emissions in the Baxter Track/Kangoo Road and Parklands Road disturbance area could be high during parts of the construction phase.

The proposal's construction vibration emissions in the Baxter Track/Kangoo and Parklands Road roadworks disturbance area are likely to be:

- Impulsive e.g. occasional dropping of heavy equipment occasional loading and unloading;
- Intermittent e.g. construction activity, jack hammers; and
- Continuous e.g. use of heavy machinery.

There are noise and vibration non-residential receivers and sensitive receivers adjoining the Baxter Track/Kangoo Road and Parklands Road roadworks disturbance area i.e. the Riding for the Disabled Association, Project Area tenants and built form of heritage significance in the Heritage Precinct.

Without mitigation measures it is likely the construction activities in the disturbance area will generate noise at levels that could potentially adversely impact nearby non-residential receivers and sensitive receivers located in the Project area and surrounding locality. The noise impacts would only be experienced during the construction phase.

It is unlikely the construction activities in the disturbance area will generate vibration at levels with the potential to adversely impact nearby non-residential receivers and sensitive receivers located in the Project area and surrounding locality. Specifically, it is unlikely the construction activities will generate vibration at levels with the potential to adversely impact the structures of nearby receivers or structures of heritage items/buildings located in the Project area or surrounding locality.

While construction works would generally occur during the standard working hours set out in the Interim Construction Noise Guideline (DECC, 2009) i.e. Mondays to Fridays between 7am and 6pm, Saturdays between 8am and 1pm and no work occurring on Sundays or public holidays, it may be sensible for some construction activities in the disturbance area to be undertaken outside the prescribed hours to lessen the potential for adverse noise and



vibration impacts on nearby receivers e.g. Kariong Mountains High School and Riding for the Disabled Association.

The Baxter Track/Kangoo Road and Parklands Road roadworks disturbance will return to its pre-construction works noise and vibration levels during the proposal's operation.

Traffic noise may increase due to the thoroughfare of traffic from Parklands Road existing Mount Penang Parklands via Baxter Track.

The proposal's operation works are likely confined to infrequent and limited maintenance of the proposal's infrastructure consequently the potential to adversely impact the Project area's or surrounding locality's noise and vibration amenity during the proposal's operation is minimal.

6.4.3. Mitigation Measures

Reasonable and feasible mitigation measures should be implemented to manage and mitigate potential adverse noise and vibration impacts. Mitigation measure could include:

- Noise and Vibration Management Plan be prepared as part of the CEMP;
- Ensuring all equipment complies with the Interim Construction Noise Guideline 2009;
- Machinery and vehicles will be turned off when not in use or throttled down to a minimum;
- Construction completed within the shortest possible time;
- Construction in The Baxter Track roadworks disturbance area during Kariong Mountains High School holidays;
- Construction works taking place between the hours: Monday to Friday, 7am to 6m and Saturday at 8am to 1pm, unless otherwise approved in CEMP;
- Identified noisy construction works to take place outside the standard working hours set out in the Interim Construction Noise Guideline (DECC, 2009);
- Use of noisy equipment and construction work will be scheduled to occur between the hours of 9am and 4pm, where possible;
- Construction activities would be undertaken in accordance with AS2436-1981 Guide to Noise Control on Construction, Maintenance and Demolition Sites;
- All equipment will be maintained regularly and effectively;
- All equipment with potential to create high levels of noise will only be used in conjunction with noise control;
- Noise monitoring may be used if complaints regarding excessive noise use are received and impacts will be assessed against the Interim Construction Noise Guidelines (DECC 2009);
- If noise limits are found to exceed the established guideline values, then operations would be modified and measures such temporary noise barriers would be implemented;

- 
- Mitigation impacts of the proposed works would be undertaken in accordance with the qualitative assessment guidelines of the Interim Construction Noise Guidelines (DECC 2009) such as community notification of the works, operating plant in a quiet and efficient manner, involving workers in minimising noise and a procedure of handling complaints in accordance with these guidelines;
 - Controlling vibration at the source including: choosing alternative, lower-impact equipment, or methods wherever possible; scheduling the use of vibration-causing equipment, such as jackhammers, at the least sensitive time of day; routing, operating or locating high vibration sources as far away from sensitive areas as possible; sequencing operations so that vibration causing activities do not occur simultaneously isolating the equipment causing the vibration on resilient mounts;
 - Informing identified stakeholders, including potentially impacted tenants, in the Project Area, of the potential impacts, the time periods over which these will occur and the proposed mitigation measures that will be employed to minimise the impacts; and
 - Notice of works provided to identified stakeholders prior to the commencement construction.

The mitigation measures are designed to minimise adverse impacts on the Project area's and surrounding locality's receivers from airborne noise, ground-borne noise and vibration generated during the proposals' construction.

The potential long-term adverse noise and vibration impacts from the proposal's construction on the Project area and surrounding locality is low because of the limited construction time frame.

6.5. AIR QUALITY

6.5.1. Existing Environment

Air quality in the Central Coast Council LGA is generally good and meets the national standards.

The Central Coasts air quality monitoring is carried out at the Wyong air quality monitoring site located on the northern apron of Wyong racecourse within a residential/semi-rural area approximately 30km from the Project area. The Project area is approximately 158ha comprising approximately 67ha is bushland, and low-density urban development. Data collected at this station is considered to be representative of ambient air quality in the Project area.



6.5.2. Impact Assessment

Air quality impacts associated with proposal's construction works would mainly result from dust generated during excavation. Other dust sources may be produced by material handling activities associated with movement of construction vehicles on unsealed surfaces. Wind erosion of uncompacted surfaces, such as stockpiled material, could also cause localised emissions of dust.

Dust has the potential to impact on the amenity of people using local facilities, occupying nearby properties or passing the proposal's site (such as workers, people attending the school, and pedestrians/cyclists). Due to the relatively low intensity of construction, the small amount of required earthworks, and the relatively short duration of construction works the potential for adverse dust impacts is considered to be minimal.

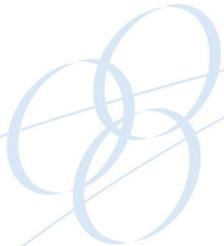
The operation of construction plant, machinery and vehicles may also lead to short term increases in exhaust emissions in parts of the Project area and the surrounding locality however, these impacts are relatively minor due to the limited number of construction vehicles and the existing urban nature of the disturbance area and other surrounding locality influences on air quality such as car traffic movements along the Central Coast Highway.

The proposal's operation works are likely confined to infrequent and limited maintenance of the proposal's infrastructure consequently the potential to adversely impact the Project area's surrounding locality air quality during the proposal's operation is minimal.

6.5.3. Mitigation Measures

Reasonable and feasible mitigation measures should be implemented to manage and mitigate potential adverse air quality impacts. Mitigation measure could include:

- All vehicles to be fitted with approved exhaust systems to maintain exhaust emissions within acceptable standards;
- Machinery and vehicles will not be left running or idling when not in use;
- Odours or air pollutant complaints will be dealt with promptly and the source will be eliminated wherever practicable;
- All loads of excavated material, soil, fill and other erodible matter that are transported to or from the work site will be kept covered at all times during transportation and will remain covered until they are unloaded either for use at the worksite, reuse or disposal at a licensed waste disposal facility;
- Areas that have been disturbed by construction works will be rehabilitated progressively; and
- Monitor all work sites, general work areas and stockpiles for dust generation and watering down or covering affected areas in the event of windy conditions.



The potential long-term adverse air quality impacts from the proposal on the Project area and surrounding locality is low because the proposal is small in size and the construction time limited.

6.6. NON-INDIGENOUS HERITAGE

6.6.1. Existing Environment

The southern section of the Baxter Track study area partially overlaps the northern portion of the Mount Penang Parklands State Heritage Register listing (SHR1667) and the locally listed Mount Penang Heritage Conservation Area (C1), which shares the same curtilage as the SHR item and, while locally listed in the Gosford LEP, it is identified as being State significant. The northern section of the Baxter Track study area partially overlaps with the southern portion of local heritage item (61), 'Remnant farm buildings, the barn, storage shed and dairy'.

The Parklands Road study area is within the northern boundary of the State heritage Register listing Mount Penang Parklands (SHR 1667) and the southern boundary of the curtilage for the local heritage item (61) and within the locally listed Mount Penang Parklands Heritage Conservation Area. There are no buildings in this portion of the curtilage, however there is a landscape feature 'Scribbly Gum Group' (L2) within the study area associated with the State Heritage Register listing.

The most recent Conservation Management Plan (CMP) for the State Heritage Register listing (SHR1667) indicates that the Project Area is of moderate significance and notes that the open character and rural setting are important characteristics to be conserved.

6.6.2. Impact Assessment

The study area does not contain built or archaeological heritage associated with these heritage listings. While it does contain a significant landscape item 'Scribbly Gum Group' (L2), there will be no physical impacts to this item. The study area forms part of the vistas for the heritage items and conservation area, which are of moderate significance. The Proposal will not impact these vistas, with the works being subsurface or at-grade with the existing level. The rural character of the area is of moderate significance to the heritage listings and the study area is 50 m from the nearest significant built item, and 180 m north of the main building complex at Mount Penang, and 120 m east of McCabe Cottage. There is a precedent for formalised roadways in the study area with the eastern portion of Baxter Track already containing road pavement and kerbing. The Proposal would seek to extend this existing roadway of Baxter Track. The Proposal would result in a slight change in the form of the entryway via Baxter Track; however, this change would have a negligible impact on the significance of rural character of the area. The Parklands Road extension will provide new



access to the site and the approach to the roundabout would be framed by the ‘Scribbly Gum Group’ (L2) thus enhancing the group as a landscape element.

Once the works are completed the site will continue to be interpretable as an open landscape. The Project Area will maintain its open landscape values and will be in accordance with the conservation polices (TKD Architects 2020, 147).

6.6.3. Mitigation Measures

- Approval under the Heritage Act is required to be approved by Heritage NSW prior to the commencement of construction works.
- Works are to be undertaken in accordance with the approval.
- All on-site personnel are to be made aware of their obligations under the *NSW Heritage Act 1977*, including the reporting of any historic, or suspected historic, material. This may be implemented through an on-site induction or other suitable format.
- In the unlikely event that archaeological, or suspected archaeological material is uncovered during works, then works in that area are to cease and the area is to be cordoned off. The material is to be inspected by a heritage consultant and works in that area are only to recommence once heritage clearance has been gained and/or mitigation and management measures implemented.
- If there are any alterations to the proposed works, further heritage assessment will be required.

6.7. ABORIGINAL HERITAGE

6.7.1. Existing Environment

The length of Baxter Track was surveyed. The trees along the track were inspected, but none contain evidence of cultural modification. A transect was completed for the section running south into the paddock currently used by Riding for the Disabled. This area was mostly covered by grasses and appears to be partially disturbed by past land use activity.

The Project Area has good ground surface visibility; however, no Aboriginal sites or areas of archaeological potential were identified.

6.7.2. Impact Assessment

No Aboriginal sites or areas of archaeological potential were identified during site inspection of the Project Area. There are no identified impacts to Aboriginal sites.



6.7.3. Mitigation Measures

- All on-site personnel are to be made aware of their obligations under the National Parks and Wildlife Act. This includes protection of Aboriginal sites and the reporting of any new Aboriginal, or suspected Aboriginal, heritage sites. This may be done through an on-site induction or other suitable format.

6.8. VISUAL AMENITY

6.8.1. Existing Environment

The GDCP 2013 Land Forms Map 2.2 shows the Project area's "views to be protected" area and "view corridors" areas. The mapping is supported by visual amenity planning principles detailed in section 5.3.3 of the GDCP 2013 including:

- *Development of the site is to maintain the integrity of the natural setting of the site by minimising impact on existing views and vistas to and from ridge lines located to the east and west of Piles Creek;*
- *Respecting the layout of the buildings, their physical and visual interrelationships, the road system and the scale of development in future planning*
- *Ensuring that new development is not visually intrusive within the heritage precinct of the site;*
- *Respecting the physical and visual relationship between complexes of buildings, such as the relationship of the existing cottages to each other, or the McCabe buildings to the rest of the heritage precinct and site;*
- *Protecting the existing physical and visual relationships between groups or complexes of significant buildings*

The Baxter Track/Kangoo Road and Parklands Road roadworks disturbance area visual environment includes the Baxter Track Precinct grassed area with rows of trees, Kariong Intake and Transit Centre, Frank Baxter Juvenile Justice Centre, Riding for the Disabled Association, Sunnyfield Community Services Hub, Kangoo Road and Phillip House Precinct vegetated area to the west.

6.8.2. Impact Assessment

The proposal is not within the "views to be protected" area or the "view corridors" areas shown in the GDCP 2013 Land Forms map.

The proposal would generate temporary visual impacts during the construction period. These impacts would be experienced by visual receivers (people attending the school, pedestrians, cyclists, motorists and local workers) in the vicinity of the construction works. During



construction, visible elements would include work sites, machinery and equipment, fencing, soil stockpiles, waste materials and partially constructed structures.

The potential visual impact of the proposal would depend on the nature and intensity of the construction works. The change in the visual environment would generally be experienced from a relative short distance. Visual impacts would also be more significant at locations where receivers have an unscreened view of the proposal works. However, the impacts would be temporary and limited to the construction period.

The visual impact caused from the removal of trees, along with the removal of grass and shrubs necessary to carry out the works will be offset by the restorations works once the construction works are completed. These restoration works will return the disturbance areas as close to possible to its pre-construction works condition.

There will be negligible visual impact during the operation period for the majority of the proposal's elements in the Baxter Track/Kangoo Road and Parklands Road disturbance area because the elements are either upgrades to the existing elements or new elements that are consistent with local road reserves infrastructure.

6.8.3. Mitigation Measures

Reasonable and feasible mitigation measures should be implemented to manage and mitigate any potential adverse impacts on the existing visual amenity. Mitigation measure could include:

- Ensuring the construction work site is maintained in an orderly manner;
- All vehicles, construction equipment, materials and refuse relating to the works to be removed from the site, following completion of the works; and
- Following completion of the proposed works, work sites will be restored as close to their original condition as possible.

The potential for long-term adverse visual impacts by the proposal on Project area and surrounding locality are considered low because of the limited construction time frame and the disturbance areas being restored, as practicable, to their pre-construction condition.

6.9. TRAFFIC AND ACCESS

6.9.1. Existing Environment

Central Coast Council is the roads authority for all public roads (both classified and unclassified) within the Project Area. The RMS is the roads authority for the Central Coast Highway.



The Mount Penang Parklands precincts are serviced by internal roads e.g. Baxter Track and Parklands Road which have access via the local road network to Kangoo Road and Central Coast Highway. For access to the main road network there are traffic signals at two intersections, one at the Central Coast Highway / Kangoo Road and another at Central Coast Highway / The Avenue.

Baxter Track is connected to Kangoo Road and is an unsealed private road catering for the Kariong Intake and Transit Centre and Frank Baxter Juvenile Justice Centre.

Parklands Road is an internal access road within Mount Penang Parklands. Parklands Road connects to Festival Drive. The Central Coast Highway can be accessed by following Festival Drive onto The Avenue. RMS comments as part of DA/47433/2015 noted the Central Coast Highway / The Avenue intersection is currently operating at poor levels of service. RMS consider that there is very limited spare capacity at this intersection. Further, this intersection is physically constrained particularly with regards to space requirements for any further upgrades that may be identified as being required as a result of future development applications in Mount Penang Parklands.

The Gosford Development Control Plan 2013 (GDGP 2013) Street Hierarchy Map 2.6 map shows existing and indicative roads and existing and indicative access points to Mount Penang Parklands. The hierarchy is influenced by the Mount Penang Parklands Masterplan, Transport Assessment, AECOM, November 2013 report.

6.9.2. Impact Assessment

The proposal's construction works will require a number of heavy vehicles and a number of light vehicles.

Construction heavy and light vehicle movements would be distributed across the construction phase and be managed in accordance with a Construction Traffic, Transport and Access Management Plan to minimise the potential for impacts on the existing Project area and surrounding locality roads and transport network, and to ensure adequate levels of safety.

Overall, the total numbers of heavy and light vehicle movements on roads in the surrounding locality during construction would be low compared to the overall traffic volumes on the surrounding locality roads. Construction vehicle generation would not result in a substantial impact on surrounding locality road capacity or the road network overall including the Kangoo Road/Baxter Track intersection.



Construction works and consequently construction traffic movements would commence after all relevant approvals are obtained, and could include the following alterations to part of Project area's existing traffic arrangements:

- Construction vehicles accessing the disturbance areas via:
 - Central Coast Highway and Kangoo Road; or
 - Central Coast Highway, the Avenue and Festival Drive.
- Partial closure of Baxter Track and Parklands Road and associated intersections. Project Area traffic may need to access the Project Area via alternative access points;
- Installation of environmental and traffic controls in accordance with the CEMP and any conditions of approval for the proposal.

The construction traffic methodology will be developed by the appointed construction contractor.

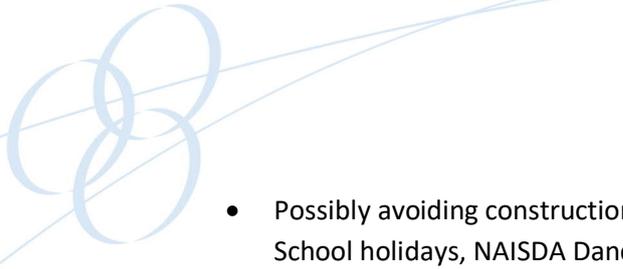
The alterations to part of Project area's existing traffic arrangements for the likely construction traffic are expected to adversely impact business and education tenants, Frank Baxter Juvenile Justice Centre, Kariong Mountains High School, customers, visitors and service providers located within the Project area for the limited construction phase. The operation phase will improve traffic access.

The proposal's operational construction works are likely confined to infrequent and limited maintenance of the proposal's infrastructure consequently the potential to adversely impact the Project area's and the surrounding locality traffic and access arrangements during the proposal's operation is minimal.

6.9.3. Mitigation Measures

Reasonable and feasible mitigation measures should be implemented to manage and mitigate any potential adverse impacts on the existing traffic and access arrangements. Mitigation measures could include:

- A Traffic Management Plan will be prepared as part of the CEMP, prior to commencement of construction;
- Consultation with relevant stakeholders to facilitate the efficient delivery of the works and to minimise congestion and inconvenience to road users. Stakeholders would include Council, business and education tenants, Frank Baxter Juvenile Justice Centre, Kariong Mountains High School and other relevant organisations;
- A construction communication management plan would be prepared as part of the CEMP including a detailed list of the measures that would be implemented during construction to communicate with and respond to the community;
- Construction completed within the shortest possible time;

- 
- Possibly avoiding construction during peak periods of use of the Kariong Mountains High School holidays, NAISDA Dance College and Parklands Community Preschool;
 - Appropriate exclusion barriers, signage and site supervision will be employed at all times to ensure that the work site is controlled, and that authorised vehicles and pedestrians are excluded from the works area;
 - All measures will be undertaken to ensure that the proposal does not significantly reduce road capacity or disturb traffic flows; and
 - A complaints register will be maintained by the contractor, and complaints will be responded to in a timely fashion.

The potential for long-term adverse traffic and access impacts by the proposal are considered low because of the limited construction time frame.

The Baxter Track and Parklands Road and associated intersections are designed to meet Central Coast Council's requirements consequently improving this part of the Project Area's traffic flows and safety.

6.10. SERVICES AND UTILITIES

6.10.1. Existing Environment

Utility investigation was undertaken as part of the Northrop Consulting Engineers design of the infrastructure.

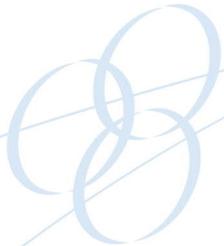
Infrastructure and services within and in the vicinity of the proposal's disturbance areas are identified in the indicative proposal plans attached as Appendix 1.

6.10.2. Impact Assessment

The construction works within the disturbance area has the potential to impact existing services and infrastructure including gas, electrical, water, wastewater, stormwater and communications. All services (including pits and surface features) within and/or crossing the construction site would need to be relocated and/or protected.

There may be some short-term interruptions to services during construction owing to the need to divert services.

Short-term interruptions to services during construction could impact Project area and surrounding locality users of the services.



Impacts would be minimised by ensuring that the contractor undertakes investigations to locate all underground services in the vicinity of the construction site prior to construction commencing. Consultation with service providers would also be undertaken to minimise the potential for impacts, to coordinate any service relocations, and ensure access to utilities is preserved for any future maintenance activities.

The proposal's operation works are likely confined to infrequent and limited maintenance of the proposal's infrastructure consequently the potential to adversely impact the Project area's surrounding locality's services and utilities during the proposal's operation is minimal.

6.10.3. Mitigation Measures

Reasonable and feasible mitigation measures should be implemented to manage and mitigate any potential adverse impacts on existing land services and utilities. Mitigation Measures could include:

- A CEMP including a detailed list of the measures that would be implemented during construction to communicate with and respond to the community;
- Construction completed within the shortest possible time;
- A Services Management Plan to provide specific measures to minimise impacts to services during construction;
- A Dial Before You Dig search must be completed prior to commencement of construction;
- Engage in consultation with companies that have services crossing or in close proximity to the proposed works;
- Detailed survey and consultation with service providers would be undertaken to accurately locate services;
- The detailed design of the proposal would seek to minimise the need for service and utility relocations;
- The need for location of any utilities would be determined in consultation with service providers;
- Ensuring exposed underground services are protected prior to undertaking any bulk excavation or mechanical operations; and
- Staff will be briefed on the existence, location and nature of other utility services.

The potential for long-term adverse impacts on the Project area's and surrounding locality's services and utilities are considered low because of the short construction time frame.

The installation and upgrading of services and utilities will improve the Project area's long-term land services and utilities.



6.11. LAND USES

6.11.1. Existing Environment

The Baxter Track/Kangoo Road disturbance area is predominantly occupied by the existing Baxter Track and Kangoo Road infrastructure. The Parklands Road disturbance area is primarily used for agricultural uses (i.e. horse grazing).

The land uses adjoining Baxter Track/Kangoo Road and Parklands Road roadworks disturbance area includes Riding for the Disabled Association, Kariong Intake and Transit Centre and Frank Baxter Juvenile Justice Centre, business and education tenants distributed through the Heritage Precinct and Baxter Track Mixed-use Precinct and Central Coast Sports College within the Sports Precinct.

6.11.2. Future Land Uses

To drive economic growth in the region, HCCDC has identified the need for improved access to the various precincts. The proposal will provide public road access to the Kariong Intake and Transit Centre and Frank Baxter Juvenile Justice Centre and improve overall access to the Mount Penang Parklands site.

6.11.3. Impact Assessment

Impacts on the land uses within Baxter Track/Kangoo Road and Parklands Road disturbance area would be limited to temporary use of land for construction activities including the presence of construction equipment, plant, vehicles and fenced work sites along the work sites. During construction, the use of the land would change from its present uses to a construction site.

After construction works are completed the land use within the Baxter Track/Kangoo Road and Parklands disturbance area will predominantly return to their post construction land uses as practicable.

The impact of the construction works within The Baxter Track/Kangoo Road disturbance area are expected to be limited to business tenants, Kariong Intake and Transit Centre and Frank Baxter Juvenile Justice Centre, Kariong Mountains High School, visitors and service providers located within the Project area. In general, there would be changes to the movement patterns for vehicles, pedestrians, cyclists and bus users around construction areas during construction.



The impact of the construction works within the Parklands Road disturbance area is not expected to adversely impact the current Project area and/or surrounding locality's land-uses, because of its location.

During the proposal's operation phase the Project area's land uses will return to their post construction environment as far as practicable.

6.11.4. Mitigation Measures

Reasonable and feasible mitigation measures should be implemented to manage and mitigate any potential adverse impacts on land use. Mitigation Measures could include:

- A Traffic Management Plan will be prepared as part of the CEMP, prior to commencement of construction;
- The Construction Environmental Management Plan (CEMP) will include communication protocols; and
- Consultation with relevant stakeholders to facilitate the efficient delivery of the works and to minimise congestion and inconvenience to road users. Stakeholders would include Council, business tenants, Kariong Mountains High School, Kariong Intake and Transit Centre and Frank Baxter Juvenile Justice Centre and other relevant organisations.

In the long term the proposal is not anticipated to adversely impact the Project area's or surrounding locality's land uses. Any impacts will be minor and limited to the construction phase.

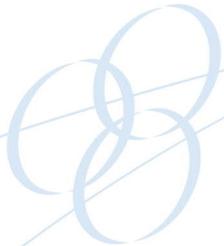
The proposal will improve traffic movement over the site by encouraging the Kariong Intake and Transit Centre and Frank Baxter Juvenile Justice Centre to use the upgraded Baxter Track as their primary access.

6.12. WASTE AND RESOURCES

6.12.1. Legislative requirement

HCCDC is committed to ensuring responsible management of waste and the reuse of such waste through appropriate measures, in accordance with the resource management hierarchy principles embodied in the WARR Act. The resource management hierarchy principles in order of priority as outlined in the WARR Act are:

- avoidance of unnecessary resource consumption;
- resource recovery (including reuse, reprocessing, recycling and energy recovery); and
- disposal.



By adopting the above principles, HCCDC encourages the most efficient use of resources and reduces cost and environmental harm in accordance with the principles of ecologically sustainable development.

6.12.2. Impact Assessment

The proposal's construction involves the use of a number of resources, including:

- resources associated with the operation of construction plant and equipment (fuel and electricity);
- construction water (for concrete mixing and dust suppression);
- fill required to meet design levels;
- concrete and paving materials;
- materials required for the supporting infrastructure; and
- landscaping.

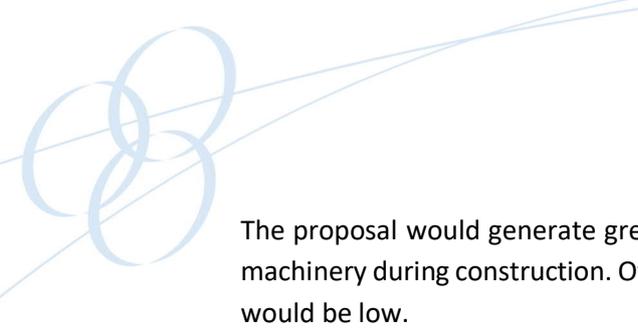
The resources required are not currently limited in availability. However, materials such as metal and fuel are non-renewable and would be used conservatively. Excess spoil, not suitable for reuse, would be disposed of in accordance with safeguards and mitigation measures and management measures would assist in minimising the amount of resources required for construction.

Construction would have the potential to generate the following wastes:

- spoil from excavation;
- surplus concrete, asphalt, bricks and materials;
- roadside and materials;
- utility adjustments - such as electrical cabling from installation of wiring;
- possible industrial waste such as lubricating oils, hydraulic fluids and cleaning agents.
- vegetation;
- wastewater;
- general litter, including glass, plastic, metal and paper waste; and
- redundant erosion and sediment controls.

Potentially contaminated material and/or hazardous spoil and materials may also be encountered during construction.

Careful planning of construction activities would ensure that the volume of surplus materials is minimised, and disposal is undertaken in accordance with relevant guidelines and legislation. The potential to reuse materials will be investigated.



The proposal would generate greenhouse gas emissions through the operation of plant and machinery during construction. Overall, greenhouse gas emissions resulting from construction would be low.

Only a small quantity of waste would be generated during the proposal's operation. This would mainly relate to maintenance and repair activities. Wastes would include wastewater, oils, cleaning agents, and landscaping maintenance wastes.

6.12.3. Mitigation Measures

Reasonable and feasible mitigation measures should be implemented to manage and mitigate any potential adverse impacts caused by the proposal's waste generation and use of resources. Mitigation Measures could include:

- Efficient reuse or removal of all waste from the work area;
- Waste is to be disposed of according to waste disposal safeguards including the POEO Act, WARR Act and the NSW EPA Waste Classification Guidelines;
- Appropriate capture vessels will be used to collect any fuel, lubricant or hydraulic fluid spillages and the contaminant materials will be disposed of at a licensed waste depot;
- Green waste from the proposed vegetation clearing will be either chipped for reuse, retained for rehabilitation, mulched and spread immediately after the trench has been covered to prevent encroachment by weed species and minimise erosion, or removed from site and transported to a waste facility licensed to accept green waste;
- Excess spoil will be tested and disposed of at an approved facility licenced to receive the material;
- The Contractor will ensure that staff have up-to-date training in use of emergency spill kits as well as ensuring staff carry these with them on-site;
- The Contractor will ensure that staff are familiar with the correct procedure for storing contaminated or hazardous waste and ensuring that staff remove their own personal rubbish from site daily; and
- On completion of the construction works, the site will be returned as close as possible to its pre-construction position, including ensuring all waste, equipment and machinery has been removed from onsite.

Waste generated during the construction period will be appropriately managed in accordance with the above mitigation measures.

6.13. OTHER ENVIRONMENTAL CONSIDERATIONS

The Baxter Track/Kangoo Road disturbance area and Parklands Road disturbance area are identified as Bushfire Prone Land.



A fire management plan should be considered as part to the CEMP.

6.14. CUMULATIVE AND CONSEQUENTIAL IMPACTS

6.14.1. Existing Environment

The impacts caused by this proposal need to be considered in combination with impacts of other development projects within the Project area and surrounding locality.

Development projects with the potential for cumulative impacts with the proposal are considered to be developments of a similar nature and size as the proposal located within the Project area and surrounding locality.

6.14.2. Impact Assessment

There are no known development projects of a similar nature and size as the proposal either located within the Project area or the surrounding locality with the potential for cumulative impacts on the Project area or the surrounding locality.

6.14.3. Mitigation Measures

Prior to the commencement of construction works the appointed contractor will determine if there are development projects of a similar nature and size as the proposal either located within the Project area or the surrounding locality with the potential for cumulative impacts on the Project area or the surrounding locality and, if so, implement suitable mitigation measures required to offset potential adverse cumulative impacts on the Project area and/or the surrounding locality.

7. SUMMARY OF MITIGATION MEASURES

Details of the environmental mitigation measures for the impacts as outlined in the assessment section above, are outlined below in Table 5-1.

Table 5-1: Summary of mitigation measures

Section	Environmental Mitigation Measures
Soils and Geology	<ul style="list-style-type: none">• A Soil and Water Management Plan, including an Acid Sulphate Soil Management sub-plan and an Erosion and Sediment Control (ESCP) sub-plan (prepared in accordance with Landcom's (2004) Managing Urban: Stormwater Soils and Construction), be prepared as part of the Construction Environmental Management Plan (CEMP);• The ESCP will include appropriate sediment controls for wherever soil disturbance that could result in sediment run-off takes place;

Section

Environmental Mitigation Measures

- Erosion and sediment controls will be established prior to the commencement of construction and remain in place until the surface has been stabilised;
- Sediment controls will be placed at the entry points to any culverts and stormwater channels to prevent sediment entering the stormwater system;
- Erosion and sediment control devices will be regularly checked and maintained to ensure they remain effective for the duration of the construction period;
- Stabilisation by revegetation for disturbed areas will occur as soon as practicable within after completion of construction;
- Restoration following the completion of the works will aim to be as close as possible to the pre-works state;
- The road will be swept where it becomes dirty from tracking dirt, which will be minimised where possible;
- An 'unexpected finds protocol' would be prepared to assist with the identification, reporting, assessment, management, health and safety implications, remediation, and/or disposal (at an appropriately licensed facility) of any potentially contaminated soil and/or water; and
- In the event that indicators of contamination are encountered during construction (such as odours or visually contaminated materials), work in the affected area would cease immediately, and the procedures detailed in the unexpected finds protocol would be implemented.

Hydrology, Water Quality and Flooding

- A Soil and Water Management Plan, including a Groundwater Management sub-plan and Erosion and Sediment Control sub-plan (prepared in accordance with Landcom's (2004) Managing Urban: Stormwater Soils and Construction) would be prepared as part of the CEMP;
- A Contamination and Hazardous Materials Plan would be prepared as part of the CEMP;
- Fuels and chemicals will be stored and transported in accordance with the Australian Standard AS 1940-2004: The Storage and Handling of Flammable and Combustible Liquids and the Dangerous Goods Act 1975;
- The ground surface will be reinstated progressively;
- Refuelling, fuel decanting and vehicle maintenance work will take place off-site where possible;
- Chemicals, fuels and waste will not be stored or collected for disposal within or adjacent to drainage lines, waterbodies or unsealed surfaces;
- A 'spill kit' will be kept onsite at all times to be used in the event of a chemical or fuel spill;

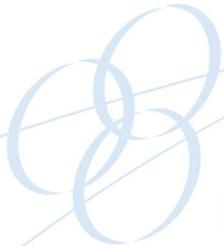


Section	Environmental Mitigation Measures
	<ul style="list-style-type: none">• Access to site will be contained to approved construction works area or access tracks to minimise site disturbance;• Erosion will be limited using slit fences and socks to manage runoff fetches and velocities; and• Silt fences, straw bales, turf strips and other sediment filters will be located downstream of disturbed areas.
Ecology	<ul style="list-style-type: none">• All contractors will be specifically advised of the designated work area. The following activities are not to occur outside of designated work areas to minimise environmental impacts:<ul style="list-style-type: none">• Storage and mixing of materials;• Liquid disposal;• Machinery repairs and/or refuelling;• Combustion of any material; and• Any filling or excavation including trenching, topsoil skimming and/or surface excavation.• All construction vehicles/machinery are to use the designated access from main roads. Speeds will be limited to reduce the potential of fauna strike and to reduce dust generation;• Plant and machinery would be cleaned of any foreign soil and seed prior to being transported to the Project Area to prevent the potential spread of weeds and <i>Phytophthora cinnamomi</i>;• If machinery is transported from an area of confirmed infection of <i>Phytophthora cinnamomi</i> to the Project Area, stringent wash down must be completed before leaving the area, removing all soil and vegetative material from cabins, trays, and under carriages;• All liquids (fuel, oil, cleaning agents, etc.) will be stored appropriately and disposed of at suitably licensed facilities. Spill management procedures will be implemented as required;• Rubbish will be collected and removed from the Project Area; and• During the creation of access tracks, erosion or sediment measures will be considered and installed as required.• Identification of potential erosion areas;• Installation and maintenance of flow, erosion, sediment and nutrient control within the Project Area during construction ahead of pavement and kerb establishment;• Separation of 'dirty' construction water from the 'clean' natural overland flow water;• Coordinated work practices aimed at minimising land disturbance;• Minimise vegetation disturbance to surrounding retained vegetation; and• Routine site inspections of drains, channels, sediment control structures and water quality.• The extent of vegetation clearing is to be clearly identified on construction plans.• Clearing limits should be demarcated with highly visible flicker tape to ensure clearing does not extend beyond the required area.• Prior to the commencement of any vegetation removal, a preclearance survey will be conducted by the Project Ecologist to identify and flag any areas containing threatened flora (<i>T. juncea</i>), and significant habitat features, which include but are not limited to:



Section	Environmental Mitigation Measures
---------	-----------------------------------

- Tree hollows
 - Nests
 - Arboreal termitaria
 - Any areas observed to be currently utilised by BC Act or EPBC Act listed threatened fauna
 - During the pre-clearance survey, any significant habitat features or trees that are known to have resident fauna present and all hollow-bearing trees will be:
 - Marked around the trunk of the tree at approximately 1.5 metres high with a 'H' marked several sides of the trunk using fluorescent spray marking paint; and/ or
 - Marked with highly visible flagging tape
- At the time of hollow-bearing tree mark up, the civil contractor and project ecologist are to walk the pegged (or with suitably accurate survey instrumentation) alignment and determine the exact number of habitat trees to be removed. For each tree consideration must be afforded for alternates to felling the tree such as minor adjustments in trenching and construction buffers at the tree location.
- Tree removal is to be strictly limited to the Project Area;
 - The mulch/tub grindings generated from the removal of vegetation on Project Area is to be reused on Project Area;
 - Felled trees must be stockpiled and processed within marked clearing boundaries;
 - All removal of hollow-bearing trees or significant habitat features is to be supervised by the Project Ecologist;
 - Hollow bearing trees or trees containing significant habitat features are to be knocked with an excavator bucket followed by a waiting and observation period to alert any resident fauna that have not moved on from the tree and to encourage the fauna to vacate;
 - All trees are to be slowly lowered (soft felled) where possible - machinery will ease the tree down to ground level by controlling the speed at which the tree descends to the ground, this will reduce impact to tree hollows and any potential fauna that may still be present during the removal process. Alternatively, trees may be sectionally dismantled or a similar technique that involves slowly lowering potential habitat (hollow limbs, termitaria) to the ground;
 - Following felling and when safe, the supervising Project Ecologist shall inspect the tree and hollows for displaced fauna;
 - The Project Ecologist is to confirm and record the number and size class of 'potential' hollows previously identified during pre-clearance surveys;
 - In the case of any displaced fauna, Project Ecologist is to contact local wildlife carer;
 - Trees must be left in situ for a minimum of one night before being removed, mulched or stockpiled, to allow any displaced fauna not observed during the post felling inspection to safely escape under the cover of darkness;
 - Felled trees must be stockpiled and processed within marked clearing boundaries;
 - Tree hollows are to be salvaged and stockpiled for reuse as fauna habitat wherever possible.

**Section****Environmental Mitigation Measures**

- Native canopy trees to be removed on Project Area can be used as mulch overlaid over the proposed pipeline.
- Understorey vegetation can only be mulched if project ecologist is present to supervise the selection of native flora and avoid exotic vegetation.
- Exotic vegetation must not be used as mulch on Project Area.
- If natural regeneration has not occurred within 6 months, hydromulching (native seed selection) can be utilised.

Noise and Vibration

- Noise and Vibration Management Plan be prepared as part of the CEMP;
- Ensuring all equipment complies with the Interim Construction Noise Guideline 2009;
- Machinery and vehicles will be turned off when not in use or throttled down to a minimum;
- Construction completed within the shortest possible time;
- Construction in The Baxter Track roadworks disturbance area during Kariong Mountains High School holidays;
- Construction works taking place between the hours: Monday to Friday, 7am to 6m and Saturday at 8am to 1pm, unless otherwise approved in CEMP;
- Identified noisy construction works to take place outside the standard working hours set out in the Interim Construction Noise Guideline (DECC, 2009);
- Use of noisy equipment and construction work will be scheduled to occur between the hours of 9am and 4pm, where possible;
- Construction activities would be undertaken in accordance with AS2436-1981 Guide to Noise Control on Construction, Maintenance and Demolition Sites;
- All equipment will be maintained regularly and effectively;
- All equipment with potential to create high levels of noise will only be used in conjunction with noise control;
- Noise monitoring may be used if complaints regarding excessive noise use are received and impacts will be assessed against the Interim Construction Noise Guidelines (DECC 2009);
- If noise limits are found to exceed the established guideline values, then operations would be modified and measures such temporary noise barriers would be implemented;
- Mitigation impacts of the proposed works would be undertaken in accordance with the qualitative assessment guidelines of the Interim Construction Noise Guidelines (DECC 2009) such as community notification of the works, operating plant in a quiet and efficient manner, involving workers in minimising noise and a procedure of handling complaints in accordance with these guidelines;
- Controlling vibration at the source including: choosing alternative, lower-impact equipment, or methods wherever possible; scheduling



Section	Environmental Mitigation Measures
	<p>the use of vibration-causing equipment, such as jackhammers, at the least sensitive time of day; routing, operating or locating high vibration sources as far away from sensitive areas as possible; sequencing operations so that vibration causing activities do not occur simultaneously isolating the equipment causing the vibration on resilient mounts;</p> <ul style="list-style-type: none">• Informing identified stakeholders, including potentially impacted tenants, in the Project Area, of the potential impacts, the time periods over which these will occur and the proposed mitigation measures that will be employed to minimise the impacts; and• Notice of works provided to identified stakeholders prior to the commencement construction.
Air Quality	<ul style="list-style-type: none">• All vehicles to be fitted with approved exhaust systems to maintain exhaust emissions within acceptable standards;• Machinery and vehicles will not be left running or idling when not in use;• Odours or air pollutant complaints will be dealt with promptly and the source will be eliminated wherever practicable;• All loads of excavated material, soil, fill and other erodible matter that are transported to or from the work site will be kept covered at all times during transportation and will remain covered until they are unloaded either for use at the worksite, reuse or disposal at a licensed waste disposal facility;• Areas that have been disturbed by construction works will be rehabilitated progressively; and• Monitor all work sites, general work areas and stockpiles for dust generation and watering down or covering affected areas in the event of windy conditions.
Non-Indigenous Heritage	<ul style="list-style-type: none">• Approval under the Heritage Act is required to be approved by Heritage NSW prior to the commencement of construction works.• Works are to be undertaken in accordance with the approval.• All on-site personnel are to be made aware of their obligations under the <i>NSW Heritage Act 1977</i>, including the reporting of any historic, or suspected historic, material. This may be implemented through an on-site induction or other suitable format.• In the unlikely event that archaeological, or suspected archaeological material is uncovered during works, then works in that area are to cease and the area is to be cordoned off. The material is to be inspected by a heritage consultant and works in that area are only to recommence once heritage clearance has been gained and/or mitigation and management measures implemented.• If there are any alterations to the proposed works, further heritage assessment will be required.
Aboriginal Heritage	<ul style="list-style-type: none">• All on-site personnel are to be made aware of their obligations under the National Parks and Wildlife Act. This includes protection of Aboriginal sites and the reporting of any new Aboriginal, or suspected



Section	Environmental Mitigation Measures
	<p>Aboriginal, heritage sites. This may be done through an on-site induction or other suitable format.</p>
Visual Amenity	<ul style="list-style-type: none">• Ensuring the construction work site is maintained in an orderly manner;• All vehicles, construction equipment, materials and refuse relating to the works to be removed from the site, following completion of the works; and• Following completion of the proposed works, work sites will be restored as close to their original condition as possible.
Traffic and Access	<ul style="list-style-type: none">• A Traffic Management Plan will be prepared as part of the CEMP, prior to commencement of construction;• Consultation with relevant stakeholders to facilitate the efficient delivery of the works and to minimise congestion and inconvenience to road users. Stakeholders would include Council, business and education tenants, Frank Baxter Juvenile Justice Centre, Kariong Mountains High School and other relevant organisations;• A construction communication management plan would be prepared as part of the CEMP including a detailed list of the measures that would be implemented during construction to communicate with and respond to the community;• Construction completed within the shortest possible time;• Possibly avoiding construction during peak periods of use of the Kariong Mountains High School holidays, NAISDA Dance College and Parklands Community Preschool;• Appropriate exclusion barriers, signage and site supervision will be employed at all times to ensure that the work site is controlled, and that authorised vehicles and pedestrians are excluded from the works area;• All measures will be undertaken to ensure that the proposal does not significantly reduce road capacity or disturb traffic flows; and• A complaints register will be maintained by the contractor, and complaints will be responded to in a timely fashion.
Services and Utilities	<ul style="list-style-type: none">• A CEMP including a detailed list of the measures that would be implemented during construction to communicate with and respond to the community;• Construction completed within the shortest possible time;• A Services Management Plan to provide specific measures to minimise impacts to services during construction;• A Dial Before You Dig search must be completed prior to commencement of construction;• Engage in consultation with companies that have services crossing or in close proximity to the proposed works;• Detailed survey and consultation with service providers would be undertaken to accurately locate services;• The detailed design of the proposal would seek to minimise the need for service and utility relocations;• The need for location of any utilities would be determined in consultation with service providers;• Ensuring exposed underground services are protected prior to undertaking any bulk excavation or mechanical operations; and



Section	Environmental Mitigation Measures
	<ul style="list-style-type: none"> • Staff will be briefed on the existence, location and nature of other utility services. •
Land Uses	<ul style="list-style-type: none"> • A Traffic Management Plan will be prepared as part of the CEMP, prior to commencement of construction; • The Construction Environmental Management Plan (CEMP) will include communication protocols; and • Consultation with relevant stakeholders to facilitate the efficient delivery of the works and to minimise congestion and inconvenience to road users. Stakeholders would include Council, business tenants, Kariong Mountains High School, Kariong Intake and Transit Centre and Frank Baxter Juvenile Justice Centre and other relevant organisations.
Waste and Resources	<ul style="list-style-type: none"> • Efficient reuse or removal of all waste from the work area; • Waste is to be disposed of according to waste disposal safeguards including the POEO Act, WARR Act and the NSW EPA Waste Classification Guidelines; • Appropriate capture vessels will be used to collect any fuel, lubricant or hydraulic fluid spillages and the contaminant materials will be disposed of at a licensed waste depot; • Green waste from the proposed vegetation clearing will be either chipped for reuse, retained for rehabilitation, mulched and spread immediately after the trench has been covered to prevent encroachment by weed species and minimise erosion, or removed from site and transported to a waste facility licensed to accept green waste; • Excess spoil will be tested and disposed of at an approved facility licenced to receive the material; • The Contractor will ensure that staff have up-to-date training in use of emergency spill kits as well as ensuring staff carry these with them on-site; • The Contractor will ensure that staff are familiar with the correct procedure for storing contaminated or hazardous waste and ensuring that staff remove their own personal rubbish from site daily; and • On completion of the construction works, the site will be returned as close as possible to its pre-construction position, including ensuring all waste, equipment and machinery has been removed from onsite.
Other Environmental Considerations	A fire management plan should be considered as part to the CEMP.
Cumulative and Consequential Impacts	Prior to the commencement of construction works the appointed contractor will determine if there are development projects of a similar nature and size as the proposal either located within the Project area or the surrounding locality with the potential for cumulative impacts on the Project area or the surrounding locality and, if so, implement suitable mitigation measures required to offset potential adverse cumulative impacts on the Project area and/or the surrounding locality.



8. CONCLUSION

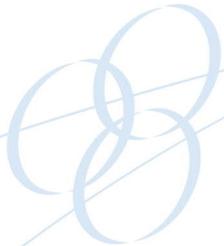
In accordance with the requirements of Part 5 of the EP&A Act and the EP&A Regulation the proposal has been fully assessed. Based on the assessment the proposal is not likely to significantly affect the environment and therefore does not require the preparation of an Environmental Impact Statement (EIS).

The REF includes an assessment of whether the proposal is likely to have a significant impact to matters of national environmental significance under the EPBC Act. The proposal is not likely to have a significant impact on matters of national environmental significance and therefore referral to the Commonwealth Government under the EPBC Act is not required.

As defined by the *Biodiversity Conservation Act 2016* the proposal is not expected to have significant impacts on threatened species, populations, ecological communities or their habitats consequently a species impact statement is not required.

This conclusion has taken into consideration the principals of Ecologically Sustainable Development.

The proposal's scope is preliminary and based on the information provided by HCCDC. The proposal will be refined as the proposal's design progresses in consultation with relevant stakeholders. Any substantive changes to the proposal may require subsequent environmental impact assessment.



APPENDIX 1

INDICATIVE PROPOSED PLANS



CONCEPT DESIGN

DRAWN: JBEVTT
 DESIGNED: JBEVTT
 JOB MANAGER: K SINCLAIR
 VERIFIER:

LEGEND	
	BOUNDARY LINE
	INDICATIVE LOCATION OF STORMWATER PIPE
	INDICATIVE LOCATION OF STORMWATER PIT
	INDICATIVE LOCATION OF STORMWATER CULVERT
	INDICATIVE LOCATION OF STORMWATER CULVERT HEADWALL
	DESIGN CONTOURS
	EXISTING CONTOURS

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	JB	BC		24.06.21
2	ISSUED FOR INFORMATION	JB	BC		25.06.21
3	ISSUED FOR INFORMATION	JB	BC		02.07.21
4	ISSUED FOR INFORMATION	JB	BC		28.07.21
5	ISSUED FOR INFORMATION	JB	BC		29.07.21
6	ISSUED FOR INFORMATION	JB	BC		16.08.21

Hunter & Central Coast Development Corporation
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PROJECT
MT PENANG PARKLANDS KARIONG NSW 2250
CONCEPT DESIGN

DRAWING TITLE
CIVIL ENGINEERING PACKAGE
BAXTER TRACK UPGRADE OVERVIEW

JOB NUMBER NL191249	
DRAWING NUMBER CD-03-C1.00	REVISION 6
DRAWING SHEET SIZE = A1	



APPENDIX 2

PHOTOGRAPHS



Baxter Track looking towards Kangoo Road Intersection



Baxter Track looking from Kangaroo Road intersection toward Justice Precinct.



Piles Creek Tributary and land adjacent to Baxter Track



Riding for the Disabled



View of Kangoo Road from Kangoo Road/Baxter Track Intersection



Baxter Track looking towards Kangoo Road



Investigation area between Baxter Track and Parklands Road



APPENDIX 3

FLORA AND FAUNA ASSESSMENT



Biodiversity Assessment

Baxter Track & Parklands North Upgrade, Mt Penang
Parklands

Prepared for

HCCDC c/- EPS

Final / August 2021

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DOCUMENT STATUS

Project Particulars			
Project Name	Biodiversity Assessment: Baxter Track & Parklands North Upgrade, Mt Penang Parklands		
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V1	13-05-2021	RD/ES/MD	Draft for client review
V2	05-07-2021	RD/ES/MD	Final for client review
V3	18-08-2021	RD/MD	Final for submission

Approval for use:



Matt Doherty - Director

August 2021

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EXECUTIVE SUMMARY

MJD Environmental has been engaged by Environmental Property Services to prepare a Biodiversity Assessment to accompany a Review of Environmental Factors (REF) to be submitted to Hunter and Central Coast Development Corporation (HCCDC) for a proposed upgrade to Baxter Track and Parklands North (including the Kangoo Road intersection), and associated water and sewer works along the alignment within the Mount Penang Parklands, Kariong NSW. This assessment is to be assessed by HCCDC under Part 5 of the EP&A Act.

The objective of the assessment was also to examine the likelihood of the proposal having a significant effect on any threatened species, populations or ecological communities listed under the *NSW Biodiversity Conservation Act 2016* (BC Act). This assessment recognises the relevant requirements of the *EP&A Act 1979* as amended by the *NSW Environmental Planning and Assessment Amendment Act 1997*. Preliminary assessment was also made with regard to those threatened entities listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

An appraisal of the Project Area to determine the appropriate assessment pathway under the BC Act determined the proposal on Project Area does not trigger a Biodiversity Offset Scheme (BOS) entry threshold and on this basis, only a Test of Significance is required including application of the 5-part test.

The ecological field assessment found:

- 0.54ha of Native vegetation including:
 - 0.31ha of MU 26 – Exposed Hawkesbury Woodland; and
 - 0.23ha of MU E1 – Coastal Wet Gully Forest.
- 4.88ha of Exotic Pasture / Vegetation;
- 0.63 ha of Landscape Plantings / Gardens; and
- 0.08 ha of Unmanaged Drainage Line.

No threatened flora or fauna were detected within the Project Area.

An ecological impact assessment test of significance considered whether the removal of native vegetation on Project Area totalling 0.54ha, would constitute a significant impact on known threatened species, populations, and ecological communities from the locality such that a local extinction may occur (5 Part Test).

The assessment concluded that the proposal was unlikely to have a significant impact on the threatened entities assessed.

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GLOSSARY OF TERMS AND ABBREVIATIONS

Term/ Abbreviation	Meaning
BC Act	Biodiversity Conservation Act 2016
BOS	Biodiversity Offset Scheme
DoEE	Commonwealth Department of the Environment and Energy
DPIE	NSW Department of Planning, Industry and Environment
DPI Water	NSW Department of Primary Industries – Water
EP&A Act	NSW Environmental Planning and Assessment Act 1979
EPBC Act	Commonwealth Environment Protection and Biodiversity Conservation Act 1999
HCCDC	Hunter and Central Coast Development Corporation
ha	hectare
LGA	Local Government Area
OEH	NSW Office of Environment and Heritage [<i>former</i>]

1 Introduction

MJD Environmental has been engaged by Environmental Property Services to prepare a Biodiversity Assessment to accompany a Review of Environmental Factors (REF) to be submitted to Hunter and Central Coast Development Corporation (HCCDC) for a proposed upgrade to Baxter Track and Parklands North (including the Kangoo Road intersection), and associated water and sewer works along the alignment within the Mount Penang Parklands, Kariong NSW, hereafter referred to as the 'Project Area' (Refer to **Figure 1**). This assessment is to be assessed by HCCDC under Part 5 of the EP&A Act.

1.1 Description of Proposal

The proposed development includes an upgrade to Baxter Track and Parklands North (including the Kangoo Road intersection), and associated infrastructure along the alignment which will be installed primarily along the existing road (Baxter Track) and verges. The proposed alignment will predominantly run along the entire length of Baxter Track from the Frank Baxter Juvenile Justice Centre to Kangoo Road. There is also potential for a connection to the south for road or / or services between Baxter Track and Parklands Rd.

1.2 Aims & Scope

The assessment aims to examine the likelihood of the proposed upgrade to Baxter Track and Parklands North (including the Kangoo Road intersection) having a significant effect on any threatened species, populations or ecological communities listed under the *NSW Biodiversity Conservation Act 2016* (BC Act). This assessment recognises the relevant requirements of the EP&A Act 1979 as amended by the *NSW Environmental Planning and Assessment Amendment Act 1997*. Preliminary assessment was also undertaken having regard to those threatened entities listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The scope of this flora and fauna assessment is to:

- determine the appropriate assessment pathway under the NSW BC Act;
- identify vascular plant species occurring within the Project Area, including any threatened species listed under the BC Act and/or EPBC Act;
- identify and map the extent of vegetation communities within the Project Area, including any Threatened Ecological Communities (TEC) listed under the BC Act or EPBC Act;
- identify any fauna species including threatened and migratory species, populations or their habitats, occurring within the Project Area and are known or likely to occur within 10 km of the Project Area (locality);
- assess the potential of the proposed activity to have a significant impact on any threatened species, populations or ecological communities (or their habitats) identified from the Project Area; and
- describe measures to be implemented to avoid, minimise, manage or monitor potential impacts of the proposal.

In addition to survey work within the Project Area, consideration has been afforded to habitats within the Project Area in order to appreciate the broader environmental context. This includes assessment of potential direct and indirect impacts.

1.3 Site Particulars

Locality	The Project Area is situated in Mt Penang Parklands, Kariong, NSW.
Land Title	Lot 521, DP1017539 (owned and managed by the Department of Communities and Justice) and Lot 1022, DP1268228
LGA	Central Coast Council
Area	Project Area (site) – 6.13ha
Zoning	The Project Area currently sits within two lots that share a common boundary. The first lot includes Infrastructure Correctional Centre (SP2) zoned land that incorporates Baxter Track as part of its southern boundary. The second lot is zoned Special Activities Mount Penang Parklands Heritage (SP1).
Boundaries	The Project Area is situated on the northern side of the Mt Penang Parklands and the southern side of the Frank Baxter Juvenile Justice Centre in Kariong, NSW, running for approximately 0.6km.
Current Land Use	The Project Area currently consists of a road, managed roadsides, and some patches of native vegetation and exotic vegetation.
Topography	The Project Area fluctuates in elevation along the existing Baxter Track from the summit of a ridge (~196m ASL) in the Frank Baxter Juvenile Justice Centre carpark, to a low of point at the unnamed 1 st order stream (~185m ASL), before rising back up to the Kangoo Road intersection (~187m ASL). The general elevation within the area slopes to the southwest, where the Project Area intersects with Parklands Road at its lowest elevation (~183m ASL).

1.4 Qualifications & Licencing

Qualifications

This biodiversity assessment has been prepared by Ross Duncan (B. Env. Sc.), Josh Smart (B. Env. Sc. & Mgmt. (Hons)) and Matt Doherty (BMLC).

Licencing

Research was conducted under the following licences:

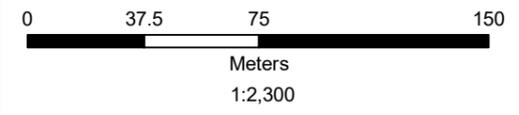
- NSW National Parks and Wildlife Service Scientific Investigation Licence SL101684 (Valid 31 January 2022).
- Animal Research Authority (Trim File No: 16/170) issued by NSW Department of Primary Industries (Valid 8 February 2022).
- Animal Care and Ethics Committee Certificate of Approval (Trim File No: 16/170) issued by NSW Department of Primary Industries (Valid 8 February 2022).

BAXTER TRACK, MT PENANG
FIGURE 1: SITE LOCATION



Legend

-  Subject Site
-  Cadastral Boundaries



Aerial: NearMap (2021) | Data: MJD Environmental (2021), NSW Spatial Services (2020) | Datum/Projection: GDA 2020 MGA Zone 56 | Date: 12/05/2021 | Version 1 | Z:\21042 - Baxter Track Upgrade & Kangoo Rd Intersection, Mt Penang
Parklands\21042_BaxterTrack_20210422.mxd | This plan should not be relied upon for critical design dimensions.

2 Biodiversity Assessment Pathway

The requirement to undertake a biodiversity assessment is a prerequisite for all Part 5 Activities (EP&A Act), to assess potential activity impacts on threatened species and threatened ecological communities.

The NSW Biodiversity reforms have delivered a new assessment pathway based on the understanding of the amount of clearing proposed, how the proposal will avoid and minimise impacts, and if required provide a strategy to offset the impacts in the form of biodiversity credits.

The following section provides guidance on the biodiversity assessment pathway selected for this project to reflect the amount of clearing associated with the proposal.

2.1 Assessment Methodology

The current biodiversity assessment pathway for proposed Part 5 Activities requires determining whether the proposal will have a significant impact on threatened species and/or threatened ecological communities.

To determine the biodiversity assessment pathway required for the development activity, the Biodiversity Offset Scheme (BOS) threshold is used to determine whether the Biodiversity Assessment Method (BAM) is used to assess the impacts of the proposal and calculate required biodiversity credits to ensure no net loss of biodiversity occurs in the locality.

The *Biodiversity Conservation Regulation 2017* outlines when clearing of native vegetation for a Part 5 activity is likely to have any biodiversity impacts on threatened species or TECs, it will trigger the entry into the Biodiversity Offset Scheme and the use of the BAM method or preparation of a Species Impact Statement (SIS).

Methods for which trigger the BOS are:

- Whether the activity is located in a declared Area of Outstanding Biodiversity Value (AOBV); or
- Whether the impacts are considered Significant? (Apply ToS – 5 part test).

The proposal is understood to require ground disturbance for the upgrade to Baxter Track and Parklands North (including the Kangoo Road intersection), and associated water and sewer works along the alignment. The proposal is not located in or adjacent to an Area of Outstanding Biodiversity Value. This proposal is to be assessed under Part 5 of the EP&A Act and therefore a 5-part test of significance will be applied to the disturbance area encompassing the road and intersection upgrades and associated services.

3 Methodology

Field surveys to undertake formal vegetation surveys across the Project Area were carried out by MJD Environmental staff Ross Duncan on the 23rd April 2021, and Josh Smart and Coral Pearce on the 4th May 2021. The techniques employed to inform this impact assessment are described in further detail below.

3.1 Desktop Assessment

A review of ecological information was undertaken to provide context and understanding of ecological values occurring on the site. Information reviewed included:

Online database searches involving a 10-km buffer around the Project Area were undertaken from the NSW BioNet Atlas and the Commonwealth Protected Matters of National Significance online search tool initially on 28th April 2021.

The searches provided a current list of potentially occurring threatened flora and fauna and migratory species under both the BC Act and EPBC Act.

3.2 Field Survey

Field surveys were undertaken on the 23rd April 2021 and 4th May 2021. The prevailing weather conditions during the survey are presented in a **Table 1** below.

Table 1 Prevailing Weather Conditions

Date	Min Temp (°C)	Max Temp (°C)	Rain (mm)	Wind (km/h)	Sunrise-Sunset
23 rd April 2021	6.4	21.4	0	W 6km/h to S 6km/h	0623-1723
4 th May 2021	12.9	19.3	0	Calm to SW 6km/h	0631-1712

Sources: <http://www.bom.gov.au/climate/dwo/IDCJDW0200.shtml>
<http://www.ga.gov.au/bin/geodesy/run/sunrisenset>

Note: Due to a failure during recording, the second survey effort (4th May 2021) that focused on the potential disturbance area running from north to south (from Baxter Track to Parklands Road) was not recorded and therefore cannot be displayed in **Figure 2**. The second survey effort took in to account the Parklands Road and McCabe Road intersection, its surrounds and the area in between this intersection and Baxter Track to the north.

3.2.1 Vegetation & Significant Flora Survey

Desktop analysis of regional mapping of the Project Area and its surrounds was informed by large-scale vegetation mapping projects and aerial photography, including:

- Preliminary consultation of the Central Coast Council Local Government Area Online Mapping Tool Vegetation Mapping (Rev. 2019) to determine the broad categorisation of the Project Area;
- GIS analysis including - Aerial Photograph Interpretation (API) and consultation of topographic map (Scale 1:25,000) layers for the Project Area; and
- Vegetation assessments from previous studies undertaken in the wider development area.

Vegetation communities were delineated within the Project Area based on the above-mentioned desktop information, coupled with ground truthing of vegetation and collection of vegetation quadrat and transect data.

The following methods were utilised within the Project Area:

- A random meander walkover was conducted over the Project Area to delineate vegetation and opportunistically record flora.
- Threatened species survey was undertaken by method of Random Meander technique similar to that of Cropper (1993) and was undertaken to:
 - Identify potential habitat for known threatened flora species; and
 - Identify any threatened flora species known to occur within a 10km radius in accordance with the NSW Bionet Atlas.

Refer to **Figure 2** showing the location of all vegetation surveys. A full compilation of flora species recorded during survey is provided as **Appendix 2**.

3.2.2 Fauna Survey

A desktop assessment of the potential use of the Project Area by threatened fauna species (as listed under the BC Act and EPBC Act) identified from the vicinity was undertaken prior to the commencement of field surveys (Refer to **Section 3.1**).

Fauna habitat values were assessed during flora surveys. Patches of native vegetation were recorded including three threatened ecological communities (disturbed), dense exotic roadside vegetation and wetlands; however, no other significant terrestrial habitat features (hollow bearing trees, nests, rock outcrops, or termite terrariums) were found during surveys.

Owing to the poor condition of terrestrial habitat and near absence of arboreal habitat, no formal fauna surveys were conducted over the Project Area

A list of fauna species observed during the Project Area survey is provided as **Appendix 2**.

Secondary Indications and Incidental Observations

Opportunistic sightings of secondary indications (scratches, scats, diggings, tracks etc.) of resident fauna were noted. Such indicators included:

- Distinctive scats left by mammals;
- Scratch marks made by various types of arboreal animals;
- Nests made by various guilds of birds;
- Feeding scars on Eucalyptus trees made by Gliders;
- Whitewash, regurgitation pellets and prey remains from Owls;
- Auditory recognition of bird and frog calls;
- Skeletal material of vertebrate fauna; and
- Searches for indirect evidence of fauna (such as scats, nests, burrows, hollows, tracks, and diggings).

3.2.3 Habitat Survey

An assessment of the relative habitat value present within the Project Area was undertaken. This assessment focused primarily on the identification of specific habitat types and resources in the Project Area favoured by known threatened species from the locality. The assessment also considered the potential value of the Project Area (and surrounds) for all major guilds of native flora and fauna. Habitat assessment included:

- presence, size and types of tree hollows;
- presence of rocks, logs, caves, rocky outcrops, leaf litter, overhangs and crevices;
- vegetation complexity, structure and quality;
- presence of freshwater or estuarine aquatic habitats, noting permanency;

- connectivity to adjacent areas of habitat;
- extent and types of disturbance;
- presence of foraging opportunities such as flowering eucalypts, fruits, seeds or other nectar bearing native plants; and
- presence and abundance of various potential prey species.

Habitat assessment was based on the specific habitat requirements of each threatened fauna species with regard to home range, feeding, roosting, breeding, movement patterns and corridor requirements. Consideration was given to contributing factors including topography, soil, light and hydrology for threatened flora and assemblages.

3.3 Limitations

Limitations associated with this Biodiversity Assessment report are presented herewith. The limitations have been taken into account specifically in relation to threatened species assessments, results and conclusions.

In these instances, a precautionary approach has been adopted; whereby 'assumed presence' of known and expected threatened species, populations and ecological communities has been made where relevant and scientifically justified to ensure a holistic assessment.

Seasonality & Conditions

Threatened flora species should be surveyed within their respective flowering periods to ensure accurate identification.

The flowering and fruiting plant species that attract some nomadic or migratory threatened species, often fruit or flower in cycles spanning a number of years. Furthermore, these resources might only be accessed in some areas during years when resources more accessible to threatened species fail. As a consequence, threatened species may be absent from some areas where potential habitat exists for extended periods, and this might be the case for nomadic and opportunistic species.

Data Availability & Accuracy

The collated threatened flora and fauna species records provided by Bionet Species Sightings Search of NSW Wildlife are known to vary in accuracy and reliability. This is usually due to the reliability of information provided to the National Parks and Wildlife Service (NPWS) for collation and/or the need to protect specific threatened species locations. During the review of threatened species records sourced from OEH BioNet Atlas, consideration has been given to the date and accuracy of each threatened species record in addition to an assessment of habitat suitability within the Project Area.

Similarly, EPBC Protected Matters Searches provide a list of threatened species and communities that have been recorded within 10 km of the Project Area, or which have suitable habitat within the wider area, and are subject to the same inherent inaccuracy issues as the State derived databases.

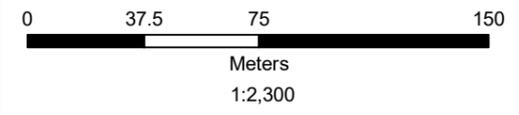
In order to address these limitations in respect to data accuracy, threatened species records have only been used to provide a guide to the types of species that occur within the locality of the Project Area. Consequently, habitat assessment and the results of surveys conducted within the Project Area have been used to assess the likelihood of occurrence of threatened species, populations and ecological communities to occur therein.

BAXTER TRACK, MT PENANG FIGURE 2: SURVEY EFFORT

Legend

- Survey Transects
- ▭ Subject Site
- ▭ Cadastral Boundaries

Note: Due to a failure during recording, the second survey effort (4th May 2021) that focused on the potential disturbance area running from north to south (from Baxter Track to Parklands Road) was not recorded and therefore cannot be displayed in Figure 2. The second survey effort took in to account the Parklands Road and McCabe Road intersection, its surrounds and the area in between this intersection and Baxter Track to the north.



Aerial: NearMap (2021) | Data: MJD Environmental (2021), NSW Spatial Services (2020) | Datum/Projection: GDA 2020 MGA Zone 56 | Date: 13/05/2021 | Version 1 | Z:\21042 - Baxter Track Upgrade & Kangoo Rd Intersection, Mt Penang Parklands\21042_BaxterTrack_20210422.mxd | This plan should not be relied upon for critical design dimensions.

4 Results

4.1 Desktop Assessment

Using the NSW BioNet Atlas, and EPBC Act Protected Matters Search (28th April 2021), a list of potentially occurring threatened species, populations and ecological communities from the locality (10 km radius) has been compiled (**Table 2**). A total of 149 entities have been recorded of which 40 threatened flora species, 61 fauna species, 24 ecological community and 24 migratory species have either been detected or have the potential to occur within the locality.

Note: Included in **Table 2** below are the numbers of records (not the number of individuals) for each species within the locality taken from the NSW BioNet Atlas. The EPBC Act Protected Matters Search Tool (PMST) does not provide number of records within the locality. Therefore, the record count related only to those BC Act listed species that were detected within 10 km of the Project Area. It is also noted that due to the terrestrial nature of the Project Area, marine species were not considered under this ecological assessment and have not been included in the list.

Table 2 Threatened Flora & Fauna Database Search Results.

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Notes & Source
Threatened Ecological Communities					
	Blue Gum High Forest in the Sydney Basin Bioregion	CE	E	K ¹	
	Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	V	E	K ¹	
	Coastal Swamp Oak (<i>Casuarina glauca</i>) Forest of New South Wales and South East Queensland ecological community	E			Community likely to occur within area ²
	Coastal Upland Swamp in the Sydney Basin Bioregion	E	E	K ¹	Community likely to occur within area ²
	Duffys Forest Ecological Community in the Sydney Basin Bioregion		E	K ¹	
	Eastern Suburbs Banksia Scrub in the Sydney Basin Bioregion	E	E	K ¹	
	Posidonia Australia seagrass meadows of the Manning-Hawkesbury ecoregion	E			Community likely to occur within area ²
	Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	-	E	K ¹	
	Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions	-	E	K ¹	
	Kincumber Scribbly Gum Forest in the Sydney Basin Bioregion	-	CE	K ¹	
	Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	CE	E	K ¹	
	Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin Bioregion	-	E	K ¹	
	Lowland Rainforest of Subtropical Australia	CE	E	K ¹	
	Quorrobolong Scribbly Gum Woodland in the Sydney Basin Bioregion	-	E	K ¹	
	River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	CE	E	K ¹	Community likely to occur within area ²

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Notes & Source
Shale Sandstone Transition Forest in the Sydney Basin Bioregion		CE	E	K ¹	
Southern Sydney sheltered forest on transitional sandstone soils in the Sydney Basin Bioregion		-	E	K ¹	
Subtropical and Temperate Coastal Saltmarsh		V			Community likely to occur within area ²
Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		E	E	K ¹	
Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		-	E	K ¹	
Sydney Freshwater Wetlands in the Sydney Basin Bioregion		-	E	K ¹	
Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions		-	E	K ¹	
Umina Coastal Sandplain Woodland in the Sydney Basin Bioregion		-	E	K ¹	
Western Sydney Dry Rainforest in the Sydney Basin Bioregion		CE	E	P ¹	

Flora

<i>Acacia bynoeana</i>	Bynoe's Wattle	V	E	1	Recorded within 10km of the Site ¹ Species or Species habitat may occur within area ²
<i>Acacia pubescens</i>	Downy Wattle	V			Species or Species habitat may occur within area ²
<i>Acacia terminalis subsp. Terminalis MS</i>	Sunshine Wattle	E			Species or Species habitat may occur within area ²
<i>Ancistrachne maidenii</i>	-	-	V	1	Recorded within 10km of the Site ¹
<i>Asterolasia elegans</i>	-	E			Species or Species habitat may occur within area ²
<i>Astrotricha crassifolia</i>	Thick-leaf Star-hair	V			Species or Species habitat may occur within area ²
<i>Baloskion longipes</i>	Dense Cord-rush	V	V	2	Recorded within 10km of the Site ¹ Species or Species habitat may occur within area ²
<i>Caladenia tessellata</i>	Thick-lipped Spider-orchid	V	-	-	Species or Species habitat likely to occur within area ²
<i>Callistemon linearifolius</i>	Netted Bottle Brush	-	V	142	Recorded within 10km of the Site ¹
<i>Cryptostylis hunteriana</i>	Leafless Tongue--orchid	V	V	1	Recorded within 10km of the Site ¹ Species or Species habitat likely to occur within area ²

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Notes & Source
<i>Cynanchum elegans</i>	White-flowered Wax Plant	E	-	-	Species or Species habitat likely to occur within area ²
<i>Darwinia biflora</i>	-	V	-	-	Species or Species habitat may occur within area ²
<i>Darwinia glaucophylla</i>	-	-	V	631	Recorded within 10km of the Site ¹
<i>Diuris bracteate</i>	-	X	V	1	Recorded within 10km of the Site ¹
<i>Diuris praecox</i>	Newcastle Doubletail	V	-	-	Species or Species habitat likely to occur within area ²
<i>Epacris purpurascens</i> <i>var. purpurascens</i>	-	-	V	3	Recorded within 10km of the Site ¹
<i>Eucalyptus camfieldii</i>	Camfield's Stringybark	V	V	8	Recorded within 10km of the Site ¹ Species or Species habitat known to occur within area ²
<i>Eucalyptus glaucina</i>	Slaty Red Gum	V	V	1	Recorded within 10km of the Site ¹ Species or species habitat may occur within area ²
<i>Genoplesium baueri</i>	Yellow Gnat-orchid	E	-	-	Species or Species habitat likely to occur within area ²
<i>Grevillea shiressii</i>	-	V	V	21	Recorded within 10km of the Site ¹ Species or Species habitat known to occur within area ²
<i>Haloragis exalata</i> subsp. <i>Exalata</i>	Wingless Raspwort	V	-	-	Species or species habitat may occur within area ²
<i>Hibbertia procumbens</i>	Spreading Guinea Flower	-	E	1691	Recorded within 10km of the Site ¹
<i>Hibbertia puberula</i>	-	-	E	1	Recorded within 10km of the Site ¹
<i>Lasiopetalum joyceae</i>	-	V	-	-	Species or Species habitat likely to occur within area ²
<i>Melaleuca biconvexa</i>	Biconvex Paperbark	V	V	59	Recorded within 10km of the Site ¹ Species or Species habitat known to occur within area ²
<i>Melaleuca deanei</i>	Deane's Paperbark	V	V	4	Recorded within 10km of the Site ¹ Species or Species habitat known to occur within area ²
<i>Micromyrtus blakelyi</i>	-	V	-	-	Species or Species habitat known to occur within area ²

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Notes & Source
<i>Persicaria elatior</i>	Knotweed	V	-	-	Species or Species habitat may occur within area ²
<i>Persoonia hirsuta</i>	Hairy Geebung	E	E	1	Recorded within 10km of the Site ¹ Species or species habitat likely to occur within area ²
<i>Pimelea curviflora var. curviflora</i>	-	V	-	-	Species or species habitat likely to occur within area ²
<i>Prostanthera askania</i>	Tranquillity Mintbush	E	E	118	Recorded within 10km of the Site ¹ Species or Species habitat known to occur within area ²
<i>Prostanthera junonis</i>	Somersby Mintbush	E	E	793	Recorded within 10km of the Site ¹ Species or Species habitat known to occur within area ²
<i>Rhizanthella slateri</i>	Eastern Underground Orchid	E	-	-	Species or Species habitat may occur within area ²
<i>Rhodamnia rubescens</i>	Scrub Turpentine	CE	E	16	Recorded within 10km of the Site ¹ Species or Species habitat known to occur within area ²
<i>Rhodomyrtus psidioides</i>	Native Guava	CE	-	-	Species or Species habitat known to occur within area ²
<i>Rutidosia heterogama</i>	Heath Wrinklewort	V	-	-	Species or Species habitat may occur within area ²
<i>Syzygium paniculatum</i>	Magenta Lilly Pilly	V	E	6	Recorded within 10km of the Site ¹ Species or Species habitat known to occur within area ²
<i>Tetradlea glandulosa</i>	-	-	V	3	Recorded within 10km of the Site ¹
<i>Tetradlea juncea</i>	Black-eyed Susan	V	-	-	Species or Species habitat known to occur within area ²
<i>Thesium australe</i>	Austral Toadflax	V	-	-	Species or Species habitat may occur within area ²
Birds					
<i>Anthochaera Phrygia</i>	Regent Honeyeater	CE	E	3	Recorded within 10km of the Site ¹ Species or Species habitat known to occur within area ²
<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	-	V	1	Recorded within 10km of the Site ¹

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Notes & Source
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	-	-	Species or Species habitat known to occur within area ²
<i>Burhinus grallarius</i>	Bush Stone-curlew	-	E	17	Recorded within 10km of the Site ¹
<i>Calidris canutus</i>	Red Knot	E, M, A	-	-	Species or Species habitat known to occur within area ²
<i>Calidris ferruginea</i>	Curlew Sandpiper	CE, M, A	-	-	Species or Species habitat known to occur within area ²
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	-	V	3	Recorded within 10km of the Site ¹
<i>Calyptorhynchus lathami</i>	Glossy Black Cockatoo	-	V	30	Recorded within 10km of the Site ¹
<i>Charadrius leschenaultia</i>	Greater Sand-plover	V	V	1	Recorded within 10km of the Site ¹
<i>Daphoenositta chrysoptera</i>	Varied Sittella	-	V	5	Recorded within 10km of the Site ¹
<i>Falco hypoleucos</i>	Grey Falcon	V	-	-	Species or Species habitat likely to occur within area ²
<i>Glossopsitta pusilla</i>	Little Lorikeet	-	V	5	Recorded within 10km of the Site ¹
<i>Grantiella picta</i>	Painted Honeyeater	V	-	-	Species or species habitat likely to occur within area ²
<i>Haematopus longirostris</i>	Pied Oystercatcher	-	E	3	Recorded within 10km of the Site ¹
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	-	V	6	Recorded within 10km of the Site ¹
<i>Hieraaetus morphnoides</i>	Little Eagle	-	V	1	Recorded within 10km of the Site ¹
<i>Hirundapus caudacutus</i>	White-throated Needletail	V	-	-	Species or species habitat known to occur within area ²
<i>Ixobrychus flavicollis</i>	Black Bittern	-	V	1	Recorded within 10km of the Site ¹
<i>Lathamus discolor</i>	Swift Parrot	CE, A	E	8	Recorded within 10km of the Site ¹ Species or species habitat known to occur within area ²
<i>Limosa lapponica baueri</i>	Bar-tailed Godwit (<i>baueri</i>)	V	-	-	Species or species habitat known to occur within area ²
<i>Lophoictinia isura</i>	Square-tailed Kite	-	V	1	Recorded within 10km of the Site ¹
<i>Neophema pulchella</i>	Turquoise Parrot	-	V	1	Recorded within 10km of the Site ¹
<i>Ninox connivens</i>	Barking Owl	-	V	2	Recorded within 10km of the Site ¹
<i>Ninox strenua</i>	Powerful Owl	-	V	36	Recorded within 10km of the Site ¹

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Notes & Source
<i>Numenius madagascariensis</i>	Eastern Curlew	CE, M	-	-	Species or Species habitat known to occur within area ²
<i>Pandion cristatus</i>	Eastern Osprey	-	V	5	Recorded within 10km of the Site ¹
<i>Petroica boodang</i>	Scarlet Robin	-	V	1	Recorded within 10km of the Site ¹
<i>Rostratula australis</i>	Australian Painted Snipe	E, A	-	-	Species or Species habitat known to occur within area ²
<i>Thinornis rubricollis rubricollis</i>	Hooded Plover (eastern)	V	-	-	Species or Species habitat may occur within area ²
<i>Turnix maculosus</i>	Red-backed Button-quail	-	V	2	Recorded within 10km of the Site ¹
<i>Tyto novaehollandiae</i>	Masked Owl	-	V	6	Recorded within 10km of the Site ¹
<i>Tyto tenebricosa</i>	Sooty Owl	-	V	21	Recorded within 10km of the Site ¹
Mammals					
<i>Dasyurus maculatus maculatus</i>	Spotted-tailed Quoll (SE mainland population)	E	V	44	Recorded within 10km of the Site ¹ Species or Species habitat known to occur within area ²
<i>Cercartetus nanus</i>	Eastern Pygmy-possum	-	V	54	Recorded within 10km of the Site ¹
<i>Petauroides Volans</i>	Greater Glider	V	-	-	Species or Species habitat known to occur within area ²
<i>Petaurus australis</i>	Yellow-bellied Glider	-	V	2	Recorded within 10km of the Site ¹
<i>Petaurus norfolcensis</i>	Squirrel Glider	-	V	3	Recorded within 10km of the Site ¹
<i>Petrogale penicillate</i>	Brush-tailed Rock-wallaby	V	-	-	Species or Species habitat likely to occur within area ²
<i>Phascolarctos cinereus</i>	Koala (Combined populations of Qld, NSW and the ACT)	V	V	12	Recorded within 10km of the Site ¹ Species or Species habitat known to occur within area ²
<i>Potorous tridactylus tridactylus</i>	Long-nosed Potoroo (SE mainland)	V	V	3	Recorded within 10km of the Site ¹ Species or Species habitat may occur within area ²
<i>Pseudomys gracilicaudatus</i>	Eastern Chestnut Mouse	-	V	1	Recorded within 10km of the Site ¹
<i>Pseudomys novaehollandiae</i>	New Holland Mouse	V	-	-	Species or Species habitat known to occur within area ²
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V	42	Recorded within 10km of the Site ¹ Roosting known to occur within area ²

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Notes & Source
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	V	2	Recorded within 10km of the Site ¹ Species or Species habitat known to occur within area ²
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle		V	13	Recorded within 10km of the Site ¹
<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	-	V	13	Recorded within 10km of the Site ¹
<i>Miniopterus australis</i>	Little Bent-winged Bat	-	V	39	Recorded within 10km of the Site ¹
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bent-winged Bat	-	V	36	Recorded within 10km of the Site ¹
<i>Myotis Macropus</i>	Southern Myotis	-	V	11	Recorded within 10km of the Site ¹
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	-	V	10	Recorded within 10km of the Site ¹
<i>Vespadelus trougtoni</i>	Eastern Cave Bat	-	V	3	Recorded within 10km of the Site ¹
Herpetofauna					
<i>Heleioporus australiacus</i>	Giant Burrowing Frog	V	V	52	Recorded within 10km of the Site ¹ Species or Species habitat known to occur within area ²
<i>Hoplocephalus bungaroides</i>	Broad-headed Snake	V	-	-	Species or Species habitat known to occur within area ²
<i>Litoria brevipalmata</i>	Green-thighed Frog	-	V	1	Recorded within 10km of the Site ¹ Species or Species habitat known to occur within area ²
<i>Litoria aurea</i>	Green and Golden Bell Frog	V	-	-	Species or Species habitat known to occur within area ²
<i>Litoria littlejohni</i>	Littlejohn's Tree Frog	V	-	-	Species or Species habitat likely to occur within area ²
<i>Mixophyes balbus</i>	Stuttering Frog	V	E	2	Recorded within 10km of the Site ¹ Species or Species habitat known to occur within area ²
<i>Mixophyes iteratus</i>	Giant Barred Frog	E	E	1	Recorded within 10km of the Site ¹ Species or Species habitat known to occur within area ²
<i>Pseudophryne australis</i>	Red-crowned Toadlet	-	V	112	Recorded within 10km of the Site ¹ Species or Species habitat known to occur within area ²
<i>Varanus rosenbergi</i>	Rosenberg's Goanna	-	V	1	Recorded within 10km of the Site ¹

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Notes & Source
					Species or Species habitat known to occur within area ²
Listed Migratory Species					
Migratory Terrestrial Birds					
<i>Cuculus optatus</i>	Oriental Cuckoo	M	-	-	Species or Species habitat known to occur within area ²
<i>Hirundapus caudacutus</i>	White-throated Needletail	M, V	-	-	Species or species habitat known to occur within area ²
<i>Monarcha melanopsis</i>	Black-faced Monarch	M	-	-	Species or Species habitat known to occur within area ²
<i>Monarcha trivirgatus</i>	Spectacled Monarch	M	-	-	Species or Species habitat known to occur within area ²
<i>Motacilla flava</i>	Yellow Wagtail	M	-	-	Species or Species habitat likely to occur within area ²
<i>Myiagra cyanoleuca</i>	Satin Flycatcher	M	-	-	Species or Species habitat known to occur within area ²
<i>Rhipidura rufifrons</i>	Rufous Fantail	M	-	-	Species or Species habitat known to occur within area ²
Migratory Wetlands Birds					
<i>Actitis hypoleucos</i>	Common Sandpiper	M	-	-	Species or Species habitat known to occur within area ²
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	M	-	-	Species or Species habitat known to occur within area ²
<i>Calidris canutus</i>	Red Knot	E, M, A	-	-	Species or Species habitat known to occur within area ²
<i>Calidris ferruginea</i>	Curlew Sandpiper	CE, M, A	-	-	Species or Species habitat known to occur within area ²
<i>Calidris melanotos</i>	Pectoral Sandpiper	M	-	-	Species or Species habitat known to occur within area ²
<i>Charadrius bicinctus</i>	Double-banded Plover	M	-	-	Foraging, feeding or related behaviour known to occur within area ²
<i>Gallinago hardwickii</i>	Latham's Snipe	M	-	-	Species or Species habitat likely to occur within area ²
<i>Gallinago megala</i>	Swinhoe's Snipe	M	-	-	Foraging, feeding or related behaviour known to occur within area ²
<i>Gallinago stenura</i>	Pin-tailed Snipe	M	-	-	Foraging, feeding or related behaviour

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Notes & Source
					known to occur within area ²
<i>Limosa lapponica</i>	Bar-tailed Godwit	M	-	-	Species or Species habitat known to occur within area ²
<i>Numenius madagascariensis</i>	Eastern Curlew	M	-	-	Species or Species habitat known to occur within area ²
<i>Numenius minutus</i>	Little Curlew	M	-	-	Foraging, feeding or related behaviour known to occur within area ²
<i>Numenius phaeopus</i>	Whimbrel	M	-	-	Foraging, feeding or related behaviour known to occur within area ²
<i>Pandion haliaetus</i>	Osprey	M, A	-	-	Species or Species habitat known to occur within area ²
<i>Pluvialis fulva</i>	Pacific Golden Plover	M	-	-	Foraging, feeding or related behaviour known to occur within area ²
<i>Tringa brevipes</i>	Grey-tailed Tattler	M	-	-	Foraging, feeding or related behaviour known to occur within area ²
<i>Tringa nebularia</i>	Common Greenshank	M, A	-	-	Species or Species habitat likely to occur within area ²

Key:

V = Vulnerable
E = Endangered

M = Migratory
CE = Critically Endangered

A = Marine

K = Known where there are confirmed records, specimens or otherwise verified sightings in any CMA subregion overlapping the search area

P = Predicted where there is high expectation by relevant experts that a species is likely to be present in any CMA subregion overlapping the search area, based on known presence of suitable habitat and distribution with adjoining subregions

1 – NSW BioNet Atlas, Office of Environment and Heritage (Accessed 28-4-2021).

2 – Commonwealth Protected Matters Search Tool, Department of the Environment (Accessed 28-4-2021)

4.2 Flora Survey

4.2.1 Vegetation Mapping & Delineation

Vegetation observed within the Project Area is predominantly characterised by exotic pasture vegetation that is grazed by livestock. Outside of the paddocks, the vegetated areas are predominantly; disturbed grassy roadside vegetation comprising exotic species, landscaped/ managed gardens and two patches of disturbed remnant vegetation within the road verge where Baxter Track intersects with Kangoo Road. The vegetation communities within the Project Area were best associated with Exotic Pasture / Vegetation (No MU Equivalent); Landscape Plantings / Gardens (No MU Equivalent); MU 26 – Exposed Hawkesbury Woodland which is commensurate with PCT 1642 - Scribbly Gum - Red Bloodwood - Old Man Banksia heathy woodland of southern Central Coast and MU E1 – Coastal Wet Gully Forest which is commensurate with PCT 1568 – Blackbutt – Turpentine – Sydney Blue Gum mesic tall open forest on ranges of the Central Coast. Neither PCT 1642 nor PCT 1568 is consistent with any TEC listed under the BC Act and/ or the EPBC Act.

The majority of the Project Area is characterised by low value areas largely containing no canopy and non-native grasses and forbs. This vegetation community is not associated with any listed threatened TEC.

The extant vegetation within the Project Area has been described below. Refer to **Figure 3**. A summary of vegetation community by area is presented in Table 3 below.

Table 3 Vegetation Community Areas

Vegetation Community	TEC	Area (Ha)
Exotic Pasture / Vegetation	No	4.88
Landscape Plantings / Gardens	No	0.63
MU 26 – Exposed Hawkesbury Woodland (disturbed) – PCT 1642 – Scribbly Gum – Red Bloodwood – Old Man Banksia heathy woodland of southern Central Coast	No	0.31
MU E1 – Coastal Wet Gully Forest – PCT 1568 – Blackbutt – Turpentine – Sydney Blue Gum mesic tall open forest on ranges of the Central Coast	No	0.23
Unmanaged Drainage Line	No	0.08
Total		6.13

Exotic Pasture / Vegetation	
PCT ID	N/A
Condition Class	Disturbed / Poor
Area within Development Area	4.88ha
Vegetation Formation / Class	Pasture with planted exotic trees
Survey Effort	Detailed Walkover
Floristic Description	<p>This vegetation community was observed throughout the majority of the site and is a highly modified landscape from past clearing and livestock grazing. It exists purely as exotic grassland, comprising of no mid-story and only exotic canopy species. Large mature <i>Pinus elliotii</i> (Slash Pine) and <i>Cinnamomum camphora</i> (Camphor Laurel) have been historically planted along fence lines, and form boundaries to roads and / or farm paddocks. Native grass species include; <i>Entolasia stricta</i> (Wiry Panic) and <i>Digitaria divaricatissima</i> (Umbrella Grass) whilst exotic grass species include; <i>Paspalum dilatatum</i> (Paspalum) species, <i>Cenchrus clandestinus</i> (Kikuyu), <i>Axonopus fissifolius</i> (Carpet Grass), <i>Setaria sphacelata</i> (Setaria) and <i>Ehrharta erecta</i> (Panic Veldtgrass). Exotic herbaceous forbs detected within the vegetation community include; <i>Trifolium repens</i> (White Clover), <i>Senecio madagascariensis</i> (Fireweed), <i>Verbena bonariensis</i> (Purple Top), <i>Hypochaeris glabra</i> (Smooth Catsear), <i>Bidens pilosa</i> (Cobbler's Peg) and <i>Solanum nigrum</i> (Black-berry Nightshade). Additionally, <i>Pteridium esculentum</i> (Bracken) was found along fence lines and under exotic trees. Due to this vegetation's disturbance regime and abundance of exotic, perennial grasses and herbaceous forbs, it has been classified as being in poor condition.</p>
Condition within Development Site	Poor
Status	BC Act: Not Listed EPBC Act: Not Listed



Landscaped Plantings / Gardens	
PCT ID	N/A
Condition Class	Disturbed / Poor
Area within Development Area	0.63ha
Vegetation Formation / Class	Planted native and exotics
Survey Effort	Detailed Walkover
Floristic Description	<p>This vegetation community was observed to reside within multiple locations throughout the site and is a highly modified landscape, comprised of both native and exotic species that have been planted into garden beds. The canopy exists of developing native plantings that included Myrtaceae species including <i>Eucalyptus haemastoma</i> (Scribbly Gum), <i>Eucalyptus piperita</i> (Sydney Peppermint), <i>Eucalyptus punctata</i> (Grey Gum), <i>Corymbia gummifera</i> (Red Bloodwood), <i>Corymbia maculata</i> (Spotted Gum), <i>Angophora costata</i> (Smooth-barked Apple) and <i>Angophora floribunda</i> (Rough-barked Apple), as well as <i>Jacaranda mimosifolia</i> (Jacaranda). There is also a row of <i>Lophostemon confertus</i> (Queensland Brush Box) planted along McCabe Road. Both the mid stratum and the shrub layer are largely absent, however some native shrubs including <i>Callistemon citrinus</i> (Crimson Bottlebrush), <i>Acacia longifolia</i> (Coastal Gold Wattle) were incorporated into the plantings. Groundcover species were limited due to mulching and a thick layer of woodchips, but included both native and exotic species including; <i>Doryanthes excelsa</i> (Gynea Lily), <i>Lomandra filiformis</i> (Wattle Mat-rush), <i>Lomandra longifolia</i> (Spiny-head Mat-rush), a <i>Grevillea spp.</i> (<i>Grevillea</i> "Royal Mantle) and the exotic <i>Agapanthus spp.</i> (<i>Agapanthus</i>).</p>
Condition within Development Site	N/A
Status	BC Act: Not Listed EPBC Act: Not Listed



MU 26 – Exposed Hawkesbury Woodland	
PCT ID	1642
Condition Class	Disturbed
Area within Development Area	0.31ha
Vegetation Formation / Class	KF_CH5B Dry Sclerophyll Forest (Shrubby sub-formation)
Survey Effort	Detailed Walkover
Floristic Description	<p>This vegetation community was observed to reside within the northern roadside along the southern boundary, and the northern boundary of Kangoo Road. Due to the small size of the vegetation community, with clearing occurring further to the north due to historic land use, it is hypothesized that this vegetation community is commensurate with Mapping Unit 26 – Exposed Hawkesbury Woodland and not confirmed due to the presence of disturbance and lack of complexity with the Small Tree/Shrub stratum. The canopy consists of well-developed native Myrtaceae species including <i>Eucalyptus haemastoma</i> (Scribbly Gum), <i>Angophora costata</i> (Smooth-barked Apple) and <i>Corymbia gummifera</i> (Red Bloodwood). The understorey was observed to be moderately disturbed and consisted of <i>Pittosporum undulatum</i> (Sweet Pittosporum), <i>Acacia longifolia</i> (Coastal Gold Wattle) and <i>Melaleuca stypheloides</i> (Prickly-leaved Paperbark). Vine species <i>Cassytha pubescens</i> (Devil's Twine) and <i>Parsonsia straminea</i> (Common Silkpod) were present. Due to the high consistency of leaf litter, groundcover species were limited to <i>Dianella caerulea</i> (Blue Flax-Lily), <i>Lomandra longifolia</i> (Spiny-Mat Rush) and <i>Oplismenus imbecillis</i> (Creeping Beard Grass). Some disturbance has occurred, especially on the northern roadside along the southern Road boundary in the form of encroaching weed species, including listed "Noxious" weeds such as <i>Lantana camara</i> (Lantana), <i>Cinnamomum camphora</i> (Camphor Laurel) and <i>Ligustrum sinense</i> (Narrow-leaved Privet) as well as other weeds such as <i>Pinus elliotii</i> (Slash Pine).</p>
Condition within Development Site	Moderate
Justification for PCT Selection	Well-developed native canopy including <i>Eucalyptus haemastoma</i> , <i>Angophora costata</i> and <i>Corymbia gummifera</i> .
Status	BC Act: Not Listed EPBC Act: Not Listed

MU 26 – Exposed Hawkesbury Woodland



MU E1 – Coastal Wet Gully Forest

PCT ID	1568
Condition Class	Disturbed
Area within Development Area	0.23ha
Vegetation Formation / Class	KF_CH2B Wet Sclerophyll Forests (Shrubby sub-formation)
Survey Effort	Detailed Walkover
Floristic Description	<p>This vegetation community was observed to reside within the southern roadside along the southern boundary of Kangoo Road. Due to the small size of the vegetation community, with clearing occurring further to the south due to historic land use, it is hypothesized that this vegetation community is commensurate with Unit E1 – Coastal Wet Gully Forest and not confirmed due to the presence of disturbance and lack of complexity with the Small Tree/Shrub stratum. The canopy exists of well-developed native Myrtaceae species including <i>Eucalyptus pilularis</i> (Blackbutt), <i>Eucalyptus saligna</i> (Sydney Blue Gum) and <i>Syncarpia glomulifera</i> (Turpentine). The understory was observed to be moderately intact and consisted of <i>Callistemon salignus</i> (Willow Bottlebrush), <i>Pittosporum undulatum</i> (Sweet Pittosporum), <i>Acacia longifolia</i> (Coastal Gold Wattle) and <i>Melaleuca styphelioides</i> (Prickly-leaved Paperbark). Due to the high consistency of leaf litter, groundcover species were limited to <i>Dianella caerulea</i> (Blue Flax Lily), <i>Lomandra longifolia</i> (Spiny-Mat Rush) and <i>Oplismenus imbecillis</i> (Creeping Beard Grass). Some disturbance has occurred in the form of encroaching weed species, including listed “Noxious” weeds such as <i>Lantana camara</i> (Lantana), <i>Cinnamomum camphora</i> (Camphor Laurel) and <i>Ligustrum sinense</i> (Narrow-leaved Privet) as well as other weeds such as <i>Pinus elliotii</i> (Slash Pine).</p>

MU E1 – Coastal Wet Gully Forest

Condition within Development Site	Moderate
Justification for PCT Selection	Well-developed native canopy including <i>Eucalyptus pilularis</i> , <i>Eucalyptus saligna</i> and <i>Syncarpia glomulifera</i> .
Status	BC Act: Not Listed
	EPBC Act: Not Listed



Unmanaged Drainage Lines

PCT ID	N/A
Condition Class	Unmanaged / Disturbed
Area within Development Area	0.08 ha
Survey Effort	Observed

Floristic Description	<p>This vegetation area resides along the drainage line running from north to south that crosses Baxter Track in the middle of the site and includes both native and exotic plants. It exists purely as a continuation of the exotic pasture, comprising of no mid-story nor canopy species. Due to this vegetation’s disturbance regime and abundance of exotic, perennial grasses, it has been classified as being in poor condition. The vegetation is dominated by <i>Paspalum dilatatum</i> (Paspalum), <i>Setaria sphacelata</i> (Setaria), <i>Pteridium esculentum</i> (Bracken) and <i>Cenchrus clandestinus</i> (Kikuyu) with the wetter areas being dominated by <i>Persicaria lapathifolium</i> (Knotweed), <i>Typha orientalis</i> (Cumbungi), <i>Carex appressa</i> (Tall Sedge) and <i>Cyperus eragrostis</i> (Tall Flatsedge) creating a thick groundcover hindering other species to compete. Exotic herbaceous forbs detected within the drainage line include <i>Verbena bonariensis</i> (Purple Top), <i>Hypochaeris glabra</i> (Smooth Catsear), <i>Bidens pilosa</i> (Cobbler’s Peg) and <i>Solanum nigrum</i> (Black-berry Nightshade).</p>
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Unmanaged Drainage Lines

Condition within Development Site	Poor
Status	BC Act: Not Listed
	EPBC Act: Not Listed



BAXTER TRACK, MT PENANG
FIGURE 3: VEGETATION

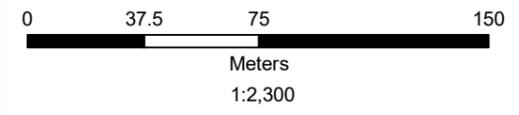


Legend

- Subject Site
- Cadastral Boundaries

Vegetation

- MU E1: Coastal Wet Gully Forest; PCT 1568: Blackbutt – Turpentine – Sydney Blue Gum mesic tall open forest on ranges of the Central Coast
- MU 26: Exposed Hawkesbury Woodland (disturbed); PCT 1642: Scribbly Gum – Red Bloodwood – Old Man Banksia heathy woodland of southern Central Coast
- Exotic Pasture / Vegetation
- Landscape Plantings / Gardens
- Unmanaged Drainage Line



Aerial: NearMap (2021) | Data: MJD Environmental (2021), NSW Spatial Services (2020) | Datum/Projection: GDA 2020 MGA Zone 56 | Date: 12/05/2021 | Version 1 | Z:\21042 - Baxter Track Upgrade & Kangoo Rd Intersection, Mt Penang
 Parklands\21042_BaxterTrack_20210422.mxd | This plan should not be relied upon for critical design dimensions.

4.3 Fauna Survey

The following section provides the fauna results from the Project Area survey. A total of 21 fauna species were observed opportunistically during the survey period. A full list of the fauna species recorded within the Project Area is provided as **Appendix 2**.

4.3.1 Mammals

Arboreal

No nocturnal surveys were conducted over the land due to its small size and lack of shelter and potential habitat.

No indications of Koala utilisation were recorded on any of the trees within the Project Area.

Terrestrial

Twenty-three (23) *Oryctolagus cuniculus* (European Rabbit) were detected on Project Area during the surveys.

4.3.2 Avifauna

Species common to open, disturbed landscapes and wetland areas were the majority of observations during the Project Area inspection, although there were some opportunistic sightings of less common species (Satin Bowerbird, Yellow-tailed Black-cockatoo). Species observed include Noisy Miner, Magpie Lark, Magpie, Variegated Fairy Wren, Rainbow Lorikeet, Australian Raven, and Rainbow Lorikeet. A full list of the fauna species recorded within the Project Area is provided as **Appendix 2**.

4.3.3 Herpetofauna

No frogs were heard nor spotted during surveys, although there is a man-made dam and first order stream that runs through part of the Project Area with suitable habitat present.

4.3.4 Microchiropteran Bats

No microbat surveys were undertaken due to the small subject size and the absence of natural nor man-made shelter / habitat for any species.

4.3.5 Nocturnal Call Playback & Spotlighting

No nocturnal call playback or spotlighting were undertaken due to the small subject size and the absence of natural nor man-made shelter / habitat for any species.

4.4 Habitat Survey

Arboreal and Terrestrial Habitat

The fauna habitat within the Project Area is largely absent due to past and current land use. Past clearing has removed most trees throughout the Project Area and henceforth the Project Area is observed to be frequently mowed/managed and grazed. Due to the young and / or exotic nature of the canopy trees, no hollows were detected within the Project Area. No denning habitat or logs were detected within the Project Area. The native trees provide seasonal blossom for nectar feeding species, and other bird species may forage for insects among the trees. The ground cover consists of a mixture of exotic grassy and herbaceous species occurring at variable heights including closely cropped (mown / slashed) to ground level to bushy stands. These thin bushy stands of grasses occur along the verge of Kangoo Road (within disturbed remnant vegetation that still exists), could provide some habitat for terrestrial fauna.

The native trees provide seasonal blossom for nectar feeding species, and other bird species may forage for insects among the trees. Birds and microbats foraging for insects on the open grass and grazing mammals are the only species likely to utilise this habitat. The groundcover does provide foraging habitat for grazing animals.

The presence of a man-made dam and first order stream that runs through part of the Project Area with suitable habitat present, although highly disturbed. Water would persist within the area, and the vegetation although mainly exotic, is not managed and seemingly fenced off.

Connectivity

The Project Area is bound by highly disturbed farmland, the Mt Penang Parklands and Heritage area, a Correctional Centre and industrial area. Although there are large, forested areas within the surrounding region, this proposal will not impact on connectivity due to the already highly disturbed nature of the Project Area and the lack of native vegetation / habitat in close proximity to the Project Area.

5 Impact Assessment

The following section provides an overview of the potential direct and indirect impacts associated with the proposal. This overview has been used to inform a likelihood of occurrence and potential for impacts to occur to threatened species, populations and ecological communities. In such instances, this has determined the need for further Test of Significance (5-part test).

5.1 Potential Impacts

Based on the ecological survey results over the Project Area, the following direct and indirect impacts have been generated to inform impact assessment related to the proposal.

Direct Impacts

- The ecological field assessment found the proposal will include both complete and partial removal of vegetation of up to 6.13ha, this includes:
 - 0.54ha of Native vegetation including:
 - 0.31ha of MU 26 – Exposed Hawkesbury Woodland; and
 - 0.23ha of MU E1 – Coastal Wet Gully Forest.
 - 4.88ha of Exotic Pasture / Vegetation;
 - 0.63 ha of Landscape Plantings / Gardens; and
 - 0.08 ha of Unmanaged Drainage Line.

Flora

No threatened flora were detected during survey efforts. The proposal will potentially, however, remove and/or modify all vegetation within 6.13ha impact area.

Fauna

No threatened fauna were detected during survey efforts. The proposal will potentially, however, remove and/or modify all vegetation within 6.13ha, which shall result in the removal and/or modification of all low condition disturbed terrestrial habitat within this area.

Indirect Impacts

The proposal may result in the following indirect impacts associated with the clearing of vegetation:

- Introduction and dispersal of exotic flora species from machinery.
- Light spill
- Temporary construction related impacts including sediment and nutrient run-off, dust, noise.

However, it is noted that these indirect impacts will be operating within an environment with high levels of existing disturbance.

5.2 Threatened Species & Communities Likelihood of Occurrence Assessment

Threatened flora and fauna species (listed under the BC Act and/or EPBC Act) that have been gazetted and recorded within a 10 kilometres radius of the Project Area have been considered within the assessment contained in **Table 4**. Each species / community is considered for its likelihood to occur on the Project Area and potential for impact arising from the proposal.

'Species / Community' – Lists each threatened species / EEC known from the locality (10 km radius). The status and number of records along with source and notes for each threatened entity under the BC Act and the EPBC Act are also provided.

'Habitat / Species Descriptions' – for up to date threatened species profiles including habitat descriptions and other key ecological information reference is made to the following online resources:

- NSW OEH Threatened Species Profile Search - <http://www.environment.nsw.gov.au/threatenedSpeciesApp/>
- Commonwealth Biodiversity: Species Profile and Threats Database (SPRAT) - <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>

'Likelihood of Occurrence on Project Area' – Assesses the likelihood of each locally recorded species and EEC to occur within the Project Area, using knowledge of each species' habitat and lifecycle requirements and with regard the habitat types present within the Project Area, results of the literature review and database searches and field investigations. The location and number of records of the species (NSW Bionet Species Sightings Search were also considered in determining probability of occurrence.

'Potential for Impact' – Assesses the likelihood of impacts to each species / community that would result from the proposed development, considering direct and indirect short and long-term impacts.

Database searches were conducted of the NSW Bionet Atlas Species Sightings Search (28-04-2021) and Commonwealth Protected Matters Search Tool (28-04-2021).

Note: marine species (bird, reptile, fish, mammal) recorded on the Protected Matters have not been listed or assessed herewith.

Table 4 Likelihood of Occurrence and Impact Assessment

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Likelihood of Occurrence / Likely Level of Impact
Threatened Ecological Communities					
Blue Gum High Forest in the Sydney Basin Bioregion		CE	E	K ¹	An onsite inspection confirmed this community does not occur within the Project Area. A ToS is not required for this species.
Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		V	E	K ¹	An onsite inspection confirmed this community does not occur within the Project Area. A ToS is not required for this species.
Coastal Swamp Oak (<i>Casuarina glauca</i>) Forest of New South Wales and South East Queensland ecological community		E			An onsite inspection confirmed this community does occur within the Project Area. A ToS is not required for this species
Coastal Upland Swamp in the Sydney Basin Bioregion		E	E	K ¹	An onsite inspection confirmed this community does not occur within the Project Area. A ToS is not required for this species.
Duffys Forest Ecological Community in the Sydney Basin Bioregion			E	K ¹	An onsite inspection confirmed this community does not occur within the Project Area. A ToS is not required for this species.
Eastern Suburbs Banksia Scrub in the Sydney Basin Bioregion		E	E	K ¹	An onsite inspection confirmed this community does not occur within the Project Area. A ToS is not required for this species.
Posidonia Australia seagrass meadows of the Manning-Hawkesbury ecoregion		E			An onsite inspection confirmed this community does not occur within the Project Area. A ToS is not required for this species.
Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		-	E	K ¹	An onsite inspection confirmed this community does not occur within the Project Area. A ToS is not required for this species.
Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions		-	E	K ¹	An onsite inspection confirmed this community does not occur within the Project Area. A ToS is not required for this species.
Kincumber Scribbly Gum Forest in the Sydney Basin Bioregion		-	CE	K ¹	An onsite inspection confirmed this community does not occur within the Project Area. A ToS is not required for this species.
Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		CE	E	K ¹	An onsite inspection confirmed this community does occur within the Project Area. A ToS is not required for this species.

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Likelihood of Occurrence / Likely Level of Impact
Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin Bioregion		-	E	K ¹	An onsite inspection confirmed this community does not occur within the Project Area. A ToS is not required for this species.
Lowland Rainforest of Subtropical Australia		CE	E	K ¹	An onsite inspection confirmed this community does not occur within the Project Area. A ToS is not required for this species.
Quorrobolong Scribbly Gum Woodland in the Sydney Basin Bioregion		-	E	K ¹	An onsite inspection confirmed this community does not occur within the Project Area. A ToS is not required for this species.
River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		CE	E	K ¹	An onsite inspection confirmed this community does occur within the Project Area. A ToS is not required for this species.
Shale Sandstone Transition Forest in the Sydney Basin Bioregion		CE	E	K ¹	An onsite inspection confirmed this community does not occur within the Project Area. A ToS is not required for this species.
Southern Sydney sheltered forest on transitional sandstone soils in the Sydney Basin Bioregion		-	E	K ¹	An onsite inspection confirmed this community does not occur within the Project Area. A ToS is not required for this species.
Subtropical and Temperate Coastal Saltmarsh		V			An onsite inspection confirmed this community does not occur within the Project Area. A ToS is not required for this species.
Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		E	E	K ¹	An onsite inspection confirmed this community does not occur within the Project Area. A ToS is not required for this species.
Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		-	E	K ¹	An onsite inspection confirmed this community does not occur within the Project Area. A ToS is not required for this species.
Sydney Freshwater Wetlands in the Sydney Basin Bioregion		-	E	K ¹	An onsite inspection confirmed this community does not occur within the Project Area. A ToS is not required for this species.
Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions		-	E	K ¹	An onsite inspection confirmed this community does not occur within the Project Area. A ToS is not required for this species.
Umina Coastal Sandplain Woodland in the Sydney Basin Bioregion		-	E	K ¹	An onsite inspection confirmed this community does not occur within the Project Area. A ToS is not required for this species.
Western Sydney Dry Rainforest in the Sydney Basin Bioregion		CE	E	P ¹	An onsite inspection confirmed this community does not occur within the Project Area.

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Likelihood of Occurrence / Likely Level of Impact
A ToS is not required for this species.					
Flora					
<i>Acacia bynoeana</i>	Bynoe's Wattle	V	E	1	This species was not recorded opportunistically during vegetation surveys. The species prefers dry sclerophyll forest on sandy soils as well as disturbed trail margins and edges of roadside spoil mounds. Furthermore, due to the small size of the Project Area, and the conspicuous nature of this species, the vegetation surveys conducted within the areas of disturbed remnant vegetation are considered sufficient to justify absence. On this basis, it is considered unlikely for this species to occur and as such be impacted by the proposal. A ToS is not required for this species.
<i>Acacia pubescens</i>	Downy Wattle	V			This species was not recorded opportunistically during vegetation surveys, and no records exist within the OEH 10km Bionet Atlas search. Furthermore, due to the small size of the Project Area, and the conspicuous nature of this species, the vegetation surveys conducted within the areas of disturbed remnant vegetation are considered sufficient to justify absence. Thus, it is considered unlikely for this species to occur and as such unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Acacia terminalis</i> subsp. <i>Terminalis</i> MS	Sunshine Wattle	E			This species was not recorded opportunistically during vegetation surveys, and no records exist within the OEH 10km Bionet Atlas search. Furthermore, due to the small size of the Project Area, and the conspicuous nature of this species, the vegetation surveys conducted within the areas of disturbed remnant vegetation are considered sufficient to justify absence. Thus, it is considered unlikely for this species to occur and as such unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Ancistrachne maidenii</i>	-	-	V	1	This species was not recorded during vegetation surveys, and only a single record exists within the OEH 10km Bionet Atlas search. This species is generally restricted to northern Sydney, around St Albans - Mt White - Maroota - Berowra areas and to the Shannon Creek area south-west of Grafton. Therefore, it is unlikely this species occurs, and as such unlikely to be impacted by the proposal. A ToS is not required for this species.

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Likelihood of Occurrence / Likely Level of Impact
<i>Asterolasia elegans</i>	-	E			This species was not recorded opportunistically during vegetation surveys. No records exist within the OEH 10km Bionet search and the site is outside of the known locations for this species. On this basis, is considered unlikely for this species to occur and as such unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Astrotricha crassifolia</i>	Thick-leaf Star-hair	V			This species was not recorded opportunistically during vegetation surveys. No records exist within the OEH 10km Bionet search, and the Project Area is located outside its known range. The species is known to occur further south at Patonga, and much further west at Lithgow. On this basis, this species is unlikely to occur on site and unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Baloskion longipes</i>	Dense Cord-rush	V	V	2	This species was not recorded opportunistically during vegetation surveys and only 2 records occur within a 10km OEH Bionet Search. This species occurs in swamps and depressions, also swales in tall forest, generally south from Kanangra Boyd area. As such it is unlikely that species occurs on the site, and unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Caladenia tessellata</i>	Thick-lipped Spider-orchid	V	-	-	This species was not recorded opportunistically during vegetation surveys, and no records occur within a 10km OEH Bionet Search. This species usually grows in grassy sclerophyll woodland which does occur on site. As such it is unlikely that species will be impacted by the proposal. A ToS is not required for this species.
<i>Callistemon linearifolius</i>	Netted Bottle Brush	-	V	142	This species was not recorded opportunistically or during flora surveys. While many records exist within 10km of the Project Area according to the OEH Bionet search, due to the small size of the Project Area, and the conspicuous nature of this species, the vegetation surveys conducted within the areas of disturbed remnant vegetation are considered sufficient to justify absence. As such it is unlikely that species will be impacted by the proposal. A ToS is not required for this species.
<i>Cryptostylis hunteriana</i>	Leafless Tongue--orchid	V	V	1	This species was not recorded opportunistically or during flora surveys. A single record exists within 10km of the Project Area according to the OEH Bionet search. This species grows in a range of habitat but prefers open areas in intact woodland. Only a relatively small area of disturbed remnant vegetation is potential suitable habitat, and this has densely disturbed understorey. As such it is unlikely that species will be impacted by the proposal. A ToS is not required for this species.

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Likelihood of Occurrence / Likely Level of Impact
<i>Cynanchum elegans</i>	White-flowered Wax Plant	E	-	-	This species was not recorded opportunistically or during flora surveys, and no records occur within a 10km OEH Bionet Search. This species usually occurs on the edge of dry rainforest vegetation, as well as various coastal scrub and heathland communities. No such habitat is represented on site. As such it is unlikely that species will be impacted by the proposal. A ToS is not required for this species.
<i>Darwinia biflora</i>	-	V	-	-	This species has not been recorded within the Project Area or within 10km of the Project Area. Grows in heath on sandstone or in the understorey of woodland on shale-capped ridges, Cheltenham to Hawkesbury River in Sydney region. As such it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Darwinia glaucophylla</i>	-	-	V	631	Occurs in sandy heath, scrub and woodlands often associated with sandstone rock platforms or near hanging swamps and friable sandstone shallow soils. Potential associated species occur within the Project Area however, it was not recorded during fieldwork and only a relatively small area of potential habitat exists with densely disturbed understorey. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Diuris bracteata</i>	-	X	V	1	The species is considered to be extinct, though the listing status under the <i>Biodiversity Conservation Act 2016</i> does not yet reflect this status. A ToS is not required for this species.
<i>Diuris praecox</i>	Newcastle Doubletail	V	-	-	This species was not recorded opportunistically. The species is generally known north from Ourimbah, which is outside of the Project Area. Additionally, no records occur within 10km of the Project Area according to the OEH Bionet Search. As such it is unlikely that species will be impacted by the proposal. A ToS is not required for this species.
<i>Epacris purpurascens</i> <i>var. purpurascens</i>	-	-	V	3	This species grows in sclerophyll forest, scrubs and swamps on sandstone from Gosford and Sydney, most of which have a strong shale soil influence. This species was not recorded opportunistically on site, and only a relatively small area of potential habitat exists with densely disturbed understorey. This coupled with only 3 records within the OEH 10km Bionet search, it is considered unlikely for this species to occur and as such unlikely to be impacted by the proposal. A ToS is not required for this species.

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Likelihood of Occurrence / Likely Level of Impact
<i>Eucalyptus camfieldii</i>	Camfield's Stringybark	V	V	8	This species was not recorded opportunistically and only 8 records exist within a 10km search of the locality. The Project Area's does not contain appropriate habitat in the form of poor coastal country in shallow sandy soils overlying Hawkesbury sandstone, or coastal heath mostly on exposed sandy ridges. Due to the small size of the Project Area, and the conspicuous nature of this species, the vegetation surveys conducted within the areas of disturbed remnant vegetation are considered sufficient to justify absence. As such it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Eucalyptus glaucina</i>	Slaty Red Gum	V	V	1	This species was not recorded opportunistically and only 1 record exists within a 10km search of the locality. Due to the small size of the Project Area, and the conspicuous nature of this species, the vegetation surveys conducted within the areas of disturbed remnant vegetation are considered sufficient to justify absence. As such it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Genoplesium baueri</i>	Yellow Gnat-orchid	E	-	-	The Project Area is not one of the 13 known locations for this species and is outside the species' known range. This species was not recorded opportunistically or during flora surveys on site and no records exist within a 10km search of the locality. On this basis, it's considered unlikely to occur on site and therefore unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Grevillea shiressii</i>	-	V	V	21	Grows along creek banks in wet sclerophyll forest with a moist understorey in alluvial sandy or loamy soils. The Project Area does not contain suitable habitat, and the species was not encountered during surveys. On this basis, it's considered unlikely to occur on site and therefore unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Haloragis exalata</i> subsp. <i>Exalata</i>	Wingless Raspwort	V	-	-	No suitable habitat in the form protected and shaded damp situations in riparian habitats. occurs within the Project Area. Furthermore, no records exist within the OEH 10km Bionet search. On this basis, it's considered unlikely to occur on site and therefore unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Hibbertia procumbens</i>	Spreading Guinea Flower		E	1691	This species was not recorded opportunistically on site. The Project Area is located very close to the core of the Gosford LGA population of this species, however due to the highly managed nature of most of the site, no suitable habitat occurs. The disturbed remnant vegetation roadside lacks the scrub/heath on skeletal sandy soils formation found north of

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Likelihood of Occurrence / Likely Level of Impact
					Kangoo Rd and being very densely vegetated in the understorey with both native and exotic shrubs, it is considered unlikely that this species occurs within the Project Area and as such unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Hibbertia puberula</i>	-	-	E	1	This species was not recorded on site. This species is generally restricted to the greater Sydney region, favouring low heath on sandy soils or rarely in clay. Only a single record exists within 10km of the Project Area, and no suitable heath habitat is present on site. It is unlikely to occur and unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Lasiopetalum joyceae</i>	-	V	-	-	This species grows in heath on sandstone and has a restricted range occurring on lateritic to shaley ridgetops on the Hornsby Plateau south of the Hawkesbury River. The Project Area is outside of know sites, and as such this species is unlikely to occur on site and unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Melaleuca biconvexa</i>	Biconvex Paperbark	V	V	59	This species was not recorded opportunistically on site. Due to the small size of the Project Area, and the conspicuous nature of this species, the vegetation surveys conducted within the areas of disturbed remnant vegetation are considered sufficient to justify absence. As such it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Melaleuca deanei</i>	Deane's Paperbark	V	V	4	This species was not recorded opportunistically and only 4 records exist within a 10km search of the locality. Due to the small size of the Project Area, and the conspicuous nature of this species, the vegetation surveys conducted within the areas of disturbed remnant vegetation are considered sufficient to justify absence. As such it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Micromyrtus blakelyi</i>	-	V	-	-	This species grows in heath in depressions on sandstone rock platforms; restricted to areas near the Hawkesbury River. This species was not detected within the Project Area, and no records occur within 10km according to OEH Bionet Search. As such it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Persicaria elatior</i>	Knotweed	V	-	-	This species has not been recorded on site or within 10km of the Project Area, and no suitable habitat in the form of damp places, usually on the margin of standing water occur on the site. It is unlikely this species occurs on site and unlikely to be impacted by the proposal.

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Likelihood of Occurrence / Likely Level of Impact
					A ToS is not required for this species.
<i>Persoonia hirsuta</i>	Hairy Geebung	E	E	1	This species was not recorded opportunistically and only 1 record exists within a 10km search of the locality. Due to the small size of the Project Area, and the conspicuous nature of this species, the vegetation surveys conducted within the areas of disturbed remnant vegetation are considered sufficient to justify absence. As such it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Pimelea curviflora var. curviflora</i>	-	V	-	-	This species is confined to coastal areas around Sydney on sandstone. No records exist within 10km of the Project Area, and it was not recorded opportunistically on the site. A ToS is not required for this species
<i>Prostanthera askania</i>	Tranquillity Mintbush	E	E	118	This species was not recorded on site. Numerous records exist within 10km of the Project Area, however due to the primarily managed vegetation only a small area of potential habitat occurs. The disturbed remnant vegetation roadside lacks the open forest/low woodland/open scrub preferred by this species and being very densely vegetated in the understorey with both native and exotic shrubs, it is considered unlikely that this species occurs within the Project Area and as such unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Prostanthera junonis</i>	Somersby Mintbush	E	E	793	This species was not recorded on site. Numerous records exist within 10km of the Project Area, however due to the primarily managed vegetation only a small area of potential habitat occurs. The disturbed remnant vegetation roadside lacks the ridgetops and upper slopes amongst woodlands preferred by this species and being very densely vegetated in the understorey with both native and exotic shrubs, it is considered unlikely that this species occurs within the Project Area and as such unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Rhizanthella slateri</i>	Eastern Underground Orchid	E	-	-	The Project Area is not one of the ten known locations for this species and is outside the species' known geographic distributional range. This species was not recorded opportunistically during flora surveys on site and no records exist within a 10km search of the locality and is unlikely to persist on site. Additionally, the Project Area is not heavily vegetated, hindering the build-up of leaf litter that this species requires. On this basis, it's considered unlikely to occur on site and therefore unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Rhodamnia rubescens</i>	Scrub Turpentine	CE	E	16	This species was not recorded opportunistically and only 16 records exist within a 10km search of the locality. Due to the small size of the Project Area, and the conspicuous nature

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					of this species, the vegetation surveys conducted within the areas of disturbed remnant vegetation are considered sufficient to justify absence. As such it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Rhodomirtus psidioides</i>	Native Guava	CE	-	-	This species was not recorded opportunistically, and no records exist within a 10km search of the locality. Due to the small size of the Project Area, and the conspicuous nature of this species, the vegetation surveys conducted within the areas of disturbed remnant vegetation are considered sufficient to justify absence. As such it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Rutidosis heterogama</i>	Heath Wrinklewort	V	-	-	This species was not recorded opportunistically during flora surveys and no records exist within a 10km search of the locality. No suitable habitat in the form of heath on sandy soils and moist areas in open forest occur within the Project Area. This species has been recorded along disturbed roadsides, but due to the lack of records and the presence of both thickets of invasive weeds and mowed lawns, it is considered unlikely that this species occurs within the Project Area and as such unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Syzygium paniculatum</i>	Magenta Lilly Pilly	V	E	6	This species was not recorded opportunistically and only 6 records exist within a 10km search of the locality. Due to the small size of the Project Area, and the conspicuous nature of this species, the vegetation surveys conducted within the areas of disturbed remnant vegetation are considered sufficient to justify absence. As such it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Tetratheca glandulosa</i>	-	-	V	3	This species was not recorded on site, and only 3 records exist within a 10km search of the locality. Associated with shale-sandstone transition habitat where shale-capping occurs over sandstone, occupying ridgetops, upper-slopes and to a lesser extent mid-slope sandstone benches. No suitable habitat is present on site. It is highly unlikely to occur and unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Tetratheca juncea</i>	Black-eyed Susan	V	-	-	This species has not been recorded on site or within 10km of the Project Area, and past and current management practices have diminished the potential for the species to occur. Given the absence of records for the species within the locality and the poor quality of habitat, it is unlikely to occur on site and unlikely to be impacted by the proposal.

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					A ToS is not required for this species.
<i>Thesium australe</i>	Austral Toadflax	V	-	-	This species has not been recorded on site or within 10km of the Project Area, and past and current management practices have diminished the potential for the species to occur. Given the absence of records for the species within the locality and the poor quality of habitat, it is unlikely to occur on site and unlikely to be impacted by the proposal. A ToS is not required for this species.
Birds					
<i>Anthochaera phrygia</i>	Regent Honeyeater	CE	E	3	This species was not seen during surveys and only three records exist within a 10km OEH Bionet search of the locality. Very limited suitable foraging habitat occurs within the Project Area and better-quality habitat occurs within the immediate vicinity to the northwest and further to the east. On this basis it is unlikely the species will be impacted by the proposal. A ToS is not required for this species.
<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	-	V	1	This species was not seen during surveys and only one record exists within a 10km OEH Bionet search of the locality. Very limited suitable foraging habitat occurs within the Project Area in the form of open eucalypt forests with a ground cover of grasses and sedges. Additionally, and better-quality habitat occurs within the immediate vicinity to the northwest and further to the east. On this basis it is unlikely the species will be impacted by the proposal. A ToS is not required for this species.
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	-	-	This species was not seen during surveys and no records exist within a 10km OEH Bionet search of the locality. No suitable habitat in the form of permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (<i>Typha</i> spp.) and spike rushes (<i>Eleocharis</i> spp.) occur within the Project Area. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Burhinus grallarius</i>	Bush Stone-curlew	-	E	17	This species was not seen during surveys and seventeen (17) records exist within a 10km OEH Bionet search of the locality. No suitable habitat in the form of lightly timbered, open forest or woodland habitat, dry and/or open grassland occurs within the Project Area. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Likelihood of Occurrence / Likely Level of Impact
<i>Calidris canutus</i>	Red Knot	E, M, A	-	-	This species was not seen during surveys and no records exist within a 10km OEH Bionet search of the locality. No suitable habitat in the form of littoral and estuarine habitats, intertidal mudflats of sheltered coasts, non-tidal swamps, lakes and lagoons occurs within the Project Area. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Calidris ferruginea</i>	Curlew Sandpiper	CE, M, A	-	-	This species was not seen during surveys and no records exist within a 10km OEH Bionet search of the locality. No suitable habitat in the form of littoral and estuarine habitats, intertidal mudflats of sheltered coasts, non-tidal swamps, lakes and lagoons occurs within the Project Area. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Collocephalon fimbriatum</i>	Gang-gang Cockatoo	-	V	3	This species was not seen during surveys and only three records exist within a 10km OEH Bionet search of the locality. No suitable nesting habitat is present on site. Very limited suitable foraging habitat occurs within the Project Area and better-quality habitat occurs within the immediate vicinity to the northwest and further to the east. Due to the nature of the area, it is unlikely this species would visit such an urbanised area, in particular, in proximity to high-level traffic roads. On this basis it is unlikely the species will be impacted by the proposal. A ToS is not required for this species.
<i>Calyptorhynchus lathami</i>	Glossy Black Cockatoo	-	V	30	This species was not seen during surveys and thirty (30) records exist within a 10km OEH Bionet search of the locality. No foraging habitat in the form of <i>Allocasuarina sp.</i> occurs within the Project Area occurs within the Project Area and better-quality habitat occurs within the immediate vicinity to the northwest and further to the east. Additionally, no tree hollows occur within the Project Area. On this basis it is unlikely the species will be impacted by the proposal. A ToS is not required for this species.
<i>Charadrius leschenaultia</i>	Greater Sand-plover	V	V	1	This species was not seen during surveys and one record exists within a 10km OEH Bionet search of the locality. No suitable habitat in the form of littoral and estuarine habitats, intertidal mudflats of sheltered coasts, non-tidal swamps, lakes and lagoons occurs within the Project Area. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Daphoenositta chrysoptera</i>	Varied Sittella	-	V	5	This species was not recorded during surveys and five records exist within a 10km OEH Bionet search of the locality. Very limited suitable foraging habitat exists on site. While individuals moving through the wider region have potential to visit and forage on the

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Likelihood of Occurrence / Likely Level of Impact
					Eucalyptus spp. These trees are unlikely to support a significant number of small insects on which this species feeds, and unlikely to be important to the long-term survival of the species in the locality. On this basis, it is unlikely the species will be impacted by the proposal. A ToS is not required for this species.
<i>Falco hypoleucos</i>	Grey Falcon	V	-	-	This species was not seen during surveys and no records exist within a 10km OEH Bionet search of the locality. Additionally, the Project Area occurs outside of this species known distribution range. This species is unlikely to hunt or nest within the small Project Area, and therefore unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Glossopsitta pusilla</i>	Little Lorikeet	-	V	5	This species was not seen during surveys and five records exist within a 10km OEH Bionet search of the locality. While individuals moving through the wider region have potential to visit and forage on the few Eucalyptus spp. That occur within the Project Area, it is unlikely for this species to forage exclusively on the trees within the Project Area. On this basis, it is considered unlikely for this species to be impacted by the proposal. A ToS is not required for this species.
<i>Grantiella picta</i>	Painted Honeyeater	V	-	-	This species was not seen during surveys and no records exist within a 10km OEH Bionet search of the locality. This species is unlikely to forage exclusively within the Project Area, and therefore unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Haematopus longirostris</i>	Pied Oystercatcher	E	E	3	This species was not seen during surveys and three records exist within a 10km OEH Bionet search of the locality. No suitable habitat in the form of littoral and estuarine habitats, intertidal mudflats of sheltered coasts, non-tidal swamps, lakes and lagoons occurs within the Project Area. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	-	V	6	This species was not seen during the surveys, and one records exist within a 10km OEH Bionet search of the locality. No suitable foraging habitat exists nearby, and no large nest were observed within any of the Eucalyptus trees. Due to the lack of suitable habitat within the study area, it is considered unlikely this species will be impacted by the proposal. A ToS is not required for this species.
<i>Hieraaetus morphnoides</i>	Little Eagle	-	V	1	This species was not seen during surveys, and one records exist within a 10km OEH Bionet search of the locality. It is unlikely this species would forage within the small and urban setting of the Project Area that houses little to no potential prey for hunting and therefore unlikely to be impacted by the proposal.

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Likelihood of Occurrence / Likely Level of Impact
					A ToS is not required for this species.
<i>Hirundapus caudacutus</i>	White-throated Needletail	V	-	-	This species was not seen during surveys and no records exist within a 10km OEH Bionet search of the locality. While individuals moving through the wider region have potential to visit and forage on the few Eucalyptus spp. these trees are unlikely to support a significant number of small insects on which this species feeds, and unlikely to be important to the long-term survival of the species in the locality. On this basis, it is considered unlikely for this species to be impacted by the proposal. A ToS is not required for this species.
<i>Ixobrychus flavicollis</i>	Black Bittern	-	V	1	This species was not seen during surveys, and one records exist within a 10km OEH Bionet search of the locality. No suitable habitat in the form of permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (<i>Typha</i> spp.) and spike rushes (<i>Eleocharis</i> spp.) occur within the Project Area. No records exist within the OEH 10km Bionet search. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Lathamus discolor</i>	Swift Parrot	CE, A	E	8	This species was not seen during surveys and eight records exist within a 10km OEH Bionet search of the locality. The stand of Eucalyptus spp. on site are unlikely to be visited by individuals foraging in the region. While individuals moving through the wider region have potential to visit and forage on the Eucalyptus, these trees are unlikely to be important for the long-term survival of the species in the locality. On this basis, it is unlikely this species will be impacted by the proposal. A ToS is not required for this species.
<i>Limosa lapponica baueri</i>	Bar-tailed Godwit (baueri)	V	-	-	This species was not seen during surveys and no records exist within a 10km OEH Bionet search of the locality. No suitable habitat in the form of littoral and estuarine habitats, intertidal mudflats of sheltered coasts, non-tidal swamps, lakes and lagoons occurs within the Project Area. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Lophoictinia isura</i>	Square-tailed Kite	-	V	1	This species was not seen during surveys, and one records exist within a 10km OEH Bionet search of the locality. It is unlikely this species would forage within the small and urban setting of the Project Area that houses little to no potential prey for hunting and therefore unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Neophema pulchella</i>	Turquoise Parrot	-	V	1	This species was not seen during surveys, and one records exist within a 10km OEH Bionet search of the locality. The stand of Eucalyptus spp. on site are unlikely to be visited by

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Likelihood of Occurrence / Likely Level of Impact
					individuals foraging in the region. While individuals moving through the wider region have potential to visit and forage on the Eucalyptus, these trees are unlikely to be important for the long-term survival of the species in the locality. On this basis, it is unlikely this species will be impacted by the proposal. A ToS is not required for this species.
<i>Ninox connivens</i>	Barking Owl	-	V	2	This species was not seen during surveys and two records exist within a 10km OEH Bionet search of the locality. Due to no suitable foraging habitat for arboreal mammal species and little habitat for native terrestrial mammals occurring within the Project Area, it is unlikely to be suitable foraging habitat for this species. Additionally, no suitable nesting habitat in the form of large hollows and old growth Eucalypts occur within the Project Area. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Ninox strenua</i>	Powerful Owl	-	V	36	This species was not seen during surveys and thirty-six (36) records exist within a 10km OEH Bionet search of the locality. Due to no suitable foraging habitat for arboreal mammal species and little habitat for native terrestrial mammals occurring within the Project Area, it is unlikely to be suitable foraging habitat for this species. Additionally, no suitable nesting habitat in the form of large hollows and old growth Eucalypts occur within the Project Area. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Numenius madagascariensis</i>	Eastern Curlew	CE, M	-	-	This species was not seen during surveys and no record occurs within a 10km OEH Bionet search of the locality. No suitable habitat in the form of littoral and estuarine habitats, intertidal mudflats of sheltered coasts, non-tidal swamps, lakes and lagoons occurs within the Project Area. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Pandion cristatus</i>	Eastern Osprey	-	V	5	This species was not seen during surveys and five records occur within a 10km OEH Bionet search of the locality. No suitable foraging or roosting habitat in the form of large waterbodies and large dead trees occur within the Project Area. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Petroica boodang</i>	Scarlet Robin	-	V	1	This species was not seen during surveys and one record occurs within a 10km OEH Bionet search of the locality. Optimal habitat occurs in the form of dry eucalypt forest / woodlands with open and grassy understorey, however, no abundant logs and fallen timber (a key

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Likelihood of Occurrence / Likely Level of Impact
					habitat requirement) occur within the Project Area. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Rostratula australis</i>	Australian Painted Snipe	E, A	-	-	This species was not seen during surveys and no records occur within a 10km OEH Bionet search of the locality. No suitable habitat in the form of wetland areas occur within the Project Area. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Thinornis rubricollis rubricollis</i>	Hooded Plover (eastern)	V	-	-	This species was not seen during surveys and no records occur within a 10km OEH Bionet search of the locality. No suitable habitat in the form of sandy ocean beaches, tidal bays, estuaries, rock platforms and rocky reefs occur within the Project Area. On this basis, it is considered unlikely for this species to occur. A ToS is not required for this species.
<i>Turnix maculosus</i>	Red-backed Button-quail	-	V	2	This species was not seen during surveys and two records occur within a 10km OEH Bionet search of the locality. No suitable habitat in the form of grasslands, open and savannah woodlands with a grassy ground layer, pastures and crops near water, including grasslands and sedgeland areas near creeks, swamps and springs, and wetlands occur within the Project Area. On this basis, it is considered unlikely for this species to occur on site and as such unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Tyto novaehollandiae</i>	Masked Owl	-	V	6	This species was not seen during surveys and six records occur within a 10km OEH Bionet search of the locality. Due to no suitable foraging habitat for arboreal mammal species and little habitat for native terrestrial mammals occurring within the Project Area, it is unlikely to be suitable foraging habitat for this species. Additionally, no suitable nesting habitat in the form of large hollows and old growth Eucalypts occur within the Project Area. On this basis, it is considered unlikely for this species to occur. A ToS is not required for this species.
<i>Tyto tenebricosa</i>	Sooty Owl	-	V	21	This species was not seen during surveys and twenty-one (21) records occur within a 10km OEH Bionet search of the locality. Due to no suitable foraging habitat for arboreal mammal species and little habitat for native terrestrial mammals occurring within the Project Area, it is unlikely to be suitable foraging habitat for this species. Additionally, no suitable nesting habitat in the form of large hollows and old growth Eucalypts occur within the Project Area. On this basis, it is considered unlikely for this species to occur. A ToS is not required for this species.

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Likelihood of Occurrence / Likely Level of Impact
Mammals					
<i>Dasyurus maculatus maculatus</i>	Spotted-tailed Quoll (SE mainland population)	E	V	44	This species was not opportunistically seen during surveys and forty-four (44) records occur within a 10km OEH Bionet search of the locality. The lack of cover, lack of proximate woodland, lack of suitable denning habitat diminishes the potential for this species to occur. On this basis it is unlikely the species will be impacted by the proposal. A ToS is not required for this species.
<i>Cercartetus nanus</i>	Eastern Pygmy-possum	-	V	54	This species was not opportunistically seen during surveys and fifty-four (54) records occur within a 10km OEH Bionet search of the locality. Due to the hostile environment of the Project Area residing within an urban setting, along with the lack of mid-storey species belonging to the Proteaceae family, it is unlikely the species will be impacted by the proposal. A ToS is not required for this species.
<i>Petauroides volans</i>	Greater Glider	V	-	-	This species was not opportunistically seen during surveys and no records occur within a 10km OEH Bionet search of the locality. The Project Area does not contain preferred habitat for this species. The Project Areas isolation from proximate and interconnecting vegetation coupled with the small size by way of comparison to the species requirements is likely to prohibit site occupation. On this basis, it is unlikely the species will be impacted by the proposal. A ToS is not required for this species.
<i>Petaurus australis</i>	Yellow-bellied Glider	-	V	2	This species was not opportunistically seen during surveys and two records occur within a 10km OEH Bionet search of the locality. No suitable habitat in the form of tall mature eucalypt forest occurs within or adjacent to the Project Area. Furthermore, very limited foraging habitat occurs except for a few semi-mature <i>Eucalyptus</i> spp. On this basis, this species is unlikely to occur on site and unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Petaurus norfolcensis</i>	Squirrel Glider	-	V	3	This species was not opportunistically seen during surveys and three records occur within a 10km OEH Bionet search of the locality. Despite the presence of scattered native trees, the formation of the non-indigenous canopy with limited trees severely limits the potential for this species to utilise habitat on site. Although the <i>Eucalyptus</i> spp. could be utilised for foraging, these trees are unlikely to support a population of Squirrel Gliders due to their small cover, disturbance, and no hollows. On this basis, it is unlikely the species will be impacted by the proposal. A ToS is not required for this species.

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Likelihood of Occurrence / Likely Level of Impact
<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	V	-	-	This species was not opportunistically seen during surveys and no records occur within a 10km OEH Bionet search of the locality. The Project Area does not contain suitable natural rocky habitat for this species. On this basis, it is unlikely the species will be impacted by the proposal. A ToS is not required for this species.
<i>Phascolarctos cinereus</i>	Koala (Combined populations of Qld, NSW and the ACT)	V	V	12	This species was not opportunistically seen during surveys and no records occur within a 10km OEH Bionet search of the locality. The proposal only requires a small area including native canopy to be disturbed and due to the hostility of the Project Area, it unlikely this species could safely enter. On this basis, it is unlikely the species will be impacted by the proposal. A ToS is not required for this species.
<i>Potorous tridactylus tridactylus</i>	Long-nosed Potoroo (SE mainland)	V	V	3	This species was not opportunistically seen during surveys and three records occur within a 10km OEH Bionet search of the locality. The Project Area does not contain dense understorey vegetation or heaths preferred by this species. On this basis, it is unlikely the species will be impacted by the proposal. A ToS is not required for this species.
<i>Pseudomys gracilicaudatus</i>	Eastern Chestnut Mouse	-	V	1	This species was not opportunistically seen during surveys, and one records occur within a 10km OEH Bionet search of the locality. No suitable habitat in the form of heathland, especially dense, wet heath and swamps with a grassy and/or sedge understorey occurs within or adjacent to the Project Area. On this basis, it is unlikely the species will be impacted by the proposal. A ToS is not required for this species.
<i>Pseudomys novaehollandiae</i>	New Holland Mouse	V	-	-	This species was not opportunistically seen during surveys and no records occur within a 10km OEH Bionet search of the locality. The Project Area does not contain the sandy heathland habitat preferred by this species and there is very little native groundcover vegetation. On this basis, it is unlikely the species will be impacted by the proposal. A ToS is not required for this species.
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V	42	This species was not opportunistically seen during surveys and forty-two (42) records occur within a 10km OEH Bionet search of the locality. The Project Area does not contain a permanent or temporary roosting camp for this species. Foraging habitat is present on site in the form of seasonal blossom of scattered native trees. The species has a widespread distribution and is highly mobile. The few feed trees present on site are not likely to represent

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Likelihood of Occurrence / Likely Level of Impact
					important seasonal forage for the local population. On this basis, it is unlikely the species will be impacted by the proposal. A ToS is not required for this species.
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	V	2	This species was not opportunistically seen during surveys and two records occur within a 10km OEH Bionet search of the locality. Although, potential foraging habitat occurs within the Project Area, no roosting habitat (caves) are present on site. The Project Area is isolated from areas which may contain roost caves. Therefore, while some limited foraging potential exists, the Project Area is unlikely to represent foraging habitat of any significance to individuals occurring in the locality. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle		V	13	This species was not opportunistically seen during surveys and thirteen (13) records occur within a 10km OEH Bionet search of the locality. No roosting habitat (tree hollows) are present on site. The Project Area is isolated from areas which may contain roost caves. Therefore, while some limited foraging potential exists, the Project Area is unlikely to represent foraging habitat of any significance to individuals occurring in the locality. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	-	V	13	This species was not opportunistically seen during surveys and thirteen (13) records occur within a 10km OEH Bionet search of the locality. No roosting habitat (tree hollows) are present on site. The Project Area is isolated from areas which may contain roost caves. Therefore, while some limited foraging potential exists, the Project Area is unlikely to represent foraging habitat of any significance to individuals occurring in the locality. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Miniopterus australis</i>	Little Bent-winged Bat	-	V	39	This species was not opportunistically seen during surveys and thirty-nine (39) records occur within a 10km OEH Bionet search of the locality. No roosting habitat (tree hollows) are present on site. The Project Area is isolated from areas which may contain roost caves. Therefore, while some limited foraging potential exists, the Project Area is unlikely to represent foraging habitat of any significance to individuals occurring in the locality. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Likelihood of Occurrence / Likely Level of Impact
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bent-winged Bat	-	V	36	This species was not opportunistically seen during surveys and thirty-six (36) records occur within a 10km OEH Bionet search of the locality. No roosting habitat (tree hollows) are present on site. The Project Area is isolated from areas which may contain roost caves. Therefore, while some limited foraging potential exists, the Project Area is unlikely to represent foraging habitat of any significance to individuals occurring in the locality. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Myotis macropus</i>	Southern Myotis	-	V	11	This species was not opportunistically seen during surveys and eleven (11) records occur within a 10km OEH Bionet search of the locality. No roosting habitat (tree hollows) are present on site. The Project Area is isolated from areas which may contain roost caves. Therefore, while some limited foraging potential exists, the Project Area is unlikely to represent foraging habitat of any significance to individuals occurring in the locality. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	-	V	10	This species was not opportunistically seen during surveys and ten records occur within a 10km OEH Bionet search of the locality. No roosting habitat (tree hollows) are present on site. The Project Area is isolated from areas which may contain roost caves. Therefore, while some limited foraging potential exists, the Project Area is unlikely to represent foraging habitat of any significance to individuals occurring in the locality. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Vespadelus trougtoni</i>	Eastern Cave Bat	-	V	3	This species was not opportunistically seen during surveys and three records occur within a 10km OEH Bionet search of the locality. No roosting habitat (tree hollows) are present on site. The Project Area is isolated from areas which may contain roost caves. Therefore, while some limited foraging potential exists, the Project Area is unlikely to represent foraging habitat of any significance to individuals occurring in the locality. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
Herpetofauna					
<i>Heleioporus australiacus</i>	Giant Burrowing Frog	V	V	52	This species has not been recorded on site and fifty-two (52) records occur within a 10km OEH Bionet search of the locality. Preferred habitat for this species does not occur on site (clay soils). Furthermore, due to the frequent maintenance of the understorey, it is unlikely for

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Likelihood of Occurrence / Likely Level of Impact
					this species to persist and as such it is unlikely to occur and unlikely to be impacted by the proposal. A ToS is not required for this species.
<i>Hoplocephalus bungaroides</i>	Broad-headed Snake	V	-	-	This species was not opportunistically seen during surveys and no records occur within a 10km OEH Bionet search of the locality. Additionally, no suitable habitat in the form of bare, western facing sandstone hills with a presence of large rocks or tree hollows are located on the Project Area. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Litoria brevipalmata</i>	Green-thighed Frog	-	V	1	This species was not opportunistically seen during surveys and one record occurs within a 10km OEH Bionet search of the locality. No suitable habitat occurs on site in the form of rainforest and moist eucalypt forest to dry eucalypt forest and heath, where surface water gathers after rain. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Litoria aurea</i>	Green and Golden Bell Frog	V	-	-	This species was not opportunistically seen during surveys and no records occur within a 10km OEH Bionet search of the locality. No suitable habitat occurs on site in the form of large permanent unshaded waterbodies like marshes, dams and stream-sides, particularly those with spike and bull rushes. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Litoria littlejohni</i>	Littlejohn's Tree Frog	V	-	-	This species was not opportunistically seen during surveys and no records occur within a 10km OEH Bionet search of the locality. No suitable habitat occurs on site in the form of heath-based forests and woodlands where it shelters under leaf litter and low vegetation, and hunts for invertebrate prey either in shrubs or on the ground, breeding occurs in permanent streams and perched swamps. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Mixophyes balbus</i>	Stuttering Frog	V	E	2	This species was not opportunistically seen during surveys and two records occur within a 10km OEH Bionet search of the locality. No suitable habitat occurs on site in the form of rainforest and wet, tall open forest in the foothills and escarpment on the eastern side of the Great Dividing Range. On this basis, it is unlikely that this species will be impacted by the proposal.

Scientific Name	Common Name	EPBC Act	BC Act	No. of Records	Likelihood of Occurrence / Likely Level of Impact
					A ToS is not required for this species.
<i>Mixophyes iteratus</i>	Giant Barred Frog	E	E	1	This species was not opportunistically seen during surveys and one record occurs within a 10km OEH Bionet search of the locality. No suitable habitat occurs on site in the form of freshwater streams with permanent or semi-permanent water, generally (but not always) at lower elevation. Moist riparian habitats such as rainforest or wet sclerophyll forest are favoured for the deep leaf litter that they provide for shelter and foraging, as well as open perching sites on the forest floor. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Pseudophryne australis</i>	Red-crowned Toadlet	-	V	112	This species was not opportunistically seen during surveys and one hundred and twelve (112) record occurs within a 10km OEH Bionet search of the locality. No suitable habitat occurs on site in the form of open forests, mostly on Hawkesbury and Narrabeen Sandstones with wet drainage lines below sandstone ridges that often have shale lenses or cappings where it shelters under rocks and amongst masses of dense vegetation or thick piles of leaf litter. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.
<i>Varanus rosenbergi</i>	Rosenberg's Goanna	-	V	1	This species was not opportunistically seen during surveys and one record occurs within a 10km OEH Bionet search of the locality. No suitable habitat occurs on site in the form of heath, open forest and woodland, with termite mounds, hollow logs and rock crevices. Furthermore, individuals require large areas of habitat. On this basis, it is unlikely that this species will be impacted by the proposal. A ToS is not required for this species.

Key:

V = Vulnerable M = Migratory A= Marine
 E = Endangered CE = Critically Endangered P=Protected

K = Known where there are confirmed records, specimens or otherwise verified sightings in any CMA subregion overlapping the search area

P = Predicted where there is high expectation by relevant experts that a species is likely to be present in any CMA subregion overlapping the search area, based on known presence of suitable habitat and distribution with adjoining subregions

1 – NSW BioNet Atlas, Office of Environment and Heritage (Accessed 28-04-2021).

2 – Commonwealth Protected Matters Search Tool, Department of the Environment (Accessed 28-04-2021)

5.3 Other Legislative Considerations

5.3.1 Key Threatening Processes

A Key Threatening Process (KTP) is defined in the BC Act as a process that “adversely affects threatened species or ecological communities, or it could cause species or ecological communities that are not threatened to become threatened.” They are listed under Schedule 4 of the BC Act and may adversely affect threatened species, populations or ecological communities or could cause species, populations or ecological communities that are not threatened to become threatened.

Nine (9) KTP’s have the potential to operate within the Project Area and require consideration under the site proposal:

1. Anthropogenic Climate Change
2. Competition and grazing by the feral European Rabbit (*Oryctolagus cuniculus*)
3. Invasion of native plant communities by exotic perennial grasses
4. Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae
5. Invasion, establishment and spread of Lantana
6. Infection of native plants by *Phytophthora cinnamomi*
7. Predation by the European Red Fox (*Vulpes vulpes*)
8. Clearing of native Vegetation
9. Loss of Hollow-bearing trees

Anthropogenic Climate Change

Modification of the environment by humans is considered to contribute to Climate Change and as a result has been listed as a Key Threatening Process. Activities such as the construction processes which will occur because of proposed development are actions that can contribute to greenhouse gas emissions. These actions may indirectly impact upon known or potentially occurring threatened species as the distribution of these species is affected by climate.

The proposal seeks to disturb up to 0.54ha of moderate-quality native vegetation, 0.63 ha of native planted vegetation and 4.96ha of exotic vegetation. The proposal is likely to make a very minor contribution to anthropogenic climate change due to the loss of vegetation (carbon storage), coupled with increased human activities. However, the loss of vegetation within the Project Area represents an extremely small decrease in carbon storage potential, and such impacts from human activity would contribute only by small amounts and would cause little impact on locally occurring threatened species, populations or ecological communities.

Competition and grazing by the feral European Rabbit (*Oryctolagus cuniculus*)

This KTP is currently operating within the Project Area with suitable foraging habitat occurring throughout the Project Area.

The proposal seeks to disturb up to 0.54ha of moderate-quality native vegetation, 0.63 ha of native planted vegetation and 4.96ha of exotic vegetation. It is considered this KTP is likely to continue to operate in the locality, however the proposal is unlikely to generate additional significant foraging areas for this species and more likely to reduce foraging areas due to the development. As such the proposal is unlikely to contribute to an increase in abundance and activity of the European Rabbit.

Invasion of native plant communities by exotic perennial grasses

This KTP is operating based on the presence of exotic grass species forming the dominant groundcover vegetation in the Project Area. The KTP was observed throughout the Project Area at high levels. The proposal seeks to disturb up to 0.54ha of moderate-quality native vegetation, 0.63 ha of native planted vegetation and 4.96ha of exotic vegetation. The removal of the vegetation in which this KTP is present, may reduce its effects. Conversely the development and associated landscaping may also provide further opportunity for this KTP to establish. However, the development is overall unlikely to cause this KTP to occur within the Project Area beyond current levels.

Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae

The exotic rust pathogen of the order *Pucciniales* spores can be dispersed by wind, water-splash, on plant material including seed, on people and their clothing and equipment and has been known to infect plants of the family Myrtaceae. There was no evidence observed of Exotic rust fungus impact within the Project Area during the survey period. Given the proposal will increase vehicle/machinery movements within the Project Area during construction and operations, it is possible that contamination of the Project Area with the pathogen may occur. Due to this risk of contamination, it is considered the proposal has potential to contribute to this KTP, although only within an isolated, highly disturbed landscape. It is also noted that there are high levels of vehicle activity in the area surrounding the Project Area due to port infrastructure, industrial developments, and high traffic roadways. The increase in risk due to the development is comparatively minor when the existing levels of disturbance and vehicle activity are accounted for.

Invasion, establishment and spread of Lantana camara (Lantana)

This species was observed within the Project Area during field surveys in the form of isolated plants present in areas of high disturbance and depressions. The proposal seeks to disturb up to 0.54ha of moderate-quality native vegetation, 0.63 ha of native planted vegetation and 4.96ha of exotic vegetation. However, given the nature of the development and area of clearing works the proposed development will not increase the operation of this KTP within the Project Area beyond current levels. On this basis it is considered that the proposal will not lead to an increase in the activity or prevalence of this KTP.

Infection of native plants by Phytophthora cinnamomi

The soil born pathogen *Phytophthora cinnamomi* spreads in plant roots and has been known to infect a number of native plants. There was no evidence observed of *P. cinnamomi* impact within the Project Area during the survey period. Given the proposal will increase vehicle/machinery movements within the Project Area during construction and operations, it is possible that contamination of the Project Area with the pathogen may occur. Due to this risk of contamination, it is considered the proposal has potential to contribute to this KTP, although only within an isolated, highly disturbed landscape. It is also noted that there are high levels of vehicle activity in the area surrounding the Project Area due to port infrastructure, industrial developments, and high traffic roadways. The increase in risk due to the development is comparatively minor when the existing levels of disturbance and vehicle activity are accounted for.

Predation by the European Red Fox Vulpes vulpes (Linnaeus, 1758)

No signs of this KTP were detected during surveys, however, suitable foraging habitat occurs throughout the Project Area.

The proposal will remove or modify patches of vegetation that may offer hunting habitat for the fox. The area of hunting habitat within the Project Area will therefore be reduced. As such it is considered that while this KTP is likely to operate within the Project Area, the proposal is unlikely to contribute to an increase in abundance and activity of the European Red Fox.

Clearing of native vegetation

The KTP final determination lists nine factors that have the potential to impact species distribution or result in extinction. These factors are:

- 1) destruction of habitat resulting in loss of local populations of individual species;
- 2) fragmentation;
- 3) expansion of dryland salinity;
- 4) riparian zone degradation;
- 5) increased greenhouse gas emissions;
- 6) increased habitat for invasive species;
- 7) loss of leaf litter layer;
- 8) loss or disruption of ecological function; and
- 9) changes to soil biota.

The proposal seeks to disturb up to 0.54ha of moderate-quality native vegetation, 0.63 ha of native planted vegetation and 4.96ha of exotic vegetation. This loss of vegetation will represent a small loss of moderate condition habitat for potential threatened species in the area. However, the habitat lost as a result of the proposal is very unlikely to be of significance for the continued survival of threatened species in the locality.

The proposal will not affect habitat connectivity in any significant way, the Project Area lies existing farmland and will remove primarily perennial exotic grasses during construction. Connectivity still exists to the east of the Project Area where a vegetation corridor has been created by the council's land zoning.

The proposal will have a minor impact on increasing greenhouse gas emissions and a minor loss of ground cover vegetation due the construction of the water pipeline.

The Project Area has a small highly disturbed first order stream running through it and is surrounded by existing farmland, Mt Penang Parklands and incorporated infrastructure and industrial estates, and therefore will have no impact on riparian areas and will not affect dry land salinity.

The proposal may have a minor impact on ecological function and soil biota. The Project Area's ecological function and soil biota has been heavily impacted prior to the proposal due to the previous land clearing, farming and development works in the area. The proposal will only have a minor impact as the majority of the development is restricted to existing farmland.

On this basis, it is not considered the KTP will be increased in the locality such that a decline and/ or extinction will occur due to reduction in habitat availability from clearing.

5.3.2 Commonwealth EPBC Act

An EPBC Act Protected Matters Search (accessed 28th April 2021) was undertaken to generate a list of those Matters of National Environmental Significance (MNES) from within 10 km of the Project Area. An assessment of those MNES relevant to biodiversity has been undertaken in accordance with EPBC Act Policy Statement 1.1 Significant Impact Guidelines Matters of National Environmental Significance (DoE, 2013). The Matters of National Environmental Significance protected under national environment law include:

- Listed threatened species and communities;
- Listed migratory species;
- Ramsar wetlands of international importance;
- Commonwealth marine environment;
- World heritage properties;
- National heritage places;

- The Great Barrier Reef Marine Park;
- Nuclear actions; and
- A water resource, in relation to coal seam gas development and large coal mining development.

Listed Threatened Species and Communities

A total of 101 threatened species and 24 threatened ecological communities listed under the EPBC Act have been recorded on the protected matters search. A likelihood of occurrence assessment for these MNES has been completed in **Section 5.2**.

This assessment concluded that the proposal is unlikely to impact the listed threatened species.

Listed Migratory Species

The protected matters search nominated 24 migratory species or species habitat that may occur with the 10km site buffer search area. Although migratory species may intermittently be present on site, no habitat on the site is critical to the survival of a listed migratory species. Therefore, it is unlikely that the proposal over the Project Area will impact migratory species.

Wetlands of International Significance (declared Ramsar wetlands):

The site is not part of or within close proximity to any wetland of international significance or declared Ramsar wetland.

Commonwealth Marine Areas:

The site is not part of or within close proximity to any Commonwealth Marine Area.

World Heritage Properties:

The site is not a World Heritage area and is not in close proximity to any such area.

National Heritage Places:

The site is not a National Heritage area and is not in close proximity to any such area.

Great Barrier Reef Marine Parks:

The site is not part of or within close proximity to any Great Barrier Reef Marine Park.

Nuclear Actions:

The proposal over the site is not and does not form part of a nuclear action.

Water Resources in relation to Coal Mining and CSG:

The proposal over the site is related to Part 5 Activity under the EP&A Act and as such is not or does not form part of a coal mining and/or CSG proposal.

Summary

In summary the proposed action is unlikely to have an impact to MNES assessed in this report and as such Commonwealth referral under the EPBC Act is not required.

6 Recommendations

The following recommendations have been generated with due consideration of the proposed the removal of vegetation within the Project Area totalling 0.54ha of moderate-quality native vegetation, 0.63 ha of native planted vegetation and 4.96ha of exotic vegetation. The intent is to minimise the effect of clearing and potential for any indirect impacts to occur.

General Mitigation Measures for the Construction Phase

The following mitigation measures have been provided for implementation to ensure best practice environmental management throughout the construction phase, including appropriate location and management of construction materials:

- All contractors will be specifically advised of the designated work area. The following activities are not to occur outside of designated work areas to minimise environmental impacts:
 - Storage and mixing of materials;
 - Liquid disposal;
 - Machinery repairs and/or refuelling;
 - Combustion of any material; and
 - Any filling or excavation including trenching, topsoil skimming and/or surface excavation.
- All construction vehicles/machinery are to use the designated access from main roads. Speeds will be limited to reduce the potential of fauna strike and to reduce dust generation;
- Plant and machinery would be cleaned of any foreign soil and seed prior to being transported to the Project Area to prevent the potential spread of weeds and *Phytophthora cinnamomi*;
- If machinery is transported from an area of confirmed infection of *Phytophthora cinnamomi* to the Project Area, stringent wash down must be completed before leaving the area, removing all soil and vegetative material from cabins, trays, and under carriages;
- All liquids (fuel, oil, cleaning agents, etc.) will be stored appropriately and disposed of at suitably licensed facilities. Spill management procedures will be implemented as required;
- Rubbish will be collected and removed from the Project Area; and
- During the creation of access tracks, erosion or sediment measures will be considered and installed as required.

Erosion and Sedimentation Control

Erosion and sediment control measures shall be implemented in accordance with the approved Sediment and Erosion control plan to be prepared prior to commencement of civil works on Project Area. In general, erosion and sediment control measures include:

- Identification of potential erosion areas;
- Installation and maintenance of flow, erosion, sediment and nutrient control within the Project Area during construction ahead of pavement and kerb establishment;
- Separation of 'dirty' construction water from the 'clean' natural overland flow water;
- Coordinated work practices aimed at minimising land disturbance;
- Minimise vegetation disturbance to surrounding retained vegetation; and
- Routine site inspections of drains, channels, sediment control structures and water quality.

Pre-clearance works

The following recommendations are provided to mitigate potential impacts on all biodiversity values within the Project Area with particular focus on any species, population or ecological community listed under the BC Act and/or EPBC Act:

- The extent of vegetation clearing is to be clearly identified on construction plans.
- Clearing limits should be demarcated with highly visible flicker tape to ensure clearing does not extend beyond the required area.

Pre-clearance Survey

The proponent is to engage a suitably qualified ecologist to undertake pre-clearance surveys prior to any vegetation clearing works occurring on site. Pre-clearance surveys are to be undertaken in advance of each clearing/ trenching stage, as follows:

- Prior to the commencement of any vegetation removal, a preclearance survey will be conducted by the Project Ecologist to identify and flag any areas containing threatened flora (*T. juncea*), and significant habitat features, which include but are not limited to:
 - Tree hollows
 - Nests
 - Arboreal termitaria
 - Any areas observed to be currently utilised by BC Act or EPBC Act listed threatened fauna
- During the pre-clearance survey, any significant habitat features or trees that are known to have resident fauna present and all hollow-bearing trees will be:
 - Marked around the trunk of the tree at approximately 1.5 metres high with a 'H' marked several sides of the trunk using fluorescent spray marking paint; and/ or
 - Marked with highly visible flagging tape

At the time of hollow-bearing tree mark up, the civil contractor and project ecologist are to walk the pegged (or with suitably accurate survey instrumentation) alignment and determine the exact number of habitat trees to be removed. For each tree consideration must be afforded for alternates to felling the tree such as minor adjustments in trenching and construction buffers at the tree location.

Hollow Bearing Tree Felling and Removal

- Tree removal is to be strictly limited to the Project Area;
- The mulch/tub grindings generated from the removal of vegetation on Project Area is to be reused on Project Area;
- Felled trees must be stockpiled and processed within marked clearing boundaries;
- All removal of hollow-bearing trees or significant habitat features is to be supervised by the Project Ecologist;
- Hollow bearing trees or trees containing significant habitat features are to be knocked with an excavator bucket followed by a waiting and observation period to alert any resident fauna that have not moved on from the tree and to encourage the fauna to vacate;
- All trees are to be slowly lowered (soft felled) where possible - machinery will ease the tree down to ground level by controlling the speed at which the tree descends to the ground, this will reduce impact to tree hollows and any potential fauna that may still be present during the removal process. Alternatively, trees may be sectionally dismantled or a similar technique that involves slowly lowering potential habitat (hollow limbs, termitaria) to the ground;
- Following felling and when safe, the supervising Project Ecologist shall inspect the tree and hollows for displaced fauna;
- The Project Ecologist is to confirm and record the number and size class of 'potential' hollows previously identified during pre-clearance surveys;
- In the case of any displaced fauna, Project Ecologist is to contact local wildlife carer;
- Trees must be left in situ for a minimum of one night before being removed, mulched or stockpiled, to allow any displaced fauna not observed during the post felling inspection to safely escape under the cover of darkness;
- Felled trees must be stockpiled and processed within marked clearing boundaries;

- Tree hollows are to be salvaged and stockpiled for reuse as fauna habitat wherever possible.

Mulching/Restoration

- Native canopy trees to be removed on Project Area can be used as mulch overlaid over the proposed pipeline.
- Understorey vegetation can only be mulched if project ecologist is present to supervise the selection of native flora and avoid exotic vegetation.
- Exotic vegetation must not be used as mulch on Project Area.
- If natural regeneration has not occurred within 6 months, hydromulching (native seed selection) can be utilised.

7 Conclusion

MJD Environmental has been engaged by Environmental Property Services to prepare a Biodiversity Assessment to accompany a Review of Environmental Factors (REF) to be submitted to Hunter and Central Coast Development Corporation (HCCDC) for a proposed upgrade to Baxter Track and Parklands North (including the Kangoo Road intersection), and associated water and sewer works along the alignment within the Mount Penang Parklands, Kariong NSW. This assessment is to be assessed by HCCDC under Part 5 of the EP&A Act.

The objective of the assessment was also to examine the likelihood of the proposal having a significant effect on any threatened species, populations or ecological communities listed under the *NSW Biodiversity Conservation Act 2016* (BC Act). This assessment recognises the relevant requirements of the *EP&A Act 1979* as amended by the *NSW Environmental Planning and Assessment Amendment Act 1997*. Preliminary assessment was also made with regard to those threatened entities listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

An appraisal of the Project Area to determine the appropriate assessment pathway under the BC Act determined the proposal for Project Area does not trigger a Biodiversity Offset Scheme (BOS) entry threshold and on this basis, only a Test of Significance is required including application of the 5-part test.

The ecological field assessment found:

- 0.54ha of Native vegetation including:
 - 0.31ha of MU 26 – Exposed Hawkesbury Woodland; and
 - 0.23ha of MU E1 – Coastal Wet Gully Forest.
- 4.88ha of Exotic Pasture / Vegetation;
- 0.63 ha of Landscape Plantings / Gardens; and
- 0.08 ha of Unmanaged Drainage Line.

No threatened flora or fauna were detected within the Project Area.

An ecological impact assessment test of significance considered whether the removal of native vegetation on Project Area totalling 0.54ha, would constitute a significant impact on known threatened species, populations, and ecological communities from the locality such that a local extinction may occur (5 Part Test).

The assessment concluded that the proposal was unlikely to have a significant impact on the threatened entities assessed.

8 References & Bibliography

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Appendix 1 Plan of Proposal



CONCEPT DESIGN

DRAWN: JBEVTT
 DESIGNED: JBEVTT
 JOB MANAGER: K SINCLAIR
 VERIFIER:

LEGEND	
	BOUNDARY LINE
	INDICATIVE LOCATION OF STORMWATER PIPE
	INDICATIVE LOCATION OF STORMWATER PIT
	INDICATIVE LOCATION OF STORMWATER CULVERT
	INDICATIVE LOCATION OF STORMWATER CULVERT HEADWALL
	DESIGN CONTOURS
	EXISTING CONTOURS

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	JB	BC		24.06.21
2	ISSUED FOR INFORMATION	JB	BC		25.06.21
3	ISSUED FOR INFORMATION	JB	BC		02.07.21
4	ISSUED FOR INFORMATION	JB	BC		28.07.21
5	ISSUED FOR INFORMATION	JB	BC		29.07.21
6	ISSUED FOR INFORMATION	JB	BC		16.08.21

Hunter & Central Coast Development Corporation
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 SCALE 1:1000 @ A1

NORTHROP
 Newcastle
 Level 1, 215 Pacific Hwy, Charlestown NSW 2290
 Ph (02) 4943 1777 Email newcastle@northrop.com.au
 ABN 81 094 433 100

PROJECT
MT PENANG PARKLANDS KARIONG NSW 2250
CONCEPT DESIGN

DRAWING TITLE
CIVIL ENGINEERING PACKAGE
BAXTER TRACK UPGRADE OVERVIEW

JOB NUMBER NL191249	
DRAWING NUMBER CD-03-C1.00	REVISION 6
DRAWING SHEET SIZE = A1	

Appendix 2 Flora & Fauna Species List

Fauna List	
Birds	
<i>Corvus coronoides</i>	Australian Raven
<i>Anthochaera carunculata</i>	Little Wattlebird
<i>Platycercus venustus</i>	Eastern Rosella
<i>Dacelo novaeguineae</i>	Kookaburra
<i>Vanellus miles</i>	Masked Lapwing
<i>Malurus lamberti</i>	Variiegated Fairy Wren
<i>Threskiornis molucca</i>	White Ibis
<i>Sturnus vulgaris</i>	Common Starling
<i>Egretta novaehollandiae</i>	White-faced Heron
<i>Hirundo neoxena</i>	Welcome Swallow
<i>Cacatua galerita</i>	Sulphur-crested Cockatoo
<i>Ptilonorhynchus violaceus</i>	Satin Bowerbird
<i>Cracticus nigrogularis</i>	Pied Butcherbird
<i>Platycercus elegans</i>	Crimson Rosella
<i>Acridotheres tristis</i>	Common Miner
<i>Threskiornis spinicollis</i>	Straw-necked Ibis
<i>Calyptorhynchus funereus</i>	Yellow-tailed Black-Cockatoo
<i>Trichoglossus moluccanus</i>	Rainbow Lorikeet
<i>Gymnorhina tibicen</i>	Australian Magpie
<i>Grallina cyanoleuca</i>	Magpie Lark
<i>Manorina melanocephala</i>	Noisy Miner

Fauna List	
Mammals	
<i>Oryctolagus cuniculus</i>	European Rabbit

Family	Scientific Name	Common Name
Amaranthaceae	<i>Alternanthera denticulata</i>	Lesser Joyweed
Amaryllidaceae	<i>Agapanthus spp.*</i>	Agapanthus
Apiaceae	<i>Centella asiatica</i>	Indian Pennywort
Apocynaceae	<i>Parsonsia straminea</i>	Common Silkpod
Asteraceae	<i>Senecio madagascariensis*</i>	Fireweed
	<i>Ageratina Adenophora*</i>	Crofton Weed
	<i>Bidens Pilosa*</i>	Farmer's Friends
	<i>Conyza bonariensis*</i>	Fleabane
	<i>Hypochaeris glabra*</i>	Smooth Catsear
Bignoniaceae	<i>Jacaranda mimosifolia</i>	Jacaranda
Convolvulaceae	<i>Dichondra repens</i>	Kidney Weed
Cyatheaceae	<i>Cyathea australis</i>	Tree Fern
Cyperaceae	<i>Carex appressa</i>	Tall Sedge
	<i>Cyperus eragrostis</i>	Tall Flatsedge
Dennstaedtiaceae	<i>Pteridium esculentum</i>	Bracken
Doryanthaceae	<i>Doryanthes excelsa</i>	Gymea Lily
Fabaceae	<i>Erythrina sykesii*</i>	Coral Tree
	<i>Trifolium repens*</i>	White Clover
Juncaceae	<i>Juncus usitatus</i>	Common Rush
Lauraceae	<i>Cassytha pubescens</i>	Common Devil's Twine
	<i>Cinnamomum camphora*</i>	Camphor Laurel
Lomandraceae	<i>Lomandra filiformis</i>	Wattle Mat-rush
	<i>Lomandra longifolia</i>	Spiny-head Mat-rush
Malvaceae	<i>Sida rhombifolia*</i>	Paddy's Lucerne
Mimosoideae	<i>Acacia floribunda</i>	White Sally Wattle
	<i>Acacia longifolia var. longifolia</i>	Sydney Golden Wattle
Myrtaceae	<i>Angophora costata</i>	Smooth-barked Apple
	<i>Angophora floribunda</i>	Rough-barked Apple
	<i>Corymbia gummifera</i>	Red Bloodwood
	<i>Corymbia maculata</i>	Spotted Gum
	<i>Eucalyptus haemastoma</i>	Scribbly Gum
	<i>Eucalyptus piperita</i>	Sydney Peppermint
	<i>Eucalyptus punctata</i>	Grey Gum
	<i>Eucalyptus saligna</i>	Sydney Blue Gum
	<i>Eucalyptus pilularis</i>	Blackbutt
	<i>Syncarpia glomulifera</i>	Turpentine
	<i>Eucalyptus capitellata</i>	Brown Stringybark

Family	Scientific Name	Common Name
	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark
	<i>Lophostemon confertus</i>	Queensland Brush Box
	<i>Callistemon citrinus</i>	Crimson Bottlebrush
	<i>Callistemon salignus</i>	Willow Bottlebrush
	<i>Leptospermum polygalifolium</i>	Tantoon
Oleaceae	<i>Ligustrum sinense*</i>	Small-leaved Privet
Phormiaceae	<i>Dianella caerulea</i>	Blue Flax-Lily
Pinaceae	<i>Pinus elliotii*</i>	Slash Pine
Pittosporaceae	<i>Pittosporum undulatum</i>	Sweet Pittosporum
Poaceae	<i>Axonopus fissifolius</i>	Carpet Grass
	<i>Cenchrus clandestinus*</i>	Kikuyu Grass
	<i>Digitaria divaricatissima</i>	Umbrella Grass
	<i>Ehrharta erecta*</i>	Panic Veldtgrass
	<i>Entolasia stricta</i>	Wiry Panic
	<i>Paspalum dilatatum*</i>	Paspalum
	<i>Paspalum urvillei*</i>	Vasey Grass
	<i>Setaria Sphacelata*</i>	Setaria
Polygonaceae	<i>Persicaria lapathifolium</i>	Knotweed
Salviniaceae	<i>Azolla pinata</i>	Mosquito Fern
Solanaceae	<i>Solanum nigrum*</i>	Black-berry Nightshade
Typhaceae	<i>Typha orientalis</i>	Cumbungi
Verbenaceae	<i>Lantana camara*</i>	Lantana
	<i>Verbena bonariensis</i>	Purpletop
Xanthorrhoeaceae	<i>Xanthorrhoea resinifera</i>	Grass Tree

* = non-native species

(V) = listed as Vulnerable under the BC & EPBC Acts

APPENDIX 4

INFRASTRUCTURE SEPP CONSULTATION

ISEPP CONSULTATION REQUIREMENTS		
Requirement	Consultation Required	Comment
<p>Section 13 – Consultation with councils – development with impacts on council-related infrastructure or services</p> <p>(1) This clause applies to development carried out by or on behalf of a public authority that this Policy provides may be carried out without consent if, in the opinion of the public authority, the development:</p>		
<p>(a) will have a substantial impact on storm water management services provided by a council, or</p>	<p>No consultation with Central Coast Council is required.</p>	<p>The proposal will not have a substantial impact on stormwater management services provided by council.</p> <p>The consultation requirements do not apply because HCCDC is required to give notice of the intention to carry out the proposal to Central Coast Council because an approval is required from Central Coast Council (section 17 (1)(a)).</p>
<p>(b) is likely to generate traffic to an extent that will strain the capacity of the road system in a local government area, or</p>	<p>No consultation with Central Coast Council is required.</p>	<p>The proposal is unlikely to generate traffic to an extent that will strain the capacity of the road system in a local government area. The consultation requirements do not apply because HCCDC is required to give notice of the intention to carry out the proposal to Central Coast Council because an approval is required from Central Coast Council (section 17 (1)(a)).</p>
<p>(c) involves connection to, and a substantial impact on the capacity of, any part of a sewerage system owned by a council, or</p>	<p>No consultation with Central Coast Council is required.</p>	<p>The proposal does involve connection to part of a sewerage system owned by a council however at this stage the proposal will not have a substantial impact on the capacity of, any part of a sewerage system owned by a council. The consultation requirements do not apply because HCCDC is required to give notice of the intention to carry out the proposal to Central Coast Council because an approval is required from</p>



ISEPP CONSULTATION REQUIREMENTS		
Requirement	Consultation Required	Comment
		Central Coast Council (section 17 (1)(a)).
(d) involves connection to, and use of a substantial volume of water from, any part of a water supply system owned by a council, or	No consultation with Central Coast Council is required.	The proposal does involve connection to part of a water system owned by a council however at this stage the proposal will not have a substantial impact on the capacity of, any part of a water system owned by a council. The consultation requirements do not apply because HCCDC is required to give notice of the intention to carry out the proposal to Central Coast Council because an approval is required from Central Coast Council (section 17 (1)(a)).
(e) involves the installation of a temporary structure on, or the enclosing of, a public place that is under a council's management or control that is likely to cause a disruption to pedestrian or vehicular traffic that is not minor or inconsequential, or	No consultation with Central Coast Council is required.	The proposal may involve the installation of a temporary structure on, or the enclosing of, a public place that is under a council's management or control that is likely to cause a disruption to pedestrian or vehicular traffic that is not minor or inconsequential. The consultation requirements do not apply because HCCDC is required to give notice of the intention to carry out the proposal to Central Coast Council because an approval is required from Central Coast Council (section 17 (1)(a)).
(f) involves excavation that is not minor or inconsequential of the surface of, or a footpath adjacent to, a road for which a council is the roads authority under the Roads Act 1993 (if the public authority that is carrying out the development, or on whose behalf it is being carried out, is not responsible for the maintenance of the road or footpath).	No consultation with Central Coast Council is required.	The proposal may involve excavation of the surface of, or a footpath adjacent to, a road for which a council is the roads authority under the Roads Act 1993 (if the public authority that is carrying out the development, or on whose behalf it is being carried out, is not responsible for the maintenance of the road or footpath). The consultation requirements do not apply because HCCDC is required to give notice of the intention to carry out the



ISEPP CONSULTATION REQUIREMENTS		
Requirement	Consultation Required	Comment

		proposal to Central Coast Council because an approval is required from Central Coast Council for the proposal (section 17 (1)(a)).
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(2) A public authority, or a person acting on behalf of a public authority, must not carry out development to which this clause applies unless the authority or the person has:
(a) given written notice of the intention to carry out the development (together with a scope of works) to the council for the area in which the land is located, and
(b) taken into consideration any response to the notice that is received from the council within 21 days after the notice is given.

Section 14 Consultation with councils—development with impacts on local heritage

(1) This clause applies to development carried out by or on behalf of a public authority if the development:

(a) is likely to affect the heritage significance of a local heritage item, or of a heritage conservation area, that is not also a State heritage item, in a way that is more than minor or inconsequential, and	No consultation with Central Coast Council is required.	The proposal is unlikely to affect the heritage significance of a local heritage item in a way that is more than minor or inconsequential. The consultation requirements do not apply because HCCDC is required to give notice of the intention to carry out the proposal to Central Coast Council because an approval is required from Central Coast Council for the proposal (section 17 (1)(a)).
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(b) is development that this Policy provides may be carried out without consent.	No consultation with Central Coast Council is required.	The proposal is unlikely to affect the heritage significance of a local heritage item in a way that is more than minor or inconsequential. The consultation requirements do not apply because HCCDC is required to give notice of the intention to carry out the proposal to Central Coast Council because an approval is required from Central Coast Council (section 17 (1)(a)).
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(2) A public authority, or a person acting on behalf of a public authority, must not carry out development to which this clause applies unless the authority or the person has:
(a) had an assessment of the impact prepared, and
(b) given written notice of the intention to carry out the development, with a copy of the assessment and a scope of works, to the council for the area in which the heritage item or heritage conservation area (or the relevant part of such an area) is located, and
(c) taken into consideration any response to the notice that is received from the council within 21 days after the notice is given.

15 Consultation with councils – development with impacts on flood liable land



ISEPP CONSULTATION REQUIREMENTS		
Requirement	Consultation Required	Comment
<p>(1) In this clause, flood liable land means land that is susceptible to flooding by the probable maximum flood event, identified in accordance with the principles set out in the manual entitled Floodplain Development Manual: the management of flood liable land published by the New South Wales Government and as in force from time to time.</p>		
<p>(2) A public authority, or a person acting on behalf of a public authority, must not carry out, on flood liable land, development that this Policy provides may be carried out without consent and that will change flood patterns other than to a minor extent unless the authority or person has:</p> <p>(a) given written notice of the intention to carry out the development (together with a scope of works) to the council for the area in which the land is located, and</p> <p>(b) taken into consideration any response to the notice that is received from the council within 21 days after the notice is given.</p>	<p>No consultation with Central Coast Council is required.</p>	<p>The proposal will not be carried out on flood liable land. The consultation requirements do not apply because HCCDC is required to give notice of the intention to carry out the proposal to Central Coast Council because an approval is required from Central Coast Council (section 17 (1)(a)).</p>
<p>15AA Consultation with State Emergency Service—development with impacts on flood liable land</p>		
<p>(1) A public authority, or a person acting on behalf of a public authority, must not carry out development on flood liable land that may be carried out without development consent under a relevant provision unless the authority or person has –</p> <p>(a) given written notice of the intention to carry out the development (together with a scope of works) to the State Emergency Service, and</p> <p>(b) taken into consideration any response to the notice that is received from the State Emergency Service within 21 days after the notice is given.</p> <p>(2) Any of the following provisions in Part 3 is a relevant provision—</p> <p>(h) Division 17 (Roads and traffic),</p>	<p>No consultation with State Emergency Service is required.</p>	<p>The proposal will not be carried out on flood liable land.</p>



ISEPP CONSULTATION REQUIREMENTS		
Requirement	Consultation Required	Comment
(i) Division 20 (Stormwater management systems)		
15A Consultation with councils—development with impacts on certain land within the coastal zone		
(1) This clause applies to development on land that is within a coastal vulnerability area and is inconsistent with a certified coastal management program that applies to that land.		
(2) A public authority, or a person acting on behalf of a public authority, must not carry out development to which this clause applies, which this Policy provides may be carried out without development consent, unless the authority or person has:	No consultation with Central Coast Council is required.	The proposal will not be carried out in a coastal vulnerability area. The consultation requirements do not apply because HCCDC is required to give notice of the intention to carry out the proposal to Central Coast Council because an approval is required from Central Coast Council (section 17 (1)(a).
(a) given written notice of the intention to carry out the development to the council for the local government area in which the land is located, and		
(b) taken into consideration any response to the notice that is received from the council within 21 days after the notice is given.		
16 Consultation with public authorities other than councils		
(1) A public authority, or a person acting on behalf of a public authority, must not carry out specified development that this Policy provides may be carried out without consent unless the authority or person has:		
(a) given written notice of the intention to carry out the development (together with a scope of works) to the specified authority in relation to the development, and		
(b) taken into consideration any response to the notice that is received from that authority within 21 days after the notice is given.		
(2) For the purposes of subclause (1), the following development is specified development and the following authorities are specified authorities in relation to that development:		
(a) development adjacent to land reserved under the National Parks and Wildlife Act 1974 or to land acquired under Part 11 of that Act—the Office of Environment and Heritage,	No consultation with the Office of Environment and Heritage (or equivalent), is required.	The proposal is not adjacent to land reserved under the National Parks and Wildlife Act 1974 or to land acquired under Part 11 of that Act.
(b) development on land in Zone E1 National Parks and Nature Reserves or in a land use zone that is equivalent to that zone—the Office of Environment and Heritage,	No consultation with the Office of Environment and Heritage (or equivalent), is required.	The proposal is not on land in Zone E1 National Parks and Nature Reserves or in a land use zone that is equivalent to that zone.



ISEPP CONSULTATION REQUIREMENTS		
Requirement	Consultation Required	Comment
(c) development adjacent to an aquatic reserve or a marine park declared under the Marine Estate Management Act 2014—the Department of Industry,	No consultation with the Department of Industry (or equivalent), is required.	The proposal is not adjacent to an aquatic reserve or a marine park declared under the Marine Estate Management Act 2014.
(d) development in the foreshore area within the meaning of the Sydney Harbour Foreshore Authority Act 1998—the Sydney Harbour Foreshore Authority,	No consultation with the Sydney Harbour Foreshore Authority (or equivalent) is required.	The proposal is not in the foreshore area within the meaning of the Sydney Harbour Foreshore Authority Act 1998.
(e) development comprising a fixed or floating structure in or over navigable waters—Roads and Maritime Services,	No consultation with Roads and Maritime Services (or equivalent), is required.	The proposal does not include a fixed or floating structure in or over navigable waters.
(f) development for the purposes of a health services facility, correctional centre or group home, or for residential purposes, in an area that is bush fire prone land (as defined by the Act)— the NSW Rural Fire Service,	No consultation with the NSW Fire Service (or equivalent), is required.	The proposal is not for the purposes of a health services facility, correctional centre or group home, or for residential purposes, in an area that is bush fire prone land (as defined by the Act).
(g) development that may increase the amount of artificial light in the night sky and that is on land within the dark sky region as identified on the dark sky region map—the Director of the Observatory,	No consultation with the Director of the Observatory (or equivalent), is required.	The proposal is not on land within the dark sky region as identified on the dark sky region map.
(h) development on defence communications facility buffer land within the meaning of clause 5.15 of the Standard Instrument—the Secretary of the Commonwealth Department of Defence,	No consultation with the Secretary of the Commonwealth Department of Defence (or equivalent), is required.	The proposal is not on defence communications facility buffer land within the meaning of clause 5.15 of the Standard Instrument.
(i) development on land in a mine subsidence district within the meaning of the Mine Subsidence Compensation Act 1961—the Mine Subsidence Board.	No consultation with the Mine Subsidence Board is (or equivalent), required.	The proposal is not on land in a mine subsidence district within the meaning of the Mine Subsidence Compensation Act 1961.

APPENDIX 5

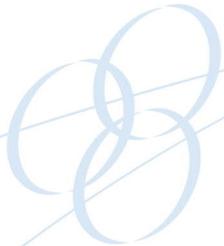
CLAUSE 228 ASSESSMENT

Checklist of Clause 228 Factors

Factor	Impact
(a) any environmental impact on a community?	Minor short-term environmental impacts on a small part of the community may be experienced during the proposal's construction period from noise, vibration, traffic and dust. Safeguards and mitigation measures have been proposed.
(b) any transformation of a locality?	Minor short-term impacts on a small part of the locality may be experienced from the proposal's construction works e.g. removal of vegetation and trenching. Safeguards and mitigation measures have been proposed.
(c) any environmental impact on the ecosystems of the locality?	Minor short-term impacts on a small part of the ecosystems of the locality may be experienced from the proposal's construction works e.g. removal of vegetation and trenching. Safeguards and mitigation measures have been proposed.
(d) any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality?	Minor short-term impacts may reduce, aesthetic, recreational and/or scientific quality or value for a small part of the locality from the proposal's construction works e.g. removal of vegetation and trenching. Safeguards and mitigation measures have been proposed.
(e) any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations?	Minor short-term impacts on a place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations may be experienced from the proposal's construction works e.g. removal of vegetation and trenching. Safeguards and mitigation measures have been proposed.
(f) any impact on the habitat of protected animals (within the meaning of the Biodiversity Conservation Act 2016)?	Impacts are not expected, and mitigation measures are proposed. Refer to Flora and Fauna Assessment Report.
(g) any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?	Impacts are not expected, and mitigation measures are proposed. Refer to Flora and Fauna Assessment Report.
(h) any long-term effects on the environment?	The proposal provides for safe and efficient transfer of water/wastewater and upgrades public services/utilities. The proposal will have a positive long-term effect.



(i) any degradation of the quality of the environment?	The proposal provides for safe and efficient transfer of water and wastewater and upgrades public services/utilities. The proposal will have a positive long-term effect.
(j) any risk to the safety of the environment?	The proposal provides for safe and efficient transfer of water/wastewater and upgrades public services/utilities. The proposal will have a positive long-term effect.
(k) any reduction in the range of beneficial uses of the environment?	The proposal will be in part located underground and will in part upgrade existing public services/utilities therefore will not impact on the beneficial uses of the environment. It will allow development to be serviced in the Project area.
(l) any pollution of the environment?	The proposal provides for safe and efficient transfer of wastewater preventing it from polluting the environment. The proposal will have a positive long-term effect.
(m) any environmental problems associated with the disposal of waste?	The proposal provides for safe and efficient transfer of wastewater. The proposal will have a positive long-term effect.
(n) any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply?	Nil.
(o) any cumulative environmental effect with other existing or likely future activities?	Nil.
(p) any impact on coastal processes and coastal hazards, including those under projected climate change conditions?	Nil.



APPENDIX 6

STATEMENT OF HERITAGE IMPACT

Project Number: HN000248-B



STATEMENT OF HERITAGE IMPACT MOUNT PENANG PARKLANDS – BAXTER TRACK

FINAL 9 / 8 / 2021

ENVIRONMENTAL PROPERTY SERVICES

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Executive Summary

Heritage Now Pty Ltd has been engaged by the Hunter and Central Coast Development Corporation to complete a Statement of Heritage Impact for a proposed upgrade to Baxter Track as well as installation of other utilities including water, drainage, electrical and gas services within the Mount Penang Parklands.

The southern section of the Project Area partially overlaps the northern portion of the Mount Penang Parklands State Heritage Register listing (SHR1667) and the locally listed Mount Penang Heritage Conservation Area (C1), which shares the same curtilage as the SHR item and, while locally listed in the Gosford LEP, it is identified as being State significant. The northern section of the Project Area partially overlaps with the southern portion of local heritage item (61), 'Remnant farm buildings, the barn, storage shed and dairy'.

The most recent Conservation Management Plan (CMP) for the State Heritage Register listing (SHR1667) indicates that the Project Area is of moderate significance and notes that the open character and rural setting are important characteristics to be conserved.

The Project Area does not contain built, or landscape heritage items associated with these heritage listings, nor does it contain areas of potential historic archaeological deposit. The Project Area forms part of the vistas for the heritage items and conservation area, which are of moderate significance. The Proposal will not impact these vistas, with the works being subsurface or at-grade with the existing level. The rural character of the area is of moderate significance to the heritage listings and the Project Area is 50 m from the nearest significant built item and 180 m north of the main building complex at Mount Penang. There is a precedent for formalised roadways in the Project Area with the eastern portion already containing road pavement and kerbing. The Proposal would seek to extend this existing roadway. The Proposal would result in a slight change in the form of the entryway; however, this change would have a negligible impact on the significance of rural character of the area.

Once the works are completed the site will continue to be interpretable as an open landscape. The Project Area will maintain its open landscape values, and will be in accordance with the conservation policies (TKD Architects 2020, 147).

The Proposal has been assessed in relation to the standard exemptions and Section 60 Fast Track, however, the proposed works do not meet the requirements for either. As such, a Section 60 application is required. The s60 needs to be approved by Heritage NSW before the commencement of construction works in the Project Area. Works are to be undertaken in accordance with the s60 approval.

In addition, to a s60 approval, all on-site personnel are to be made aware of their obligations under the *NSW Heritage Act 1977*, including the reporting of any historic, or suspected historic material. This may be implemented through an on-site induction or other suitable format.

In the unlikely event that archaeological, or suspected archaeological material is uncovered during works, then works in that area are to cease and the area is to be cordoned off. The material is to be inspected by a heritage consultant and works in that area are only to recommence once heritage clearance has been gained and/or mitigation and management measures implemented.

The works are to be carried out following the recommendations below.

Recommendation 1

The proponent is to apply for a s60 approval from Heritage NSW. This approval is needed before construction works are undertaken in the Project Area.

Recommendation 2

All on-site personnel are to be made aware of their obligations under the *NSW Heritage Act 1977*, including the reporting of any historic, or suspected historic material. This may be implemented through an on-site induction or other suitable format.

Recommendation 4

In the unlikely event that archaeological, or suspected archaeological material is uncovered during works, then works in that area are to cease and the area is to be cordoned off. The material is to be inspected by a heritage consultant and works in that area are only to recommence once heritage clearance has been gained and/or mitigation and management measures implemented.

Recommendation 5

If there are any alterations to the proposed works, further heritage assessment will be required.

Acronyms, Terms and Definitions

Acronym	Definition
CMP	Conservation Management Plan
DCP	Development Control Plan
DP	Deposited Plan
EP&A Act	Environmental Planning and Assessment Act
GML	Godden Mackay Logan
GST	Goods and Services Tax
HCA	Heritage Conservation Area
HCCDC	Hunter and Central Coast Development Corporation
IHO	Interim Heritage Order
km	Kilometre/s
LEP	Local Environmental Plan
LGA	Local Government Area
m	Metre/s
NAISDA	National Indigenous Dance College
NSW	New South Wales
OEH	Office of Environment and Heritage, NSW
SHR	State Heritage Register
SoHI	Statement of Heritage Impact
TKD Architects	Tanner Kibble Denton Architects

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1 Introduction

Heritage Now Pty Ltd has been engaged by the Hunter and Central Coast Development Corporation (HCCDC) to complete a Statement of Heritage Impact for an upgrade to Baxter Track as well as installation of other utilities including water, sewage and drainage services within Mount Penang Parklands, which contains a State Heritage Register listing.

1.1 Project Area

The Project Area includes Baxter Track in the Mount Penang Parklands and its interface with Kangoo Road. Baxter Track provides access from Kangoo road to the Frank Baxter Juvenile Justice Centre. The Project Area is approximately 660 m in length and 60 m in width. Baxter Track is unsealed for approximately 545 m from Kangoo Road to the start of the carpark associated with the Frank Baxter Juvenile Justice Centre and has been graded and gravelled. The eastern 100 m of the Project Area adjacent to the Frank Baxter Juvenile Justice Centre carpark is formalised with gutters and road pavement. The Mount Penang Parklands are located in the Central Coast Local Government Area (LGA), approximately 6 km west of Gosford.



Figure 1 Project Area

1.2 Project Proposal

The Project Proposal is for the following:

- Site establishment;

- Removal of trees and vegetation;
- Relocation of the watermain;
- Service Trench excavation (power, communications and water);
- Full width new construction or upgrade of roads to Council minimum standard subsoil drainage, cycleway formation and drainage with turning head at the end of Baxter Track;
- Changes to the intersections to Council standard;
- Signage and line marking to Council's standard;
- Installation of stormwater infrastructure including, kerbs, gutters, drainage pipelines, stormwater pits
- Culvert Crossing at Waterway
- Street lighting installation
- Street tree landscaping
- Removal of excavated material if not suitable for re-use; and
- Restoration of the works area.

Refer to Appendix B for the Proposal drawings.

The Proposal is to upgrade to 320m of Baxter Track to Central Coast Council standards including the intersection with Kangoo Road and a Cul-de-sac. The proposal also includes the provision of services, cycleway and street tree landscaping adjacent to the road alignment. A private driveway will be constructed from the cul-de-sac to the existing car parking area of Frank Baxter Juvenile Justice Centre.

1.3 Methodology

This document has been prepared in accordance with the relevant Heritage NSW guidelines, including, but not limited to:

- Assessing Heritage Significance (Heritage Office NSW [now, Heritage NSW] 2015)
- Statements of Heritage Impact (Heritage Office NSW [now Heritage NSW] 2002)

This Statement of Heritage Impact includes:

- An overview of the heritage significance of features concerning the project proposal,
- What impact the proposed works will have on that significance,
- What measures have been proposed to mitigate negative impacts,
- Why more sympathetic solutions are not viable.

1.4 Authorship

This report has been written by Crystal Phillips (Heritage Consultant) and Tessa Boer-Mah (Principal Heritage Consultant) at Heritage Now. Technical input and quality review have been provided by Tessa Boer-Mah Principal Heritage Consultant at Heritage Now.

2 Historic Context

This historic context has been adapted from information contained in the GML CMP (2001), the Extent Heritage CMP (2018) and the TKD Architects CMP (2020).

In the mid-twentieth century, the Mount Penang Juvenile Justice Centre was the largest of its type in Australia. It housed 170 male juvenile offenders with the aim of rehabilitating them through schooling and vocational-technical training. The principles of rehabilitation through a combination of education and physical labour were enshrined in the centre's doctrine from its inception. Indeed, the construction of its initial buildings in 1912 and 1922 relied on the physical labour of the inmates. The design of some of the earliest buildings resemble the below-deck areas of large timber ships and this has its links to the very first attempts at rehabilitation of juvenile offenders aboard disused navy warships, which preceded the inception of the centre at Mount Penang.

2.1 The Nautical School Ships (1866–1911)

The Industrial Schools Act was passed in the NSW parliament in 1866 in an effort to control wayward or destitute children. It was modelled on the Industrial Schools in England which would remove children who were homeless, neglected or involved in crime and place them in reformatories with the ultimate aim of giving them a rudimentary education and trade skills so they could be apprenticed out and start their lives as 'useful' citizens.

The ex-navy sailing ship, the *Vernon*, was the first to be converted for this purpose and could accommodate up to 500 boys. It combined a system of education and military-style self-discipline. In 1890 the *Vernon* was replaced by the *Sobraon*, which was used until 1911 when it became clear that the ship was no longer usable as a Nautical School Ship.

2.2 Gosford Farm Home for Boys (1912–1922)

In 1905, the *Neglected Children and Juvenile Offenders Act* was passed to replace the former *Industrial and Reformatory Schools Acts* of 1866, and this spurred on the development of Mount Penang as a reformatory school.

On 1 July 1912, approximately 100 boys aged between 10 and 16 began clearing a site at Mount Penang to build a new State-controlled farm school for wayward boys. The boys had come from the *Sobraon* and were supervised by the former probation officer of the Nautical School Ship, Herbert Charles Wood.

Mount Penang had been selected for its isolation, as a similar institution, the Brush Farm at Eastwood had been encroached upon by residential development. Its isolation, along with the steep access track presented difficulties for construction. The high cost of transport for bricks meant that local hardwood and sandstone were quarried as building materials, and concrete was also used.

The priorities for construction were dormitories, a dining room, staff quarters, offices, a kitchen, storerooms for supplies and equipment, and accommodation for the tradesmen and Clerk of Works. The foundation stone of No.1 Dormitory was laid in December 1912 by the Minister for Public Instruction. By September 1913 the No.1 Dormitory had been completed along with the Assistant Superintendent's residence and four weatherboard cottages to accommodate married staff members; these cottages are still extant on the site.

Works continued on the site until 1922 and included additional dormitories, a concrete reservoir, a store, an office, a windmill, five galvanised tanks for water storage, a carpentry workshop, a 300-yard trolley truck for transporting stone from the quarry site and a permanent dam.

2.3 Gosford Training School (1923–1944)

In 1923, the State Government passed the *Child Welfare Act*, repealing and consolidating a variety of provisions that existed in legislation relating to the care and management of children under State care. The Act was designed to place greater emphasis on children's health, welfare and rehabilitation and provided more lenient treatment of young people under State care and kept them away from the harsh environment of the NSW criminal justice system. As part of this, the Gosford Farm Home was classified as an Industrial school and the schooling component was controlled by the Education Department. To reflect this, the name of the Gosford Farm Home was changed to the Gosford Training School.

Between 1923 and 1940 the living conditions at the centre gradually improved along with the amenities. The building program was continued, which allowed the boys to get trades experience which could be used upon their release, while at the same time upgrading the centre. Electric lighting and a hot water system were installed in 1936 and the following year a refrigeration service. By the end of 1937, there were four dormitories, a recreation hall for concerts and movies, a dining and kitchen block, a hospital, a bathing and sanitary block, as well as outbuildings which included a dairy and accommodation for staff.

2.4 Mount Penang Training School for Boys (1944–1960)

In 1944 a sub-institution was built on the site, originally designed as a maximum-security sub-institution for unresponsive boys. However, in 1948, it became a privilege cottage representing a more incentive-driven system of reformation rather than a punitive one.

Superintendent Vincent Heffernan set about reinvigorating the institution between 1944 and 1947, buying new equipment for trade rooms, establishing a boot shop to supply shoes, upgrading the pastures, and raising the pigs and cows to stud standard. From the 1940s the Gosford Training School began to show their livestock and began winning prizes at local events and the Royal Easter Show in Sydney.

In 1946, the name of the Institution was changed from the Gosford Training School to Mount Penang Training School for Boys, Gosford.

2.5 Mount Penang (1960–2000)

During the 1960s five new buildings were erected including an assembly hall, a gymnasium, a new kitchen/dining room, a laundry, a boiler house, and a storeroom. An additional sports ground was also built.

Additional buildings and improvements were made in the subsequent decades, including a new hospital block and nurse's quarters (to replace the original 1920s hospital) and a 50 m swimming pool.

The name of the centre was changed to the Mount Penang Detention Centre in 1988, reflecting a new emphasis on court-based sentencing and children’s welfare being largely managed by the Department of Family and Community Services. By 1991 the government adjusted its policies and the institutions name changed to the Mount Penang Juvenile Justice Centre and later to ‘Girrakool’.

Also, in 1991, the Kariong Juvenile Justice Centre was opened in the north-east corner of the site (now outside the curtilage). This Centre was for serious juvenile offenders and was a high-security prison, with Mount Penang functioning as a low-security justice centre. The Frank Baxter Juvenile Justice Centre was opened in the north-west corner in 1999 and inmates of Mount Penang were progressively relocated to this institution allowing the wider Mount Penang facilities to be transferred to local Council for community uses. Ownership was transferred to the Festival Development Corporation which was formed under the *Growth Centres (Development Corporations) Act 1974*.

2.6 Mount Penang Parklands (2000 onwards)

Mount Penang Parklands includes an events park, sports precinct, café, Mount Penang Gardens, Kariong High School, NAISDA—the National Indigenous Dance College, bushland, as well as future business park and retail/commercial areas.

2.7 Historic Context in relation to the Project Area

The Project Area is in the far northern portion of the Mount Penang Parklands and is approximately 180 m north of the main building complex. The first buildings in the general vicinity were constructed in 1944 and later became the privilege cottage and associated complex in 1948 (approximately 50 m south of the Project Area). A cultivation area adjacent to the privilege cottage was established by 1954 (Figure 2). By 1965 a track had been established along the northern edge of this cultivation area (Figure 3), which would later become Baxter Track, by this date there were some plantings in the eastern third of the Project Area and a series of rectangular dams had been built north of the Project Area. Between 1965 and 1976, tree plantings had been installed along the boundary of the cultivation area, with trees in the north-west corner, north-east corner and south-east corner (Figure 4) and Baxter Track remains an internal accessway. By 2003 (Figure 5) and likely from 1999 when the Frank Baxter Juvenile Justice Centre was opened, Baxter track has been extended to Kangoo Road, providing an external access to the site.

There are no documented accounts for the beginning of formal tree plantings in Mount Penang Parklands as a whole, but it is probable they were started in the 1920s as by 1938 photographic evidence shows established tree plantings along the entryway at The Avenue in the south which is the main access to the site (Figure 6). By contrast, the plantings along Baxter Track are relatively late in the history of the site.



Figure 2 1954 aerial photograph showing cultivation in the western portion of the Project Area



Figure 3 1965 aerial photograph showing track established along the northern boundary of the cultivation area and the beginnings of plantings



Figure 4 1976 aerial photograph showing additional plantings along the boundary of the cultivation area



Figure 5 2003 aerial photograph showing Baxter Track joining to Kangoo Road providing an access way for the Frank Baxter Juvenile Justice Centre



Figure 6 Entrance Driveway 1938 (Child Welfare Farm Home for Boys, Gosford - the drive – State Library Archive reference 199797)

3 Legislative Context and Heritage Listing

This section provides a brief overview of the relevant legislation and heritage listings pertaining to the Project Area. The legislative overview is provided solely as contextual information for the proponent and does not constitute legal advice.

3.1 Legislative Context

Non-Indigenous heritage in NSW is protected under the *Heritage Act 1977* (the Heritage Act) and the *Environmental Planning & Assessment Act 1979* (the EP&A Act). The State Heritage Register is maintained under Part 3A of the Heritage Act and comprises a list of places and objects of State significance to the people of NSW. Heritage items may be valued by particular groups in the community, such as Aboriginal communities, religious groups, or people with a common ethnic background. Local heritage items are registered by local councils in accordance with the EP&A Act and listed in Local Environmental Plans (LEPs), as well as on the State Heritage Inventory.

Archaeological material is protected under the relics provision of the Heritage Act. It includes any deposit, artefact, or material evidence that:

- a. *Related to the settlement of the area that comprises New South Wales, not being of Aboriginal settlement, and*
- b. *Is of State or local significance*

Items that do not meet these criteria are known as ‘moveable objects’ or ‘works’. Moveable objects are defined simply as items that are not relics; works can refer to past evidence of infrastructure that is buried and therefore archaeological in nature. Examples of works may include but are not limited to former road surfaces or infrastructure associated with rail or trams. Exposure of such items does not trigger the reporting obligations under the relics provisions of the Heritage Act (Division 9).

Section 57 and Section 60 of the Heritage Act state that exemptions or permits may be required when undertaking works or excavating within the curtilage of a State Heritage Register item and apply to places, buildings, works, relics, moveable objects, precincts, or land within the proposal. Where works are minor in nature and will have minimal impact on the heritage significance of a place, a Section 57 exemption may be granted (exemptions were updated in December 2020).

If works are not exempt under Section 57, a permit under Section 60 would be required to carry out activities impacting an item listed on the State Heritage Register. This includes built and ground disturbance in areas that are likely to contain archaeological material.

Section 139 and 140 of the Heritage Act state that an excavation permit is required in certain circumstances, including where there is reasonable cause to suspect that a relic (not listed on an Interim Heritage Order or the State Heritage Register) may be discovered, exposed, moved or damaged, or where a relic has already been discovered or exposed. The Heritage Council may issue exceptions to this section where an archaeological assessment approved by the Heritage Council has indicated that there is little potential for relics to occur.

3.2 Heritage Listings and other Relevant Instruments and Guidelines

Items of world heritage are listed on the World Heritage List, which is administered by the United Nations Educational, Scientific and Cultural Organisation. Items of national significance are listed on the National Heritage List, administered by the Australian Heritage Council under the *Australian Heritage Council Act 2003* and in accordance with the *Environmental Protection and Biodiversity Conservation Act 1999*.

The State Heritage Register contains items of State heritage significance, and is administered by the NSW Heritage Council under the *NSW Heritage Act 1977*.

Items of local significance are protected under Local Environmental Plans (LEPs), in this case the Gosford LEP.

All heritage registers/listings were searched, and results summarised in Table 1.

Table 1 Heritage Listing Search Results for the Project Area

Listing	Result
World Heritage	0
National Heritage	0
State Heritage	1
Local Heritage	2

There are three heritage listings that partially overlap the Project Area (Table 2). The north portion of the Project Area is within the 'Remnant farm buildings, the barn, storage shed and dairy' local heritage listing (61). The southern portion of the Project Area extends into the Mount Penang Parklands Heritage Conservation Area (HCA), also a local heritage listing (C1). The Project Area also partially overlaps with the northern portion of the Mount Penang Parklands State Heritage Register listing (SHR1667). The HCA and the SHR listing both have the same curtilage (Figure 7). In addition, the LEP contains 16 individual listings within the HCA. The exact location of the individual listings is not shown in detail in the LEP maps, however, the descriptions of these individual listings reveal that they are not within the Project Area, but they are within the wider HCA.

Table 2 Heritage Listings within or near the Project Area

Listing Type	Item	Item no.	Significance	Spatial Relation to Project Area
Gosford LEP 2014	Remnant farm buildings, the barn, storage shed and dairy	61	Local	Within Project Area
Gosford LEP 2014	Mount Penang Parklands Heritage Conservation Area	C1	State	Abuts Track/within southern part of Project Area
SHR	Mount Penang Parklands	SHR 1667	State	Abuts Track/within southern part of Project Area

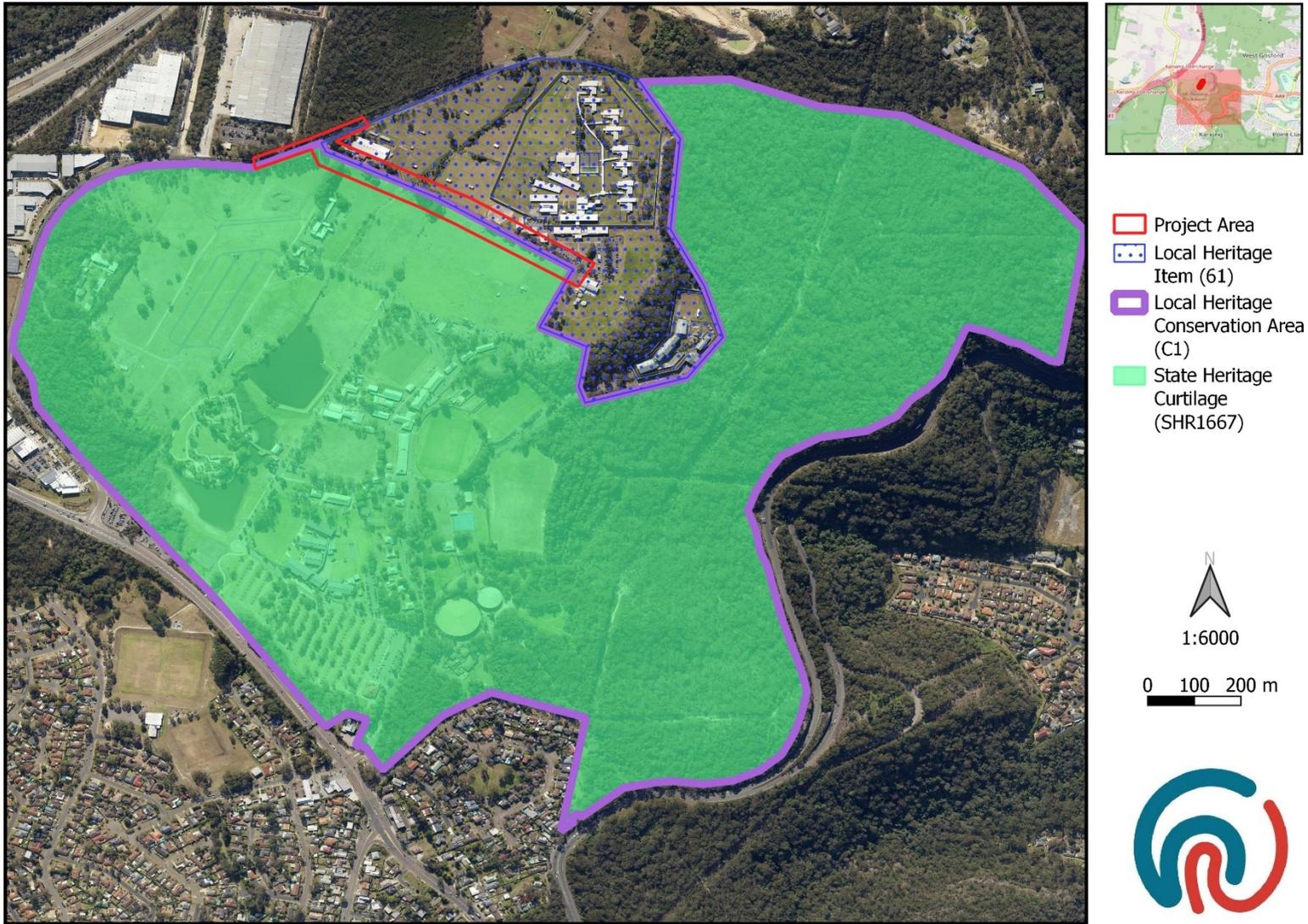


Figure 7 Heritage Listings–Mount Penang Parklands

3.2.1 Conservation Management Plans

Four Conservation Management Plans (CMPs) have been written for the site. The first was written by GML (2001) and was endorsed by the Heritage Council of NSW. The second was written by EJE Heritage (2012) and the third was written by Extent Heritage (2018). The most recent CMP was prepared by Tanner Kibble Denton (TKD) Architects (2020) and has been endorsed by the Heritage Council of NSW on 9/12/2020, this will be referred to as the 2020 CMP. Subsequent to this endorsement, Figure 94 on page 115 of the 2020 CMP was identified to be inaccurate and a replacement figure was submitted to Heritage NSW and this figure was endorsed on 14/7/2021 (Appendix A). This figure now replaces Figure 94 in the December 2020 version of the CMP.

Specific conservation policies relating to aspects of the Proposal have been summarised in Table 3. The applicability of these policies to the Project Area and nature of the proposed works is discussed below, in cases where there is similar applicability the policies have been grouped together.

Table 3 Relevant Conservation Policies from 2020 CMP

Policy Number	Category	Conservation Policy
17	Cultural Landscape	New landscaping works will be designed and implemented to retain and enhance the significant built and landscape components of the site (TKD Architects 2020, 144)
18	Significant Views and Vistas	Significant views, as identified in this CMP, are to be retained and respected. Vegetation growth in those areas will be managed appropriately so as to maintain the existing sense of open space and character (TKD Architects 2020, 145)
21	Landscape Precincts	The landscape precincts...will be managed in accordance with their assessed cultural significance and following guidelines (TKD Architects 2020, 146)
24	Historical Archaeology	The Historical (non-Aboriginal) archaeology of the site will be managed in accordance with its assessed significance and with the requirements of the Heritage Act NSW (1977) (TKD Architects 2020, 151)
31	Services Upgrade	Upgrading of existing services and the installation of new services will avoid physical and visual impacts on significant buildings, trees and other landscape elements (TKD Architects 2020, 156)
32	Ground disturbance/excavation	Ground disturbance or more substantial excavation will avoid or minimise as much as possible impacts on significant site components including buildings, trees, Aboriginal and historical archaeological items and other significant components (TKD Architects 2020, 156)

Cultural Landscape (Conservation Policy 17)

The Proposal will include tree plantings on either side of the upgraded Baxter Track and hence this Conservation Policy applies: *New landscaping works will be designed and implemented to retain and enhance the significant built and landscape components of the site* (TKD Architects 2020, 144). The additional guidelines accompanying this policy include that the 1) open character of the site is to be retained and conserved, 2) that future uses do not compromise the intrinsic visual and physical character of the site and 3) significant plantings are maintained (TKD Architects 2020, 145). Guideline three is not directly applicable to the Proposal as there are no landscape items within the Project Area (Figure 8).

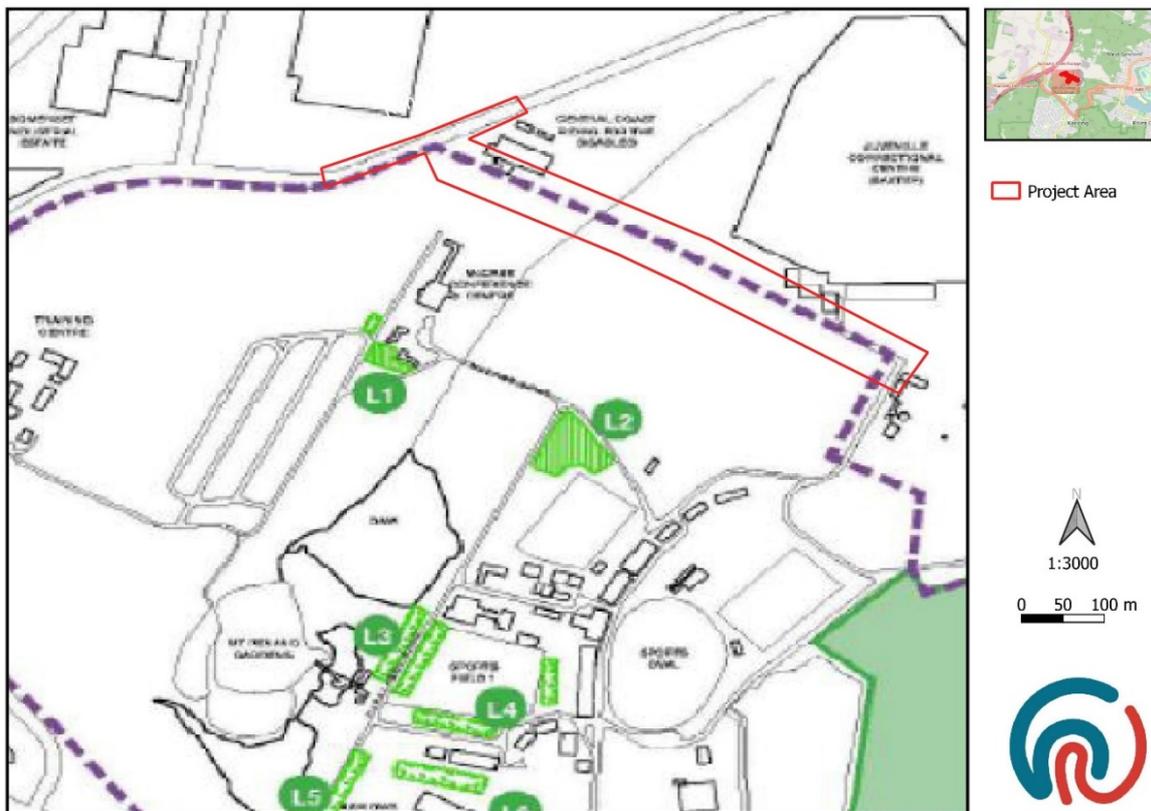


Figure 8 Landscape items from CMP with Project Area overlaid (2021 figure replaces that in TKD Architects 2020, 115)

Significant Views and Vistas (Conservation Policy 18)

Mount Penang Parklands occupies a unique location on broad ridge with a substantial vegetated buffer, views from the site and internal views are influenced by the existing topography and cultural plantings. Three view corridors have been identified as being significant (Figure 9). VC1 and VC2 are not relevant to the Project Area, with VC3 having partial relevance. VC3 is defined as *“the cleared and open nature of this view demonstrates the extent of the pasture associated with Mount Penang as a working farm. The view provides an opportunity to comprehend the extent of the complex and its relationship with the surrounding topography with regional views gained to west and to the south where the surrounding and more distant vegetated hills are an important broader curtilage of the site.”* The Project Area is relevant to VC3 in relation to the cleared and open view of pastures associated with Mount Penang as a working farm, but the Project Area is only partially within a VC3 view corridor (Figure 9). The more distant views mentioned in VC3 do not apply to Project Area, as

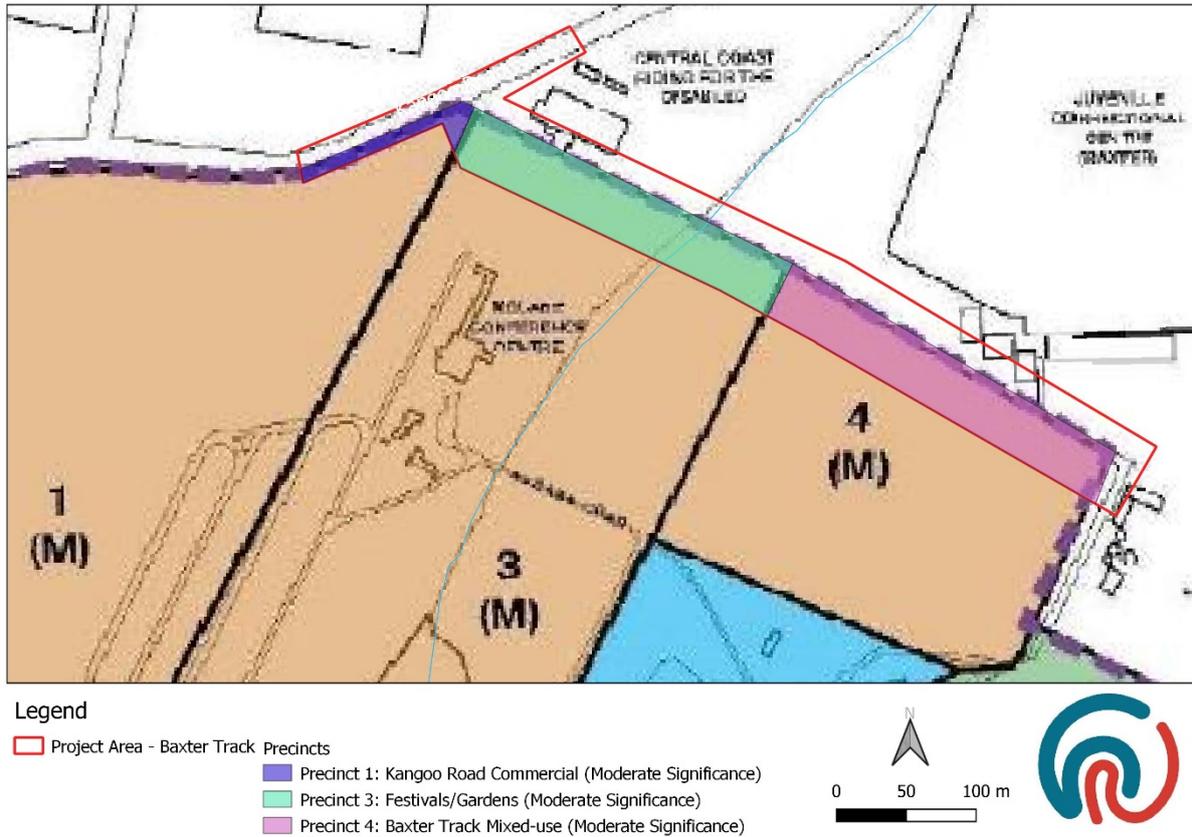


Figure 10 Historic Precincts from CMP (TKD Architects 2020, 114) with Project Area overlaid

Table 4 Significance as defined in the CMP (TKD Architects 2020, 110)

Level of Significance	Management Recommendation
Exceptional	<p>Element that makes a direct and irreplaceable contribution to the overall heritage significance of Mount Penang Parklands. It will exhibit a high degree of integrity with any alterations of a minor nature and generally reversible.</p> <p>Demolition/removal or inappropriate alteration would substantially diminish the heritage significance of Mount Penang Parklands.</p>
High	<p>Element that makes a substantial contribution to the overall heritage significance of Mount Penang Parklands. It has alterations that do not detract from its significance.</p> <p>Demolition/removal or inappropriate alteration would diminish the heritage significance of Mount Penang Parklands.</p>
Moderate	<p>Element that makes a moderate contribution to the overall heritage significance of Mount Penang Parklands. It has undergone alteration that detracts from its heritage significance but still contributes to the overall significance of the place.</p> <p>Demolition/removal or inappropriate alteration may diminish the heritage significance of Mount Penang Parklands.</p>

Level of Significance	Management Recommendation
Little	<p>Element that makes only a minor contribution to the overall heritage significance of Mount Penang Parklands. It has undergone substantial and irreversible alteration and is difficult to interpret.</p> <p>Demolition/removal would not diminish the heritage significance of Mount Penang Parklands.</p>
Intrusive	<p>Element (or component of an element) that adversely impacts on the overall heritage significance of Mount Penang Parklands. Demolition/removal would enhance the heritage significance of Mount Penang Parklands.</p>

Under Conservation Policy 21 “*The landscape precincts... will be managed in accordance with their assessed cultural significance and the following guidelines*” (Table 5). The Project Area only takes in the northern portion of these three precincts and as such, not all of the elements listed for management are present within the Project Area. Table 5 outlines which elements listed are not present in the Project Area and which elements are present, or are partially present.

Table 5 Precincts, Management Guidelines and applicability to Project Area

Precinct and Management Guidelines	Applicability to Project Area
<p>Precinct 1: Kangoo Road Commercial Precinct</p> <p><i>Change of use or development in this precinct may be considered subject to visual impact to the broader quasi rural landscape setting of the heritage precinct of the Mount Penang complex. The bushland has been substantially modified, however it provides a vegetated background for the Mount Penang complex as it did not contribute significantly to the operation of the former Mount Penang Juvenile Justice Centre. Any future proposal in this precinct will be carefully considered in relation to visual impact on the Mount Penang Complex, particularly in the broader landscape context. Any proposal will be positioned behind a suitable setback to ensure the site maintains a bushland presence to both Kangoo Road and Mount Penang. (TKD Architects 2020, 146)</i></p>	<p>The Project Area does not contain the bushland area as part of this precinct.</p> <p>Only a very small portion of the Project Area is within this precinct and contains some tree plantings and grassed areas, which are not significant within this precinct.</p>
<p>Precinct 3: Festival Gardens Precinct</p> <p><i>The open space character of this precinct, with perimeter plantings, will remain. The area containing Piles Creek ideally demonstrates the former open space character of the site and will remain. There is potential scope for change in the remaining eastern area of this precinct provided the scale, form and spatial characteristics are appropriately managed and having regard for any adverse impact on the identified heritage precinct adjacent. Continue to manage the Mount Penang Gardens. Consider further planting to the northern and eastern margins to ameliorate the visual impact of the built elements of the gardens when viewed from the heritage core. The south eastern corner of this precinct may be suitable for future development. In relation to the McCabe Cottage, the</i></p>	<p>The Project Area does not contain any of the structures mentioned as part of this precinct nor the perimeter plantings (along McCabe Road).</p> <p>The Project Area does contain paddocks which are part of the ‘open space’ character of this precinct. While the Project Area does contain tree plantings along Baxter Track these are not identified as a significant landscape feature in the CMP.</p>

<p><i>post-1950 shrub plantings adjacent to, or within the grounds of, the visitor's cottages will be conserved and integrated into a landscape plan. Ensure that setbacks and landscape elements protect the curtilage of the complex. Maintain the relationship of the McCabe complex with the surrounding open space to the east. Ensure the new built forms to the west do not dominate the complex. (TKD Architects 2020, 147)</i></p>	
<p>Precinct 4: Baxter Track Mixed Use Precinct <i>Conserve remnants of the former avenue of mature trees along the western boundary and group of scribbly gums. Appropriate modification of this precinct may be considered with respect to the heritage values of place and heritage landscape items are included in any proposal. (TKD Architects 2020, 147)</i></p>	<p>The elements in this Precinct are ill-defined the 'Group of Scribbly Gums' (L2) are located on the southern boundary of this precinct, but are spatially located in Precinct 5 as are the mature trees along McCabe Road and the Avenue.</p> <p>No elements associated with this Precinct are within the Project Area</p>

There are no buildings of significance in the Project Area, nor other features including fences, roads, tracks or specific landscape items. There are general landscape values associated with Project Area, as part of the wider landscape of Mount Penang Parklands and its precincts.

Historical Archaeology (Conservation Policy 24)

This policy outlines that historical archaeology is to be managed in accordance with its significance (and as part of that, an assessment of its potential) in accordance with the *Heritage Act 1977*.

The historic archaeological potential for Mount Penang relates closely to the main building group and quarrying in the vicinity of the ovals. The current CMP (unlike previous CMPs) does not define archaeological precincts for Mount Penang. It has identified different types of archaeological resources. The only resources with a medium potential chance of being present are quarrying and land modification (Table 6). Quarrying evidence has been identified around the oval and is postulated to be present adjacent to the buildings across the site (TKD Architects 2020 Appendix C, 10). Neither the oval or buildings are present in the Project Area and thus the area has no identified historic archaeological potential.

Table 6 Historic archaeological resources reproduced from (TKD Architects 2020 Appendix C, Table 2)

Archaeological resource	Potential	Significance
Well	Low	Local/No
Underfloor deposits	Low	No
Evidence of quarrying and land modification	Medium	Local/No
Evidence of location of previous buildings, paths and roads	Low	No
Land clearance agricultural activities	Low	No

Services Upgrade (Conservation Policy 31) and Ground Disturbance/Excavation (Conservation Policy 32)

These conservation policies are applicable to the Proposal as the works include the installation of new services and ground disturbance. Under these policies the Proposal is to avoid physical and visual impacts to significant buildings, historic archaeological items, trees and other significant landscape elements.

3.2.2 Development Control Plan

The DCP for the site is listed as Kariong Mount Penang Parklands 5.3 under the Gosford DCP (2013) and generally conforms with the Gosford LEP 2014. The DCP provides detailed development principles and controls for the site, along with the objectives and requirements.

The vision in the DCP (Section 5.3.2.6) is:

Mount Penang is to be an ecologically sustainable development that complements the existing heritage character and landscape setting. A vibrant mix of uses is proposed to enhance the quality of life for people on the Central Coast by providing new opportunities for employment, recreation, education, business, speciality retail, accommodation, festivals, and events. Extensive gardens, event venues, sports facilities, picnic, and bushland areas are to be established as a focus and amenity for the new facilities and the region.

Section 5.3.3.4 contains the following planning principles in relation to the HCA and Landscape Setting of Mount Penang Parklands:

The overall site is to continue to be 'read' and interpreted in the future as the original Gosford Farm Home for Boys - that is, as essentially a rural site. Landscape precincts and elements should be dealt with in accordance with their assessed cultural significance by;

- *Retaining and respecting its semi-rural character and ambience;*
- *Respecting the relationship of the buildings to the topography, with formal landscaping including avenues, groves, courtyard spaces, and paddocks;*
- *Preserving the natural bushland below the plateau to heavily vegetated nature and original setting of the Farm;*
- *Retaining, where appropriate, certain selected open spaces demonstrating the former character of the place;*
- *Preservation of view corridors within the site and from different parts of the site out to the surrounding landscape. Tree and shrub planting schemes should ensure access to important views out and linkages between heritage buildings and precincts are not eventually blocked when such vegetation matures;*
- *Retaining the mature historic plantings on the site, particularly the Avenue plantings along the entry roads and around the edges of the playing field; and*
- *Respecting the alignment of the original roads and pathways through the site, especially the major access point from the Pacific Highway and Kangoo Road at Baxter's Track. It should be recognised that these have changed over time.*

3.2.3 Statement of Significance for Mount Penang Parklands

The below statement of significance is quoted from the updated 2020 CMP for Mount Penang Parklands:

The Mount Penang Juvenile Justice Centre was the most important juvenile detention centre for NSW for most of the twentieth century and is a direct continuation of the nineteenth-century system of reformatory training ships and early Farm Home at Brush Farm, Eastwood.

The design of the early buildings, their configuration and the layout of the site itself and its landscaping, collectively and individually illustrate juvenile penal philosophies and practices of the period and their subsequent evolution over eighty-five years of operation. The location of Mount Penang Parklands is a feature in the historical expansion of metropolitan Sydney into its rural hinterland and its operations are an element in the development of Gosford and the Central Coast.

Mount Penang Parklands has notable aesthetic qualities associated with its site and the available views, the layout of the low-scale buildings and the landscaping. The earlier buildings are attractive, human-scaled structures which, while of an institutional character, utilise colonial homestead architectural forms appropriate to their setting and construction techniques of particular interest. The most recent buildings emulate these forms to reinforce the characteristic appearance of the complex, whilst the McCabe Cottages group is an excellent example of the Inter-War Functionalist architectural style and is evidence of the innovative practices in juvenile reform that took place at Mount Penang.

The siting and relationship of buildings to each other and to the sports fields, paddocks and vistas are all components of the operational requirements and practices of the Centre. These relationships provide technical information regarding juvenile detention and reformatory practices. As well, the vistas across the site, which embrace natural and cultural landscape features and significant built elements, are an important component of Mount Penang Parklands' aesthetic significance.

The Bushland Precinct of Mount Penang is significant because it is an intact natural landscape that provides habitat for rare and endangered species of flora and fauna and provides a record of previous Aboriginal occupation of the place. It has aesthetic significance because of its topography and integrity. Scribbly gums in other parts of the site are also significant remnant of the original flora across the site.

Mount Penang is very important to the many Aboriginal and European boys and young men who were detained there over the course of nearly a century. For most detainees, Mount Penang is a place where unforgettable experiences occurred—experiences which strongly influenced the course of their lives. The place is also important to the many men and women who lived and worked at the former detention centre. For many of these people, it is a place of substantial personal and professional achievement. Mount Penang is also important to the local community as a landmark of historical and aesthetic importance. The place has functioned as a community meeting point, with many links between the wider community and the detainees and staff.

Mount Penang also has significance for the local Aboriginal people both pre and post-contact, and during the time when Mount Penang was used as a juvenile detention centre and

accommodated a number of Aboriginal detainees for whom the site would have profound associations.

Because of the levels of disturbance across much of Mount Penang, there is Low Aboriginal archaeological potential apart from the eastern Bushland Precinct, which has Moderate to High archaeological potential. Mount Penang has a Low historical archaeological potential.

3.2.4 Significance of the Project Area

The significance of the Project Area has been considered in four CMPs (GML 2001; EJE Heritage 2012; Extent Heritage 2018; TKD Architects 2020) and they have identified that the Project Area has moderate significance and makes “*a moderate contribution to the overall heritage significance of the Mount Penang Parklands. It has undergone alteration that detracts from its heritage significance but still contributes to the overall significance of the place. Demolition/removal or inappropriate alteration may diminish the heritage significance of Mount Penang Parklands*” (TKD Architects 2020, 110). Much of its significance derives from ‘*open space*’ and its rural character. The tree plantings along Baxter Track were installed late in the history of the site between 1965 and 1976 and have not been identified as significant landscape items in any of the four CMPs.

3.3 Summary

The Project Area falls partially within a local heritage listing (61), a local HCA (C1), and a State Heritage Register listing (SHR1667), however, there are no built structures of heritage significance within the Project Area. There are general open space landscape values for the Project Area, but no specific landscape features of significance within the Project Area. There are no areas of historic or Aboriginal archaeological potential within the Project Area.

4 Site Visit and Physical Assessment

The site was inspected on 29 April 2021 by Crystal Phillips and Tessa Boer-Mah of Heritage Now.

The purpose of the site inspection was to determine if there were any historical structures, relics, or mature plantings that may be affected by the proposed works.

The northern portion of the Project Area partially lies within local heritage item 61, 'Remnant farm buildings, the barn, storage shed and dairy'. To the north of Baxter Track is a building associated with Riding for the Disabled (Plate 1). The building has a shallow gabled roof in corrugated metal. It is clad in artificial weatherboard, has aluminium rimmed windows and is of recent construction and not of heritage significance. There is another building associated with the Juvenile Justice Centre, which has a gabled roof in corrugated metal and metal clad walls, it is also of recent construction and not of heritage significance (Plate 2). Both of these buildings are within the local heritage item (61) curtilage and not within the State Heritage Register curtilage for Mount Penang Parklands (SHR1667).



Plate 1 Baxter Track non-significant building on right, view to north-west within the local heritage item (61) curtilage, but not within the State Heritage Register curtilage for Mount Penang Parklands (SHR1667).



Plate 2 Non-significant building south of Justice Centre within the local heritage item (61) curtilage, but not within the State Heritage Register curtilage for Mount Penang Parklands (SHR1667)

Within the Mount Penang Parklands (SHR1667) curtilage there are a series of pines planted along the southern side of the track (Plate 3), as well as some within the paddock that run along the fence line to the south (Plate 4). There is a second series of trees further east, either side of the track, leading to the carpark for the Juvenile Justice Centre (Plate 5). The trees in the north are within local heritage item 61 and the ones to the south are within the Mount Penang Parklands (SHR1667) (Plate 5).



Plate 3 Pines along Baxter Track, within the State Heritage Register curtilage for Mount Penang Parklands (SHR1667), but not identified in the CMP as significant landscape items, view to west

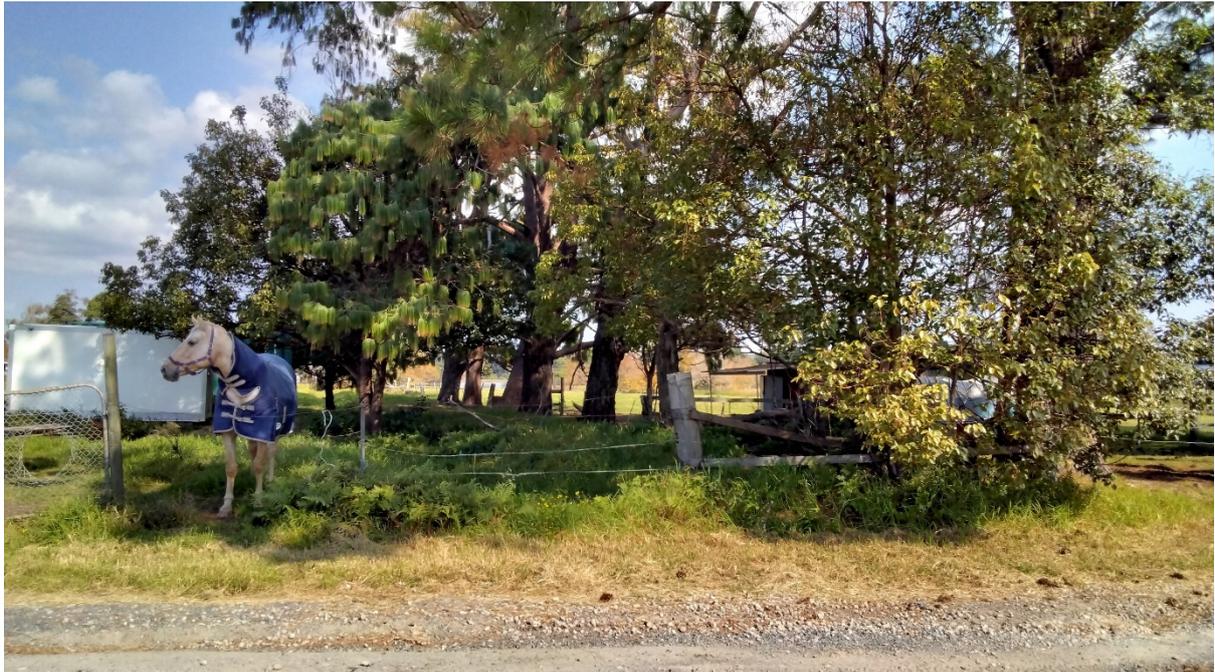


Plate 4 Pines within the paddock, within the State Heritage Register curtilage for Mount Penang Parklands (SHR1667), but not identified in the CMP as significant landscape items, view to south



Plate 5 Trees south of track(right) within the Heritage Register curtilage for Mount Penang Parklands (SHR1667), trees north of track (left) in local heritage item curtilage (61), none of the trees are identified as having heritage significance, view to south-east

The eastern 100 m of the Project Area includes a formalised roadway with gutters and road pavement, which is south of the Juvenile Justice Centre carpark (Plate 6).



Plate 6 Established roadway at eastern end of Baxter Track, trees on right within local heritage item curtilage (61), but not of heritage significance, view to north-west

The trees within local heritage item (61) curtilage (north of Baxter Track) are not listed as being of significance in the State Heritage Inventory listing, nor in the Central Coast Heritage Inventory (Strom 1988). The trees within the Mount Penang Parklands (SHR1667) curtilage (south of Baxter Track) are not listed as landscape items in the CMP, but the area has general landscape values.

No footings, depressions, historic artefacts or other indications of potential historic archaeological deposit were identified during the site inspection.

4.1 Summary

No built items of heritage significance or areas of potential historical archaeological deposit were observed during the site inspection. The north side Baxter Track is within the curtilage of local heritage item (61) and contains mature tree plantings (mainly gum trees), which are not of heritage significance to this local listing. The south side of Baxter Track is within the curtilage of the Mount Penang Parklands (SHR1667). It contains mature tree plantings (including gum trees and pines). These plantings are not listed as landscape items in the 2020 CMP, but the area is identified for its general landscape values in relation to Precincts 1, 3 and 4.

5 Assessment of Heritage Impact and Mitigation

This section provides an overview of significance, impact assessment and mitigation. The impact assessment includes the consideration of enhancement and detrimental impact to heritage item/s, as well as alternatives according to Heritage NSW's guideline *Statements of Heritage Impact*.

5.1 The Proposal

The Project Proposal is for the following:

- Site establishment;
- Removal of trees and vegetation;
- Relocation of the watermain;
- Service Trench excavation (power, communications and water);
- Full width new construction or upgrade of roads to Council minimum standard subsoil drainage, cycleway formation and drainage with turning head at the end of Baxter Track;
- Changes to the intersections to Council standard;
- Signage and line marking to Council's standard;
- Installation of stormwater infrastructure including, kerbs, gutters, drainage pipelines, stormwater pits
- Culvert Crossing at Waterway
- Street lighting installation
- Street tree landscaping
- Removal of excavated material if not suitable for re-use; and
- Restoration of the works area.

Refer to Appendix B for Proposal drawings.

The Proposal is to upgrade to 320m of Baxter Track to Central Coast Council standards including the intersection with Kangoo Road and a Cult-de-sac. The proposal also includes the provision of services, cycleway and street tree landscaping adjacent to the road alignment. A private driveway will be constructed from the cult-de-sac to the existing car parking area of Frank Baxter Juvenile Justice Centre.

5.2 Impact Assessment

The southern section of the Project Area partially overlaps the northern portion of the Mount Penang Parklands State Heritage Register listing (SHR1667) and the Mount Penang Heritage Conservation Area (C1) which shares the same curtilage as the SHR item, and while locally listed in the Gosford LEP, is identified as being State significant. As these listings have the same curtilage and significance ranking they have been assessed concurrently.

The northern section of the Project Area partially overlaps with the southern portion of local heritage item (61).

The impact assessment has primarily used the 2020 CMP conservation policies as a framework for undertaking the assessment. While there are individual planning principles in the DCP for the Kariong Mount Penang Parklands Heritage Conservation Area, these are considered to be covered by the more detailed conservation policies of the 2020 CMP and therefore are not assessed separately.

The impact of the Proposal has been assessed in relation to each of the conservation policies as they relate to the Project Area. The impact assessment is presented in Table 7.

Table 7 Heritage items, elements of significance, relevance to the Project Area and Impact Assessment

Heritage Type and Conservation Policy	Relevance to Project Area	Impact Assessment
Mount Penang Parklands (SHR1667) & Mount Penang Heritage Conservation Area (C1)		
Built	None within Project Area	Nil
Cultural Landscape (Conservation Policy 17)	Open character is present in the Project Area and intrinsic visual and physical character to be preserved. There are no landscape items within the Project Area.	Nil - The area will retain an open setting. The Proposal is at grade and thus will not impact the visual character of the area and the overall physical character of the area will be preserved.
Significant Views and Vistas (Conservation Policy 18)	This portion of the Project Area has open grassed paddocks with some trees along Baxter Track and is of moderate significance in relation to Mount Penang Parklands.	Nil – The area will retain an open setting. The Proposal is at grade and thus will not impact views. The trees removed will be replaced by tree plantings to the north and south of the track and therefore frame the entryway as one of the approaches to Mount Penang Parklands.
Landscape Precincts (Conservation Policy 21)	Precinct 1: Kangoo Road Commercial Precinct	Negligible - Only a very small portion of the Project Area is within this precinct and contains some tree plantings and grassed areas, which are not assessed as significant within this precinct. Only one tree will be removed from this Precinct.
Landscape Precincts (Conservation Policy 21)	Precinct 3: Festival Gardens Precinct	Negligible – As the eastern portion of Baxter Track already has a formalised road pavement and kerbing, the Proposal would essentially be extending the existing infrastructure. Trees to be removed are not identified to be significant landscape items. The Proposal would result in a slight change in the form and materials of the entryway but would closely follow the existing alignment. As such, the Proposal would have a negligible impact on the significance of this Precinct with the open space and rural character of the area being retained.

Heritage Type and Conservation Policy	Relevance to Project Area	Impact Assessment
Landscape Precincts (Conservation Policy 21)	Precinct 4: Baxter Track Mixed Use Precinct	Negligible – As the eastern portion of Baxter Track already has a formalised road pavement and kerbing, the Proposal would essentially be extending the existing infrastructure. Trees to be removed are not identified to be significant landscape items. The Proposal would result in a slight change in the form and materials of the entryway but would closely follow the existing alignment. As such, the Proposal would have a negligible impact on the significance of this Precinct with the open space and rural character of the area being retained.
Historic Archaeology (Conservation Policy 24)	No potential identified	Nil
Services Upgrade (Conservation Policy 31) Excavation (Conservation Policy 32)	Project Area has open grassed paddocks with tree plantings along Baxter Track. The rural character is of moderate significance in relation to Mount Penang Parklands. The eastern portion of Baxter Track has a formal road pavement and guttering. The central and western portion is a graded and gravelled dirt track.	Negligible – As the eastern portion of Baxter Track already has a formalised road pavement and kerbing, the Proposal would essentially be extending the existing infrastructure. It would result in a slight change in the form of the entryway, however, this change would have a negligible impact on the significance of rural character of the area.
Local Heritage Item (61) 'Remnant farm buildings, the barn, storage shed and dairy'		
Built	This portion of the Project Area has some existing buildings associated with Riding for the Disabled and the Juvenile Justice Centre but they are not of heritage significance	Nil
Landscape Items	None within Project Area	Nil
Archaeological	No potential identified	Nil

Heritage Type and Conservation Policy	Relevance to Project Area	Impact Assessment
Vistas and landscape values	This portion of the Project Area is partially screened by existing buildings and is otherwise surrounded by open paddocks. The vistas and landscape values are of moderate significance in the context of this local heritage listing.	Nil – The vistas and views of this portion of the Project Area are already screened by the existing buildings. The portion of the Project Area which is currently paddocks will still retain an open setting. The Proposal is at grade and thus will not impact views. The trees removed will be replaced by tree plantings to the north and south of the track, which will frame the entryway as one of the approaches to Mount Penang Parklands.
Rural character	This portion of the Project Area contains two buildings which are not related to the heritage significance of the item. The Juvenile Justice Centre buildings are prominent to the north of the Project Area. Only the central portion retains a distinctly rural character comprising open grassed paddocks. The eastern portion of Baxter Track has a formal road pavement and guttering. The central and western portion is a graded and gravelled dirt track. While the rural character is of high significance to this local heritage item, the rural character is not well reflected in the portion of this listing within the Project Area.	Nil – The eastern portion of the Project Area within local heritage item (61) is already developed as part of the Juvenile Justice Centre and therefore does not have a rural character. It already contains a formalised road pavement and kerbing and hence the Proposal would essentially be extending existing infrastructure. The central portion of the Project Area has a distinctly rural character comprising open grassed paddocks. The Proposal would have a negligible impact on this character, being at grade and the change in road surfacing is a minor change within the wider rural context of this portion of local heritage item (61).

5.2.1 Summary of Impact Assessment

This section summarises the enhancements to the heritage items, detrimental impact and alternatives considered in accordance with the Statements of Heritage Impact guidelines (Heritage Office NSW [now Heritage NSW] 2002). As per the guidelines, the enhancement of heritage items is to be assessed along with the assessment of detrimental impacts, as well as consideration of the alternatives.

5.2.2 Enhancement of Heritage Item/s

The Proposal will increase the amenity of Baxter Track and allow easier access to and from Kangoo Road as well as upgrades to services. The proposed tree plantings along the upgrade track will frame the entryway and compliment other roadway plantings throughout Mount Penang Parklands.

5.2.3 Detrimental Impact to Heritage Item/s

The Project Area in relation to the Mount Penang Parklands has a rural character with open paddocks and tree plantings along Baxter Track. This open and rural character is of moderate significance in relation to the overall significance of the Mount Penang Parklands (SHR 1667) listing. The eastern portion of Baxter Track has a formal road pavement and guttering. The central and western portion is a graded and gravelled dirt track. As the eastern portion of Baxter Track already has a formalised road pavement and kerbing, the Proposal would essentially be extending the existing infrastructure and there is precedent for this road form and material within the site. The Proposal would result in a slight change in the form of the entryway, however, this change would have a negligible impact on the significance of rural character of the area.

Once the works are completed the site will continue to be interpretable as an open landscape. The Project Area will maintain its open landscape values, and will be in accordance with CMP conservation polices (TKD Architects 2020, 147).

5.2.4 Alternatives

The Proposal will not directly impact the significance of the Mount Penang Parklands (built, landscape, archaeological, vistas and rural character) and thus no other solutions have been considered.

5.3 Statement of Heritage Impact

The southern section of the Project Area partially overlaps the northern portion of the Mount Penang Parklands State Heritage Register listing (SHR1667) and the Mount Penang Heritage Conservation Area (C1), which shares the same curtilage as the SHR item and, while locally listed in the Gosford LEP, is identified as being State significant. The northern section of the Project Area partially overlaps with the southern portion of local heritage item (61) 'Remnant farm buildings, the barn, storage shed and dairy'.

The Project Area does not contain built, or landscape heritage items associated with these heritage listings, nor does it contain areas of potential historic archaeological deposit. The Project Area forms part of the vistas for the heritage items and conservation area, which are of moderate significance. The Proposal will not impact these vistas, with the works being subsurface or at-grade with the existing level. The rural character of the area is of moderate significance to the heritage listings and

the Project Area is 50 m from the nearest significant built item and 180 m north of the main building complex at Mount Penang. There is a precedent for formalised roadways in the Project Area with the eastern portion already containing road pavement and kerbing. The Proposal would seek to extend this existing roadway. The Proposal would result in a slight change in the form of the entryway; however, this change would have a negligible impact on the significance of rural character of the area.

Once the works are completed the site will continue to be interpretable as an open landscape. The Project Area will maintain its open landscape values, and will be in accordance with the conservation policies (TKD Architects 2020, 147).

5.4 Management and Mitigation

For works on State Heritage Register items, there are standard exemptions, as well as two approval pathways available for proposed works: s60 fast track and s60 approval.

5.4.1 Standard exemption 8: Excavation

Under standard exemption 8, the following works do not require approval under subsection 57(1):

- a) *Excavation or disturbance of land that is:*
 - i. *For the purpose of exposing underground utility services infrastructure which occurs within an existing service trench, or*
 - ii. *To carry out inspections or emergency maintenance or repair on underground utility services, or*
 - iii. *To maintain, repair or replace underground utility services to buildings, or*
 - iv. *To maintain or repair the foundations or an existing building, or*
 - v. *To expose survey marks, or*
 - vi. *Associated with feral animal/insect eradication*

The Proposal does not meet standard exemption (i) for subsurface work because the installation of the water and sewer is a new installation and is not within an existing service trench and does not meet (ii) to (vi) either.

5.4.2 Section 60 Fast Track

A s60 fast track is for minor works. For a project to be eligible, the proposal must relate to activities or works to an SHR or Interim Heritage Order (IHO), which:

1. *will have little or no adverse impact on the heritage significance of the item, (and)*
2. *is not listed as an exemption under the Heritage Act 1977, (and)*
3. *has a cost of works of up to \$150,000.*

The Proposal will have little impact on the heritage significance of the item and is not listed as an exemption, however, the cost of works is \$3,067,994 ex GST and therefore does not meet the fast-track criteria.

5.4.1 Section 60

The Proposal does not meet the criteria for an exemption or for a s60 fast track application and therefore, although the impact will be minor, a s60 application is required.

The s60 application needs to include the following:

- A Statement of Heritage Impact,
- Drawings of proposed works,
- Owners consent, and
- A copy of the Conservation Management Plan.

The s60 needs to be approved by Heritage NSW before the commencement of construction works in the Project Area. Works are to be undertaken in accordance with the s60 approval.

In addition, to a s60 approval, all on-site personnel are to be made aware of their obligations under the *NSW Heritage Act 1977*, including the reporting of any historic, or suspected historic material. This may be implemented through an on-site induction or other suitable format.

In the unlikely event that archaeological, or suspected archaeological material is uncovered during works, then works in that area are to cease and the area is to be cordoned off. The material is to be inspected by a heritage consultant and works in that area are only to recommence once heritage clearance has been gained and/or mitigation and management measures implemented.

6 Conclusions and Recommendations

The southern section of the Project Area partially overlaps the northern portion of the Mount Penang Parklands State Heritage Register listing (SHR1667) and the locally listed Mount Penang Heritage Conservation Area (C1), which shares the same curtilage as the SHR item and, while locally listed in the Gosford LEP, it is identified as being State significant. The northern section of the Project Area partially overlaps with the southern portion of local heritage item (61), 'Remnant farm buildings, the barn, storage shed and dairy'.

The most recent Conservation Management Plan (CMP) for the State Heritage Register listing (SHR1667) indicates that the Project Area is of moderate significance and notes that the open character and rural setting are important characteristics to be conserved.

The Project Area does not contain built, or landscape heritage items associated with these heritage listings, nor does it contain areas of potential historic archaeological deposit. The Project Area forms part of the vistas for the heritage items and conservation area, which are of moderate significance. The Proposal will not impact these vistas, with the works being subsurface or at-grade with the existing level. The rural character of the area is of moderate significance to the heritage listings and the Project Area is 50 m from the nearest significant built item and 180 m north of the main building complex at Mount Penang. There is a precedent for formalised roadways in the Project Area with the eastern portion already containing road pavement and kerbing. The Proposal would seek to extend this existing roadway. The Proposal would result in a slight change in the form of the entryway; however, this change would have a negligible impact on the significance of rural character of the area.

Once the works are completed the site will continue to be interpretable as an open landscape. The Project Area will maintain its open landscape values, and will be in accordance with the conservation polices (TKD Architects 2020, 147).

The Proposal has been assessed in relation to the standard exemptions and Section 60 Fast Track, however, the proposed works do not meet the requirements for either. As such, a Section 60 application is required. The s60 needs to be approved by Heritage NSW before the commencement of construction works in the Project Area. Works are to be undertaken in accordance with the s60 approval.

In addition, to a s60 approval, all on-site personnel are to be made aware of their obligations under the *NSW Heritage Act 1977*, including the reporting of any historic, or suspected historic material. This may be implemented through an on-site induction or other suitable format.

In the unlikely event that archaeological, or suspected archaeological material is uncovered during works, then works in that area are to cease and the area is to be cordoned off. The material is to be inspected by a heritage consultant and works in that area are only to recommence once heritage clearance has been gained and/or mitigation and management measures implemented.

The works are to be carried out following the recommendations below.

Recommendation 1

The proponent is to apply for a s60 approval from Heritage NSW. This approval is needed before construction works are undertaken in the Project Area.

Recommendation 2

All on-site personnel are to be made aware of their obligations under the *NSW Heritage Act 1977*, including the reporting of any historic, or suspected historic material. This may be implemented through an on-site induction or other suitable format.

Recommendation 4

In the unlikely event that archaeological, or suspected archaeological material is uncovered during works, then works in that area are to cease and the area is to be cordoned off. The material is to be inspected by a heritage consultant and works in that area are only to recommence once heritage clearance has been gained and/or mitigation and management measures implemented.

Recommendation 5

If there are any alterations to the proposed works, further heritage assessment will be required.

7 References

- EJE Heritage. 2012. "Mount Penang Parklands Conservation Management Plan." Conservation Management Plan. Newcastle, NSW.
- Extent Heritage. 2018. "Mount Penang Parklands Conservation Management Plan." Conservation Management Plan. Sydney, NSW: Report to Central Coast Regional Development Corporation.
- GML. 2001. "Mount Penang Conservation Management Plan." Conservation Management Plan H05232-MOUN. Redfern, NSW: Report to Festival Development Corporation and Urban Design Advisory Service.
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- Heritage Office NSW [now Heritage NSW]. 2002. *Statements of Heritage Impact*. Sydney, NSW: Heritage Office NSW.
- Heritage Office NSW [now, Heritage NSW]. 2015. *Assessing Heritage Significance*. Sydney, NSW: Office of Environment and Heritage.
- Strom, Beryl. 1988. "Central Coast Heritage Inventory." H00805-CENT. Gosford.
- TKD Architects. 2020. "Mount Penang Parklands Conservation Management Plan." Conservation Management Plan. Kariong, NSW: Report to Hunter Central Coast Development Corporation.

Appendix A Extract of CMP



Reference: DOC21/488689

Megan Jones
Practice Director
Tanner Kibble Denton Architects Pty Ltd

Via email: MJones@tkda.com.au

Mount Penang Conservation Management Plan - amending Diagram

Dear Ms Jones

I refer to your email and letter dated 11 June 2021 requesting amendment of Figure 94 from page 115 of the endorsed Conservation Management Plan. I understand that this is required because 'Item L1 (Old Pine Tree Group)' was identified in the wrong location on the original plan.

Accordingly, the amended Figure 94 as shown on page 2 of this correspondence is now considered Endorsed and can be substituted into the endorsed CMP in place of the original figure.

If you have any questions regarding the above matter please contact Katrina Stankowski, Senior Team Leader, Heritage NSW on 9873 8569 or at katrina.stankowski@environment.nsw.gov.au.

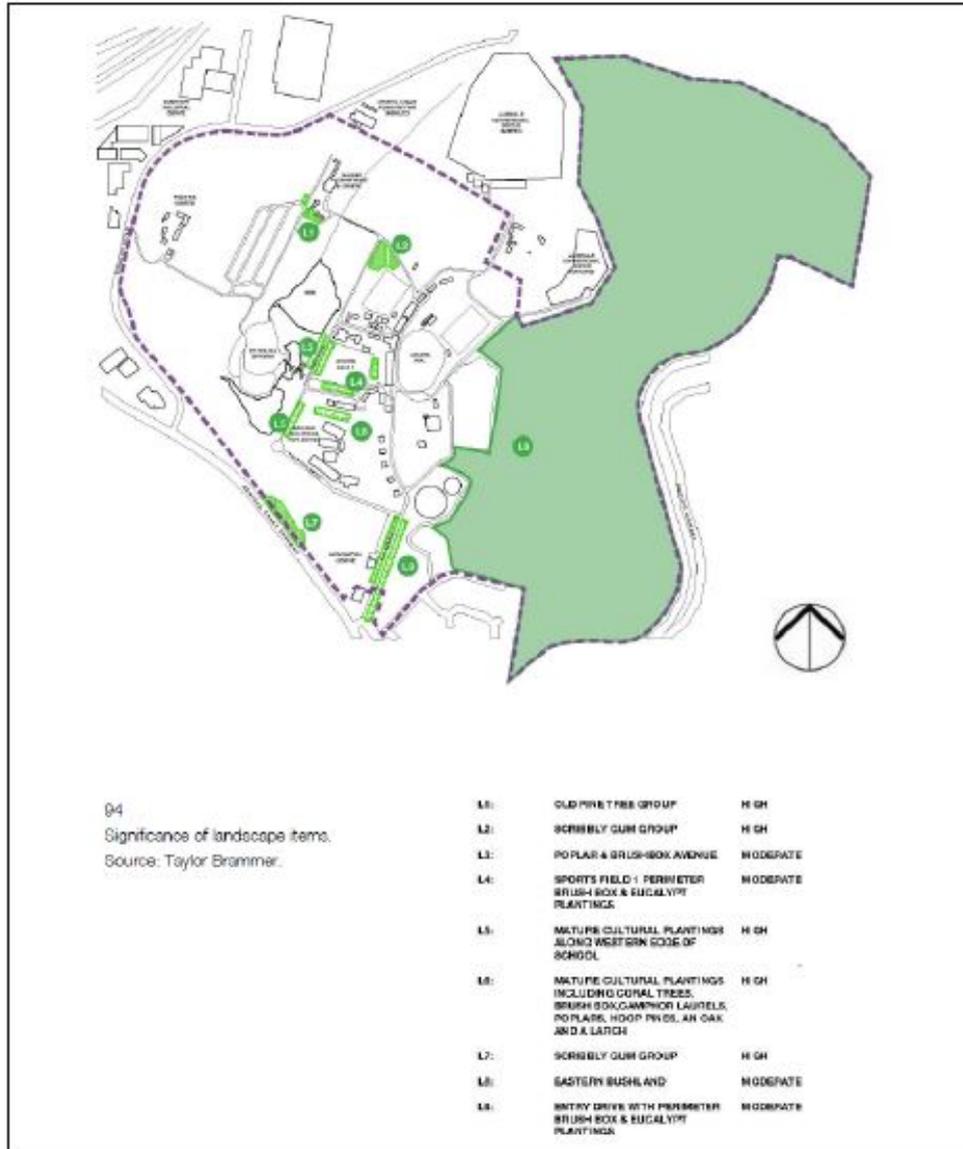
Yours sincerely



Steve Meredith
Manager, North Region
Heritage NSW
As Delegate of the Heritage Council

14 July 2021

Amended Endorsed Figure 94 – Mount Penang Parklands Conservation Management Plan 2020.



Appendix B Proposal Drawings



LEGEND	
	BOUNDARY LINE
	INDICATIVE LOCATION OF STORMWATER PIPE
	INDICATIVE LOCATION OF STORMWATER PIT
	INDICATIVE LOCATION OF STORMWATER CULVERT
	INDICATIVE LOCATION OF STORMWATER CULVERT HEADWALL
	DESIGN CONTOURS
	EXISTING CONTOURS

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 JOB MANAGER: K SINCLAIR
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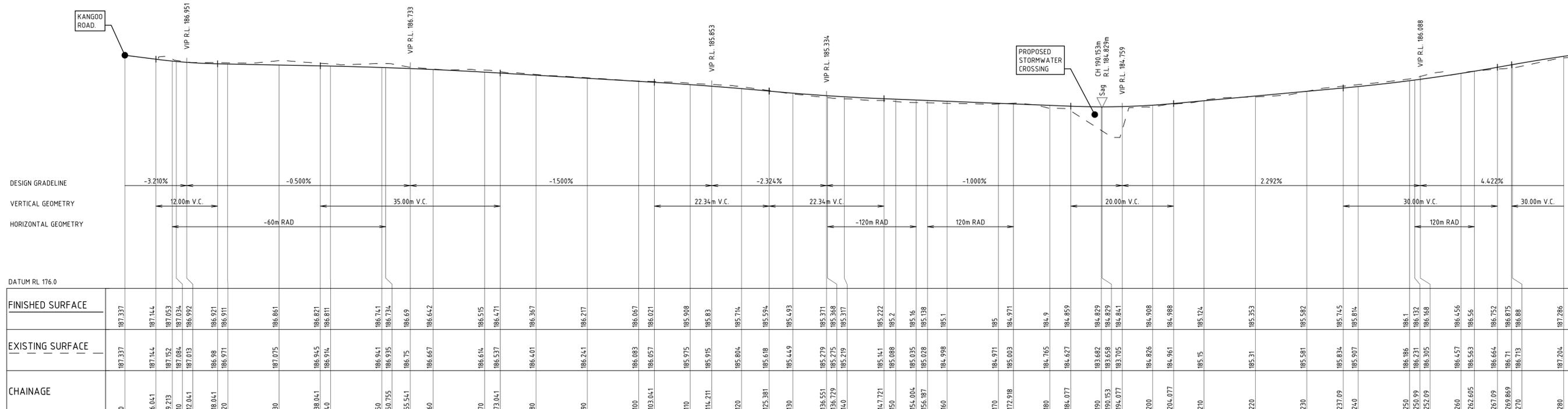
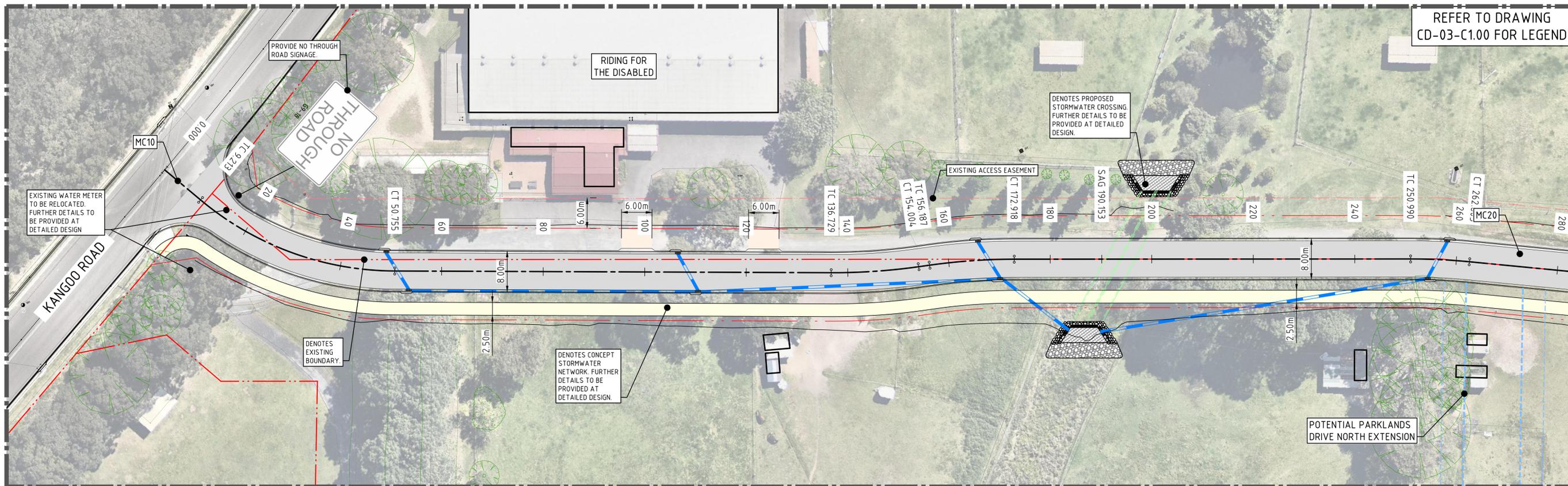
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LONGITUDINAL SECTION ALONG MC10

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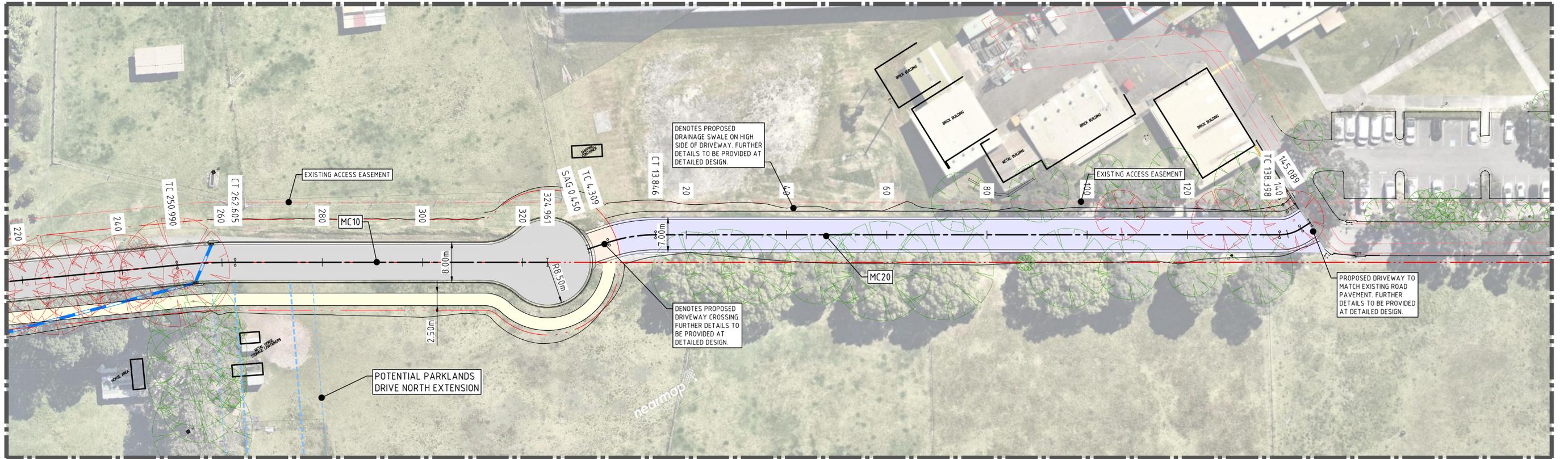
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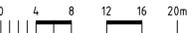
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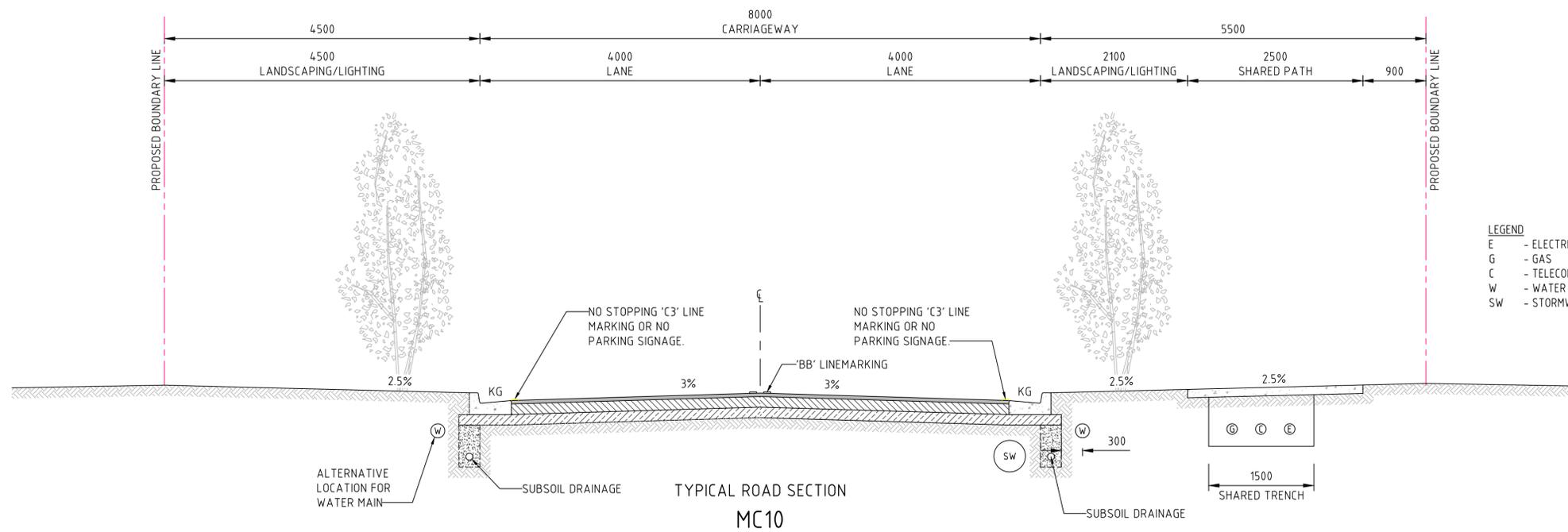
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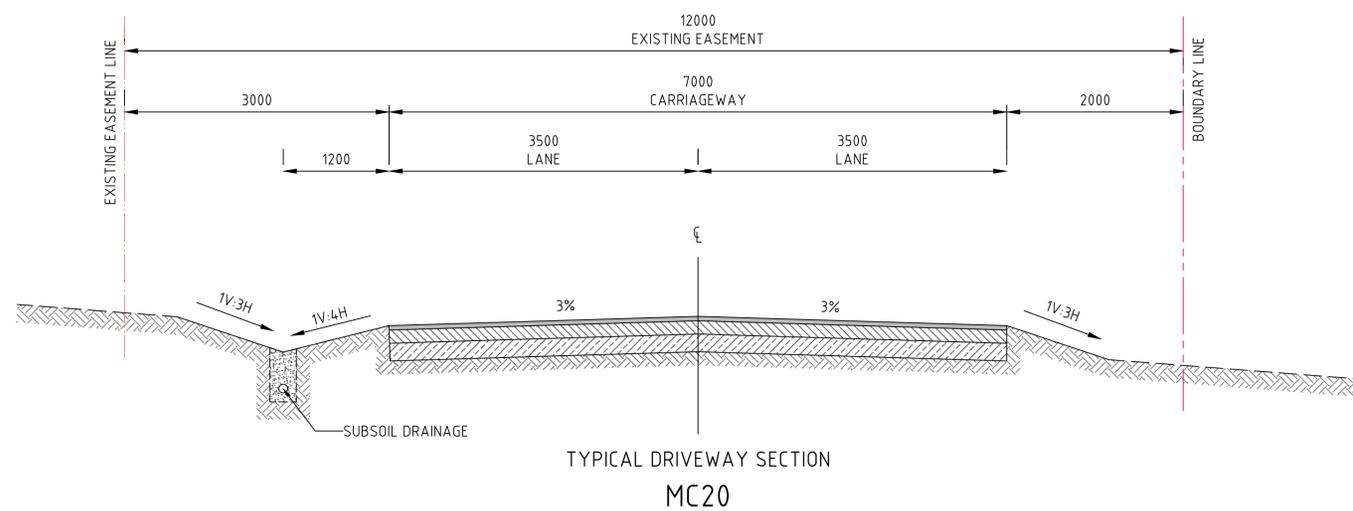
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LEGEND
 E - ELECTRICAL
 G - GAS
 C - TELECOMMUNICATIONS
 W - WATER MAIN
 SW - STORMWATER DRAINAGE



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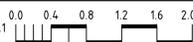
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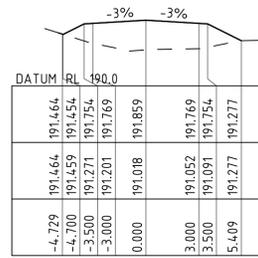
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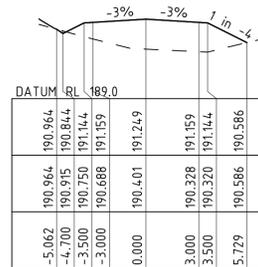
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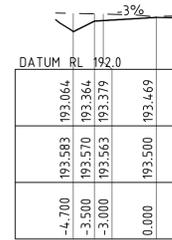
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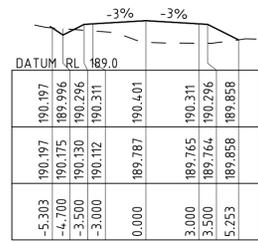
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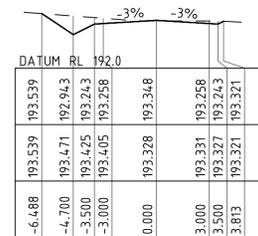
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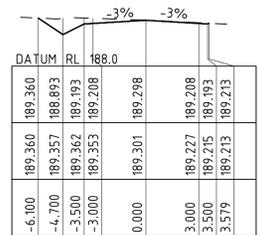
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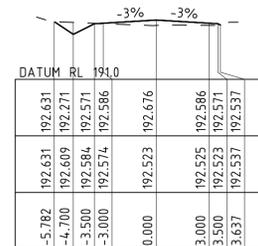
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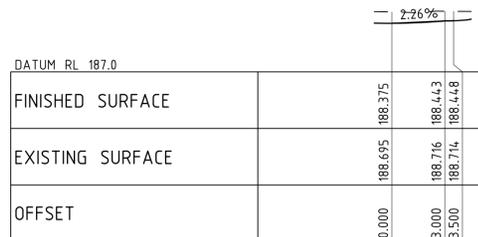
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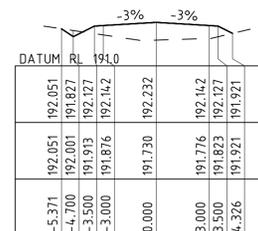
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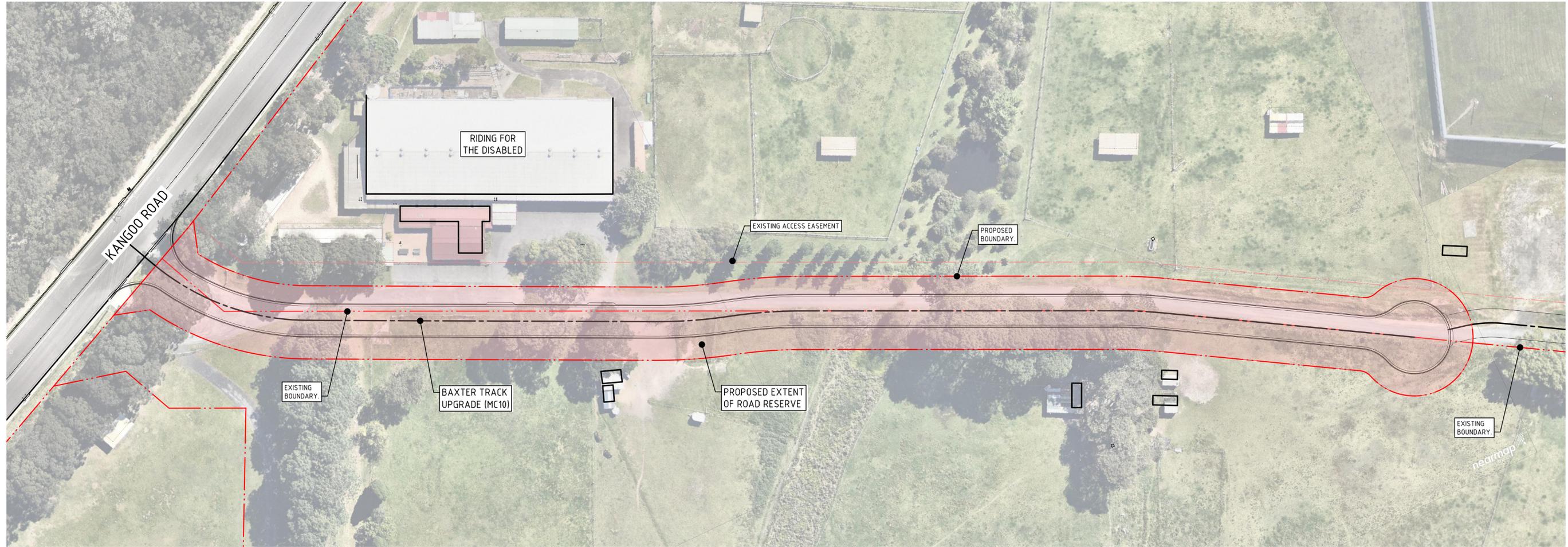


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BAXTER TRACK UPGRADE ROAD RESERVE PLAN

JOB NUMBER NL191249	
DRAWING NUMBER CD-03-C3.00	REVISION 1
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Project Number: HN000248-B



STATEMENT OF HERITAGE IMPACT MOUNT PENANG PARKLANDS – PARKLANDS ROAD EXTENSION

FINAL 19 / 8 / 2021

ENVIRONMENTAL PROPERTY SERVICES

Hunter Office | 9 Yacaaba Street, Nelson Bay, NSW 2315

Attn: Alina Tipper

Email: alinatipper@enviroproperty.com.au

HERITAGE NOW CONTACT

hello@heritagenow.com.au

0425 250 310

www.heritagenow.com.au



Executive Summary

Heritage Now Pty Ltd has been engaged by the Hunter and Central Coast Development Corporation to complete a Statement of Heritage Impact for a proposed extension of Parklands Road north to connect to Baxter Track as well as the installation of other utilities including water, drainage, electrical and gas services within the Mount Penang Parklands.

The Project Area is within the northern boundary of the State heritage Register listing Mount Penang Parklands (SHR 1667) and the southern boundary of the curtilage for the local heritage item (61) and within the locally listed Mount Penang Parklands Heritage Conservation Area. There are no buildings in this portion of the curtilage, however there is a landscape feature 'Scribbly Gum Group' (L2) within the Project Area associated with the State Heritage Register listing.

The Project Area does not contain built or archaeological heritage associated with these heritage listings. While it does contain a significant landscape item 'Scribbly Gum Group' (L2), there will be no physical impacts to this item. The Project Area forms part of the vistas for the heritage items and conservation area, which are of moderate significance. The Proposal will not impact these vistas, with the works being subsurface or at-grade with the existing level. The rural character of the area is of moderate significance to the heritage listings and the Project Area is 50 m from the nearest significant built item and 120 m east of McCabe Cottage. The Proposal would result in a slight change in the form and layout of access to Mount Penang Parklands, however, this change would have a negligible impact on the significance of rural character of the area. The Parklands Road extension will provide new access to the site and the approach to the roundabout would be framed by the 'Scribbly Gum Group' (L2) thus enhancing the group as a landscape element.

Once the works are completed, the site will continue to be interpretable as an open landscape. The Project Area will maintain its open landscape values, and will be in accordance with the conservation policies (TKD Architects 2020, 147).

The Proposal has been assessed in relation to the standard exemptions and Section 60 Fast Track, however, the proposed works do not meet the requirements for either. As such, a Section 60 application is required. The s60 needs to be approved by Heritage NSW before the commencement of construction works in the Project Area. Works are to be undertaken in accordance with the s60 approval.

In addition to a s60 approval, all on-site personnel are to be made aware of their obligations under the *NSW Heritage Act 1977*, including the reporting of any historic, or suspected historic material. This may be implemented through an on-site induction or other suitable format.

In the unlikely event that archaeological, or suspected archaeological material is uncovered during works, then works in that area are to cease and the area is to be cordoned off. The material is to be inspected by a heritage consultant and works in that area are only to recommence once heritage clearance has been gained and/or mitigation and management measures implemented.

The works are to be carried out following the recommendations below.

Recommendation 1

The proponent is to apply for a s60 approval from Heritage NSW. This approval is needed before construction works are undertaken in the Project Area.

Recommendation 2

All on-site personnel are to be made aware of their obligations under the *NSW Heritage Act 1977*, including the reporting of any historic, or suspected historic material. This may be implemented through an on-site induction or other suitable format.

Recommendation 3

The landscape item 'Scribbly Gum Group' (L2) is to be clearly marked on all construction drawings as a no-go zone and temporary visual demarcation of this tree group is to be installed to prevent inadvertent impact during construction.

Recommendation 4

In the unlikely event that archaeological, or suspected archaeological material is uncovered during works, then works in that area are to cease and the area is to be cordoned off. The material is to be inspected by a heritage consultant and works in that area are only to recommence once heritage clearance has been gained and/or mitigation and management measures implemented.

Recommendation 5

If there are any alterations to the proposed works, further heritage assessment will be required.

Acronyms, Terms and Definitions

Acronym	Definition
CMP	Conservation Management Plan
DCP	Development Control Plan
DP	Deposited Plan
EP&A Act	Environmental Planning and Assessment Act 1979
GML	Godden Mackay Logan
GST	Goods and Services Tax
HCA	Heritage Conservation Area
HCCDC	Hunter and Central Coast Development Corporation
IHO	Interim Heritage Order
km	Kilometre/s
LEP	Local Environmental Plan
LGA	Local Government Area
m	Metre/s
NAISDA	National Indigenous Dance College
NSW	New South Wales
OEH	Office of Environment and Heritage, NSW
SHR	State Heritage Register
SoHI	Statement of Heritage Impact
TKD Architects	Tanner Kibble Denton Architects

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1 Introduction

Heritage Now Pty Ltd has been engaged by the Hunter and Central Coast Development Corporation (HCCDC) to complete a Statement of Heritage Impact for a proposed extension of Parklands Road north to connect to Baxter Track as well as the installation of other utilities including water, drainage, electrical and gas services within the Mount Penang Parklands.

1.1 Project Area

The Project Area is within the Mount Penang Parklands (Figure 1). The Project Area includes a portion of Baxter Track in the north, as well as grassed paddocks in its central portion and an interface with existing Parklands and McCabe Roads in the south. The Mount Penang Parklands are located in the Central Coast Local Government Area (LGA), approximately 6 km west of Gosford.



Figure 1 Project Area

1.2 Project Proposal

The Proposal is to extend Parklands Avenue approximately 210m north to connect to Baxter Track. The road will be constructed to Central Coast Council standards and include intersections with Baxter Track and McCabe Road. The proposal also includes the provision of services, sewer connection, cycleway and street tree landscaping adjacent to the road alignment.

Refer to Appendix B for the Proposal drawings.

1.3 Methodology

This document has been prepared in accordance with the relevant Heritage NSW guidelines, including, but not limited to:

- Assessing Heritage Significance (Heritage Office NSW [now, Heritage NSW] 2015)
- Statements of Heritage Impact (Heritage Office NSW [now Heritage NSW] 2002)

This Statement of Heritage Impact includes:

- An overview of the heritage significance of features concerning the project Proposal;
- What impact the proposed works will have on that significance;
- What measures have been proposed to mitigate negative impacts;
- Why more sympathetic solutions are not viable.

1.4 Authorship

This report has been written by Crystal Phillips (Heritage Consultant) and Tessa Boer-Mah (Principal Heritage Consultant) at Heritage Now. Technical input and quality review have been provided by Tessa Boer-Mah Principal Heritage Consultant at Heritage Now.

2 Historic Context

This historic context has been adapted from information contained in the GML CMP (2001), the Extent Heritage CMP (2018) and the TKD Architects CMP (2020).

In the mid-twentieth century, the Mount Penang Juvenile Justice Centre was the largest of its type in Australia. It housed 170 male juvenile offenders with the aim of rehabilitating them through schooling and vocational-technical training. The principles of rehabilitation through a combination of education and physical labour were enshrined in the centre's doctrine from its inception. Indeed, the construction of its initial buildings in 1912 and 1922 relied on the physical labour of the inmates. The design of some of the earliest buildings resemble the below-deck areas of large timber ships and this has its links to the very first attempts at rehabilitation of juvenile offenders aboard disused navy warships, which preceded the inception of the centre at Mount Penang.

2.1 The Nautical School Ships (1866–1911)

The Industrial Schools Act was passed in the NSW parliament in 1866 in an effort to control wayward or destitute children. It was modelled on the Industrial Schools in England which would remove children who were homeless, neglected or involved in crime and place them in reformatories with the ultimate aim of giving them a rudimentary education and trade skills so they could be apprenticed out and start their lives as 'useful' citizens.

The ex-navy sailing ship, the *Vernon*, was the first to be converted for this purpose and could accommodate up to 500 boys. It combined a system of education and military-style self-discipline. In 1890 the *Vernon* was replaced by the *Sobraon*, which was used until 1911 when it became clear that the ship was no longer usable as a Nautical School Ship.

2.2 Gosford Farm Home for Boys (1912–1922)

In 1905, the *Neglected Children and Juvenile Offenders Act* was passed to replace the former *Industrial and Reformatory Schools Acts* of 1866, and this spurred on the development of Mount Penang as a reformatory school.

On 1 July 1912, approximately 100 boys aged between 10 and 16 began clearing a site at Mount Penang to build a new State-controlled farm school for wayward boys. The boys had come from the *Sobraon* and were supervised by the former probation officer of the Nautical School Ship, Herbert Charles Wood.

Mount Penang had been selected for its isolation, as a similar institution, the Brush Farm at Eastwood had been encroached upon by residential development. Its isolation, along with the steep access track presented difficulties for construction. The high cost of transport for bricks meant that local hardwood and sandstone were quarried as building materials, and concrete was also used.

The priorities for construction were dormitories, a dining room, staff quarters, offices, a kitchen, storerooms for supplies and equipment, and accommodation for the tradesmen and Clerk of Works. The foundation stone of No.1 Dormitory was laid in December 1912 by the Minister for Public Instruction. By September 1913 the No.1 Dormitory had been completed along with the Assistant Superintendent's residence and four weatherboard cottages to accommodate married staff members; these cottages are still extant on the site.

Works continued on the site until 1922 and included additional dormitories, a concrete reservoir, a store, an office, a windmill, five galvanised tanks for water storage, a carpentry workshop, a 300-yard trolley truck for transporting stone from the quarry site and a permanent dam.

2.3 Gosford Training School (1923–1944)

In 1923, the State Government passed the *Child Welfare Act*, repealing and consolidating a variety of provisions that existed in legislation relating to the care and management of children under State care. The Act was designed to place greater emphasis on children's health, welfare and rehabilitation and provided more lenient treatment of young people under State care and kept them away from the harsh environment of the NSW criminal justice system. As part of this, the Gosford Farm Home was classified as an Industrial school and the schooling component was controlled by the Education Department. To reflect this, the name of the Gosford Farm Home was changed to the Gosford Training School.

Between 1923 and 1940 the living conditions at the centre gradually improved along with the amenities. The building program was continued, which allowed the boys to get trades experience which could be used upon their release, while at the same time upgrading the centre. Electric lighting and a hot water system were installed in 1936 and the following year a refrigeration service. By the end of 1937, there were four dormitories, a recreation hall for concerts and movies, a dining and kitchen block, a hospital, a bathing and sanitary block, as well as outbuildings which included a dairy and accommodation for staff.

2.4 Mount Penang Training School for Boys (1944–1960)

In 1944 a sub-institution was built on the site, originally designed as a maximum-security sub-institution for unresponsive boys. However, in 1948, it became a privilege cottage representing a more incentive-driven system of reformation rather than a punitive one.

Superintendent Vincent Heffernan set about reinvigorating the institution between 1944 and 1947, buying new equipment for trade rooms, establishing a boot shop to supply shoes, upgrading the pastures, and raising the pigs and cows to stud standard. From the 1940s the Gosford Training School began to show their livestock and began winning prizes at local events and the Royal Easter Show in Sydney.

In 1946, the name of the Institution was changed from the Gosford Training School to Mount Penang Training School for Boys, Gosford.

2.5 Mount Penang (1960–2000)

During the 1960s five new buildings were erected including an assembly hall, a gymnasium, a new kitchen/dining room, a laundry, a boiler house, and a storeroom. An additional sports ground was also built.

Additional buildings and improvements were made in the subsequent decades, including a new hospital block and nurse's quarters (to replace the original 1920s hospital) and a 50 m swimming pool.

The name of the centre was changed to the Mount Penang Detention Centre in 1988, reflecting a new emphasis on court-based sentencing and children’s welfare being largely managed by the Department of Family and Community Services. By 1991 the government adjusted its policies and the institutions name changed to the Mount Penang Juvenile Justice Centre and later to ‘Girrakool’.

Also, in 1991, the Kariong Juvenile Justice Centre was opened in the north-east corner of the site (now outside the curtilage). This Centre was for serious juvenile offenders and was a high-security prison, with Mount Penang functioning as a low-security justice centre. The Frank Baxter Juvenile Justice Centre was opened in the north-west corner in 1999 and inmates of Mount Penang were progressively relocated to this institution allowing the wider Mount Penang facilities to be transferred to local Council for community uses. Ownership was transferred to the Festival Development Corporation which was formed under the *Growth Centres (Development Corporations) Act 1974*.

2.6 Mount Penang Parklands (2000 onwards)

Mount Penang Parklands includes an events park, sports precinct, café, Mount Penang Gardens, Kariong High School, NAISDA—the National Indigenous Dance College, bushland, as well as future business park and retail/commercial areas.

2.7 Historic Context in relation to the Project Area

The Project Area is approximately 140 m north-west of the main building complex. The first buildings in the general vicinity were constructed in 1944 and became the privilege cottage and associated complex in 1948 (approximately 130 m west of the Project Area). The privilege cottage was renamed McCabe Cottage in 1976.

A cultivation area adjacent to the privilege cottage was established by 1954 (Figure 2). At this time there are trees to the south of the privilege cottage (west of the Project Area), gums at the intersection of Parklands and McCabe Road in the southern portion of the Project Area and trees in the central north of the Project Area.

By 1965 a track had been established along the northern edge of this cultivation area (Figure 3), which would later become Baxter Track and there are plantings along McCabe Road in the southern portion of the Project Area (north of the gums at the intersection of Parklands and McCabe Roads), as well as the trees from the central north portion of the Project Area. By this date a series of rectangular dams had been built north of the Project Area.

Between 1965 and 1976, tree plantings had been installed along the boundary of the cultivation area and appear along the fence line within the Project Area (Figure 4). The trees in the central north portion of the Project Area remain. By 1991, the trees in the central north portion of the Project Area are still present but appear to be in poor health (Figure 5). By 1998 they have been removed (Figure 6). By 2010 the trees along the boundary of the cultivation area are less contiguous, with trees having died or been removed (Figure 7).

There are no documented accounts for the beginning of formal tree plantings in Mount Penang Parklands as a whole, but it is probable they were started in the 1920s, as by 1938 photographic evidence shows established tree plantings along the entryway at The Avenue in the south which is

the main access to the site (Figure 8). By contrast, the plantings along McCabe Road are relatively late in the history of the site.



Figure 2 1954 aerial photograph showing cultivation in the western portion of the Project Area and trees in central northern portion



Figure 3 1965 aerial photograph showing track established along the northern boundary of the cultivation area and trees in central northern portion



Figure 4 1976 aerial photograph showing plantings along fence line of the cultivation area



Figure 5 1991 aerial photograph showing plantings along fence line and trees in central northern portion of Project Area in poor health



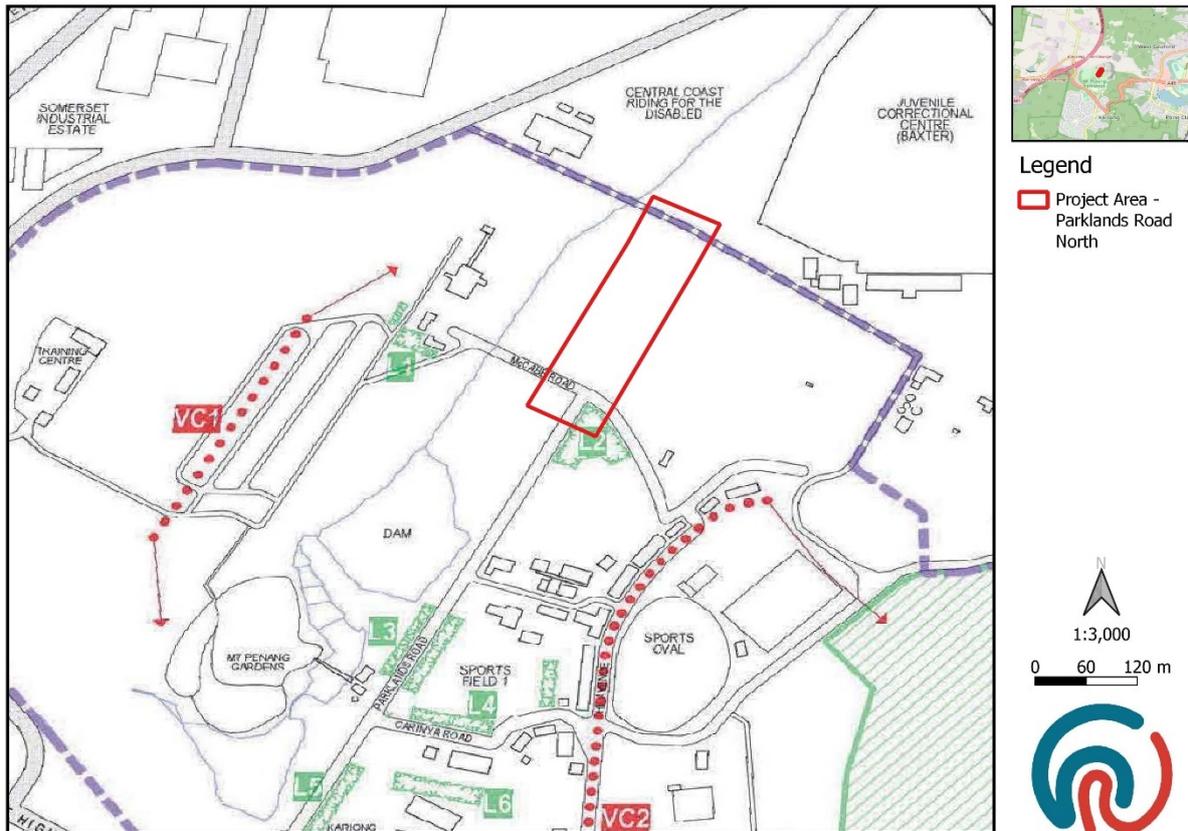
Figure 6 1998 aerial photograph; trees from central northern portion of the Project Area have been cleared



Figure 7 2010 aerial photograph showing trees along boundary of the cultivation area having thinned



Figure 8 Entrance Driveway 1938 (Child Welfare Farm Home for Boys, Gosford - the drive – State Library Archive reference 199797)



3 Legislative Context and Heritage Listing

This section provides a brief overview of the relevant legislation and heritage listings pertaining to the Project Area. The legislative overview is provided solely as contextual information for the proponent and does not constitute legal advice.

3.1 Legislative Context

Non-Indigenous heritage in NSW is protected under the *Heritage Act 1977* (the Heritage Act) and the *Environmental Planning & Assessment Act 1979* (the EP&A Act). The State Heritage Register is maintained under Part 3A of the Heritage Act and comprises a list of places and objects of State significance to the people of NSW. Heritage items may be valued by particular groups in the community, such as Aboriginal communities, religious groups, or people with a common ethnic background. Local heritage items are registered by local councils in accordance with the EP&A Act and listed in Local Environmental Plans (LEPs), as well as on the State Heritage Inventory.

Archaeological material is protected under the relics provision of the Heritage Act. It includes any deposit, artefact, or material evidence that:

- a. *Related to the settlement of the area that comprises New South Wales, not being of Aboriginal settlement, and*
- b. *Is of State or local significance*

Items that do not meet these criteria are known as 'moveable objects' or 'works'. Moveable objects are defined simply as items that are not relics; works can refer to past evidence of infrastructure that

is buried and therefore archaeological in nature. Examples of works may include but are not limited to former road surfaces or infrastructure associated with rail or trams. Exposure of such items does not trigger the reporting obligations under the relics provisions of the Heritage Act (Division 9).

Section 57 and Section 60 of the Heritage Act state that exemptions or permits may be required when undertaking works or excavating within the curtilage of a State Heritage Register item and apply to places, buildings, works, relics, moveable objects, precincts, or land within the proposal. Where works are minor in nature and will have minimal impact on the heritage significance of a place, a Section 57 exemption may be granted (exemptions were updated in December 2020).

If works are not exempt under Section 57, a permit under Section 60 would be required to carry out activities impacting an item listed on the State Heritage Register. This includes built and ground disturbance in areas that are likely to contain archaeological material.

Section 139 and 140 of the Heritage Act state that an excavation permit is required in certain circumstances, including where there is reasonable cause to suspect that a relic (not listed on an Interim Heritage Order or the State Heritage Register) may be discovered, exposed, moved or damaged, or where a relic has already been discovered or exposed. The Heritage Council may issue exceptions to this section where an archaeological assessment approved by the Heritage Council has indicated that there is little potential for relics to occur.

3.2 Heritage Listings and other Relevant Instruments and Guidelines

Items of world heritage are listed on the World Heritage List, which is administered by the United Nations Educational, Scientific and Cultural Organisation. Items of national significance are listed on the National Heritage List, administered by the Australian Heritage Council under the *Australian Heritage Council Act 2003* and in accordance with the *Environmental Protection and Biodiversity Conservation Act 1999*.

The State Heritage Register contains items of State heritage significance and is administered by the NSW Heritage Council under the *NSW Heritage Act 1977*.

Items of local significance are protected under Local Environmental Plans (LEPs), in this case the Gosford LEP.

All heritage registers/listings were searched, and results summarised in Table 1.

Table 1 Heritage Listing Search Results for the Project Area

Listing	Result
World Heritage	0
National Heritage	0
State Heritage	1
Local Heritage	2

There are three heritage listings that partially overlap the Project Area (Table 2). The northern portion of the Project Area is within the 'Remnant farm buildings, the barn, storage shed and dairy' local heritage listing (61). The southern portion of the Project Area extends into the Mount Penang Parklands Heritage Conservation Area (HCA), also a local heritage listing (C1). The Project Area also

partially overlaps with the northern portion of the Mount Penang Parklands State Heritage Register listing (SHR1667). The HCA and the SHR listing both have the same curtilage (Figure 9). In addition, the LEP contains 16 individual listings within the HCA. The exact location of the individual listings is not shown in detail in the LEP maps, however the descriptions of these individual listings reveal that they are not within the Project Area, but they are within the wider HCA.

Table 2 Heritage Listings within or near the Project Area

Listing Type	Item	Item no.	Significance	Spatial Relation to Project Area
Gosford LEP 2014	Remnant farm buildings, the barn, storage shed and dairy	61	Local	Within Project Area
Gosford LEP 2014	Mount Penang Parklands Heritage Conservation Area	C1	State	Abuts Track/within southern part of Project Area
SHR	Mount Penang Parklands	SHR 1667	State	Abuts Track/within southern part of Project Area

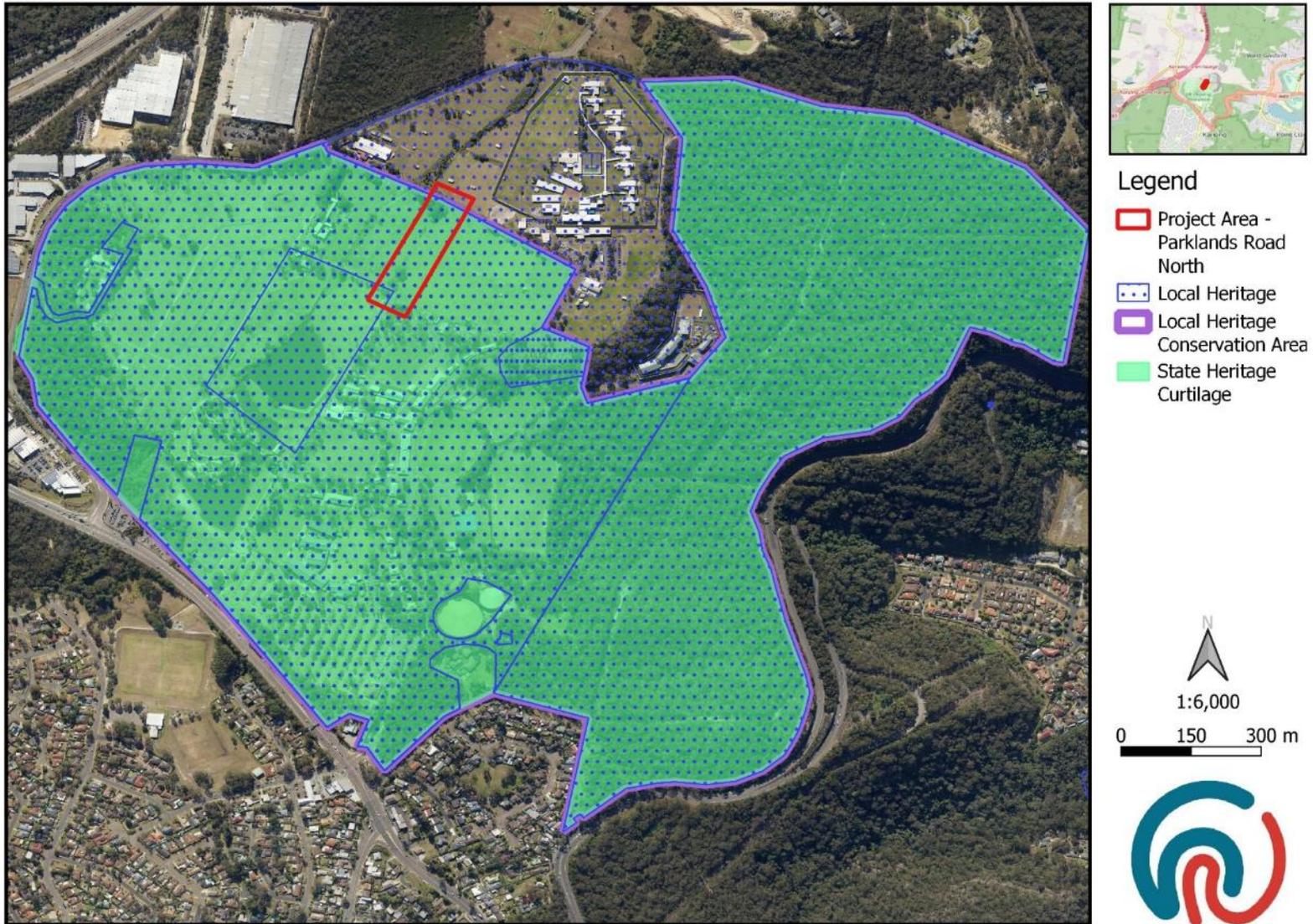


Figure 9 Heritage Listings—Mount Penang Parklands

3.2.1 Conservation Management Plans

Four Conservation Management Plans (CMPs) have been written for the site. The first was written by GML (2001) and was endorsed by the Heritage Council of NSW. The second was written by EJE Heritage (2012) and the third was written by Extent Heritage (2018). The most recent CMP was prepared by Tanner Kibble Denton (TKD) Architects (2020) and was endorsed by the Heritage Council of NSW on 9 December 2020. This will be referred to as the 2020 CMP. Subsequent to this endorsement, Figure 94 on page 115 of the 2020 CMP was identified as being inaccurate and a replacement figure was submitted to Heritage NSW; this new figure was endorsed on 14 July 2021 (Appendix A). This figure now replaces Figure 94 in the December 2020 version of the CMP.

Specific conservation policies relating to aspects of the Proposal have been summarised in Table 3. The applicability of these policies to the Project Area and nature of the proposed works is discussed below. In cases where there is similar applicability, the policies have been grouped together.

Table 3 Relevant Conservation Policies from 2020 CMP

Policy Number	Category	Conservation Policy
17	Cultural Landscape	New landscaping works will be designed and implemented to retain and enhance the significant built and landscape components of the site (TKD Architects 2020, 144)
18	Significant Views and Vistas	Significant views, as identified in this CMP, are to be retained and respected. Vegetation growth in those areas will be managed appropriately so as to maintain the existing sense of open space and character (TKD Architects 2020, 145)
21	Landscape Precincts	The landscape precincts...will be managed in accordance with their assessed cultural significance and following guidelines (TKD Architects 2020, 146)
24	Historical Archaeology	The Historical (non-Aboriginal) archaeology of the site will be managed in accordance with its assessed significance and with the requirements of the Heritage Act NSW (1977) (TKD Architects 2020, 151)
31	Services Upgrade	Upgrading of existing services and the installation of new services will avoid physical and visual impacts on significant buildings, trees and other landscape elements (TKD Architects 2020, 156)
32	Ground disturbance/excavation	Ground disturbance or more substantial excavation will avoid or minimise as much as possible impacts on significant site components including buildings, trees, Aboriginal and historical archaeological items and other significant components (TKD Architects 2020, 156)

Cultural Landscape (Conservation Policy 17)

The Proposal will include tree plantings on either side of the Project Area and hence this Conservation Policy applies: *New landscaping works will be designed and implemented to retain and enhance the significant built and landscape components of the site* (TKD Architects 2020, 144). The additional guidelines accompanying this policy include 1) that the open character of the site is to be retained and conserved, 2) that future uses do not compromise the intrinsic visual and physical character of the site and 3) significant plantings are maintained (TKD Architects 2020, 145). There is one landscape item with significant plantings ‘Scribbly Gum Group’ (L2) within the Project Area (Figure 10).

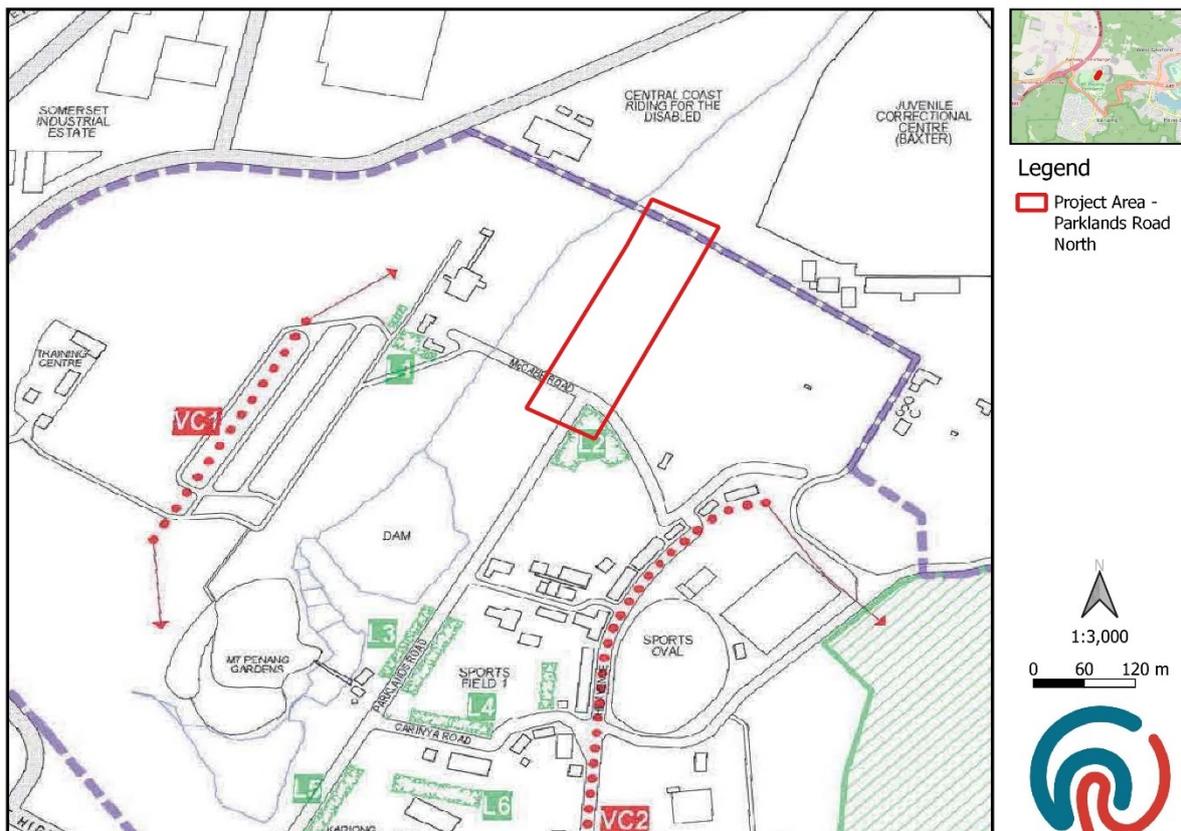


Figure 10 Landscape items from CMP with Project Area overlaid (2021 figure replaces that in TKD Architects 2020, 115)

Significant Views and Vistas (Conservation Policy 18)

Mount Penang Parklands occupies a unique location on broad ridge with a substantial vegetated buffer. Views from the site and internal views are influenced by the existing topography and cultural plantings. Three view corridors have been identified as being significant (Figure 11). VC1 and VC2 are not relevant to the Project Area, with VC3 having partial relevance. VC3 is defined as, *“the cleared and open nature of this view demonstrates the extent of the pasture associated with Mount Penang as a working farm. The view provides an opportunity to comprehend the extent of the complex and its relationship with the surrounding topography with regional views gained to west and to the south where the surrounding and more distant vegetated hills are an important broader curtilage of the site.”* The Project Area is relevant to VC3 in relation to the cleared and open view of pastures associated with Mount Penang as a working farm, but the Project Area is only partially within a VC3 view corridor (Figure 11). The more distant views mentioned in VC3 do not apply to Project Area, as

the Project Area is lower than VC3 and distant views are thus obscured by the surrounding topography.

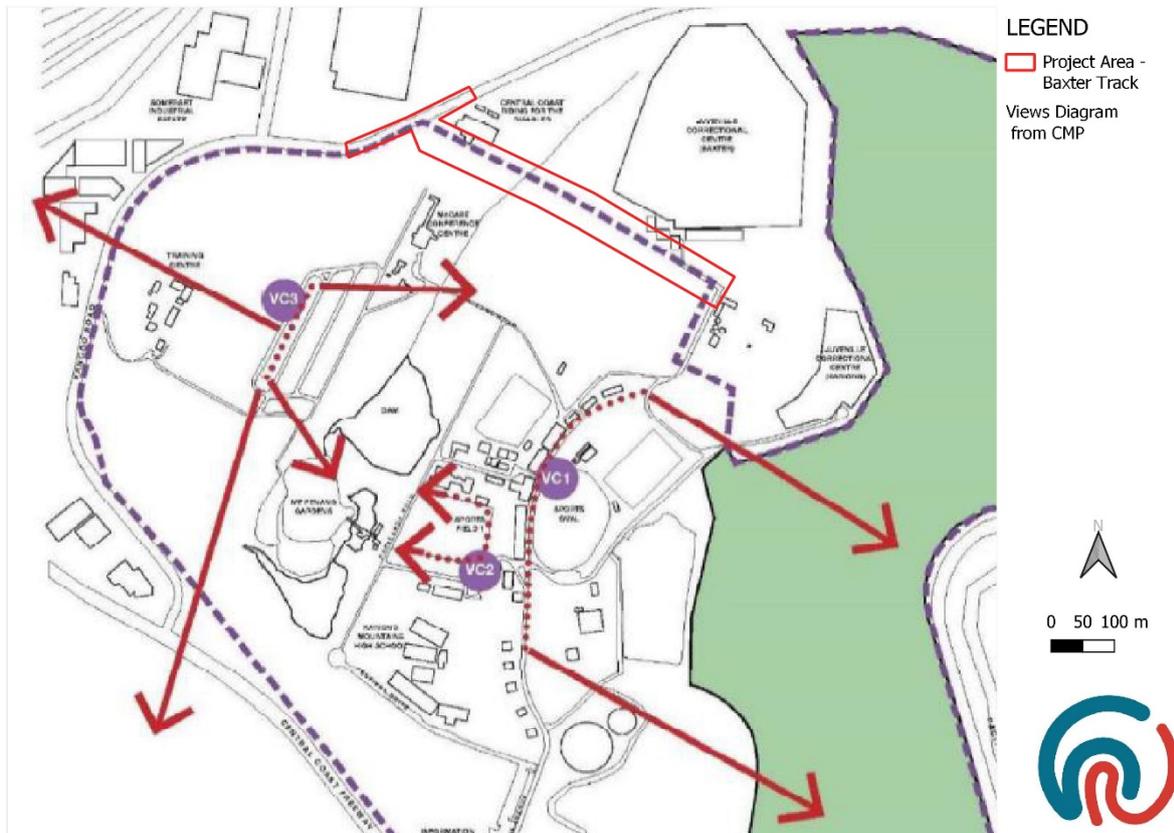


Figure 11 Significant Views with Project Area (underlying data source TKD Architects 2020, 71)

Precincts (Conservation Policy 21)

The 2020 CMP identifies eight precincts within the Parklands of varying heritage significance and includes different management strategies based on significance. The Project Area overlaps with the northern portions of Precincts 3 and 5, and the western portion of Precinct 4 (Figure 12).

Precincts 3 and 4 are identified as being of moderate significance. They make, “a moderate contribution to the overall heritage significance of the Mount Penang Parklands. It has undergone alteration that detracts from its heritage significance but still contributes to the overall significance of the place. Demolition/removal or inappropriate alteration may diminish the heritage significance of Mount Penang Parklands” (TKD Architects 2020, 110) (significance gradings are reproduced in Table 4).

Precinct 5 is listed as having exceptional significance: *Element that makes a direct and irreplaceable contribution to the overall heritage significance of Mount Penang Parklands. It will exhibit a high degree of integrity with any alterations of a minor nature and generally reversible. Demolition/removal or inappropriate alteration would substantially diminish the heritage significance of Mount Penang Parklands* (TKD Architects 2020, 110).

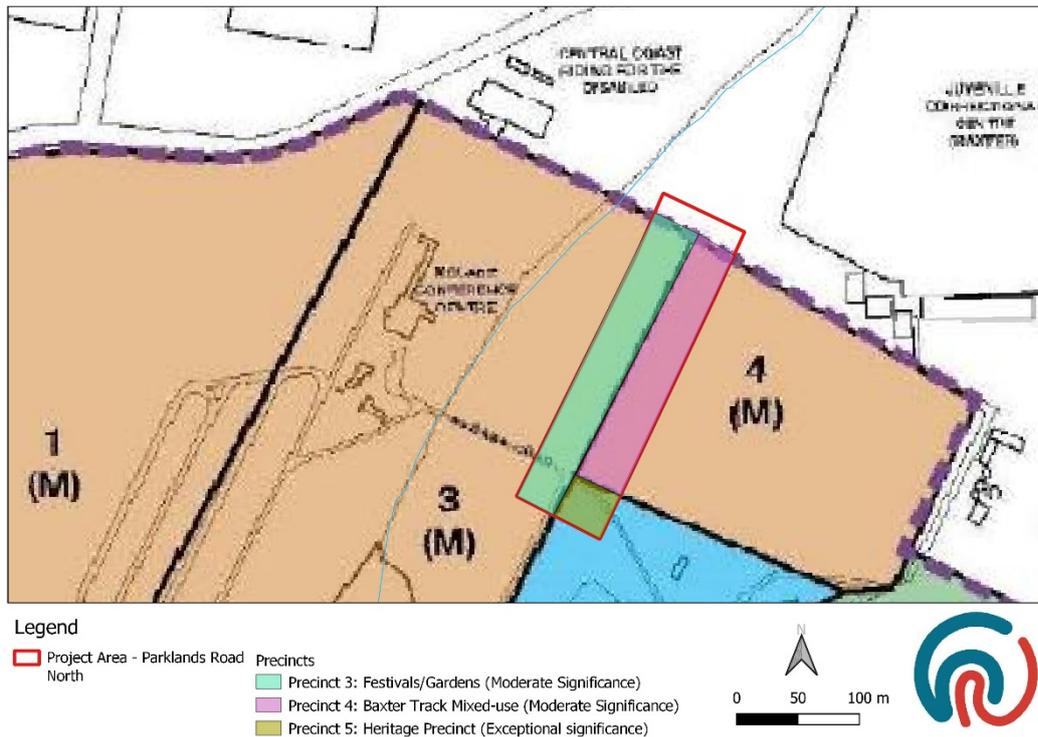


Figure 12 Historic Precincts from CMP (TKD Architects 2020, 114) with Project Area overlaid

Table 4 Significance as Defined in the CMP (TKD Architects 2020, 110)

Level of Significance	Management Recommendation
Exceptional	<p>Element that makes a direct and irreplaceable contribution to the overall heritage significance of Mount Penang Parklands. It will exhibit a high degree of integrity with any alterations of a minor nature and generally reversible.</p> <p>Demolition/removal or inappropriate alteration would substantially diminish the heritage significance of Mount Penang Parklands.</p>
High	<p>Element that makes a substantial contribution to the overall heritage significance of Mount Penang Parklands. It has alterations that do not detract from its significance.</p> <p>Demolition/removal or inappropriate alteration would diminish the heritage significance of Mount Penang Parklands.</p>
Moderate	<p>Element that makes a moderate contribution to the overall heritage significance of Mount Penang Parklands. It has undergone alteration that detracts from its heritage significance but still contributes to the overall significance of the place.</p> <p>Demolition/removal or inappropriate alteration may diminish the heritage significance of Mount Penang Parklands.</p>

Level of Significance	Management Recommendation
Little	<p>Element that makes only a minor contribution to the overall heritage significance of Mount Penang Parklands. It has undergone substantial and irreversible alteration and is difficult to interpret.</p> <p>Demolition/removal would not diminish the heritage significance of Mount Penang Parklands.</p>
Intrusive	<p>Element (or component of an element) that adversely impacts on the overall heritage significance of Mount Penang Parklands. Demolition/removal would enhance the heritage significance of Mount Penang Parklands.</p>

Under Conservation Policy 21 *“The landscape precincts... will be managed in accordance with their assessed cultural significance and the following guidelines”* (Table 5). The Project Area only takes in the northern portion of these three precincts and as such, not all of the elements listed for management are present within the Project Area. Table 5 outlines which elements listed are not within in the Project Area and which elements are within or overlap with the Project Area.

Table 5 Precincts, Management Guidelines and Applicability to Project Area

Precinct and Management Guidelines	Applicability to Project Area
<p>Precinct 3: Festival Gardens Precinct</p> <p><i>The open space character of this precinct, with perimeter plantings, will remain. The area containing Piles Creek ideally demonstrates the former open space character of the site and will remain. There is potential scope for change in the remaining eastern area of this precinct provided the scale, form and spatial characteristics are appropriately managed and having regard for any adverse impact on the identified heritage precinct adjacent. Continue to manage the Mount Penang Gardens. Consider further planting to the northern and eastern margins to ameliorate the visual impact of the built elements of the gardens when viewed from the heritage core. The south-eastern corner of this precinct may be suitable for future development. In relation to the McCabe Cottage, the post-1950 shrub plantings adjacent to, or within the grounds of, the visitor's cottages will be conserved and integrated into a landscape plan. Ensure that setbacks and landscape elements protect the curtilage of the complex. Maintain the relationship of the McCabe complex with the surrounding open space to the east. Ensure the new built forms to the west do not dominate the complex. (TKD Architects 2020, 147)</i></p>	<p>The Project Area does not contain any of the structures mentioned as part of this precinct, nor plantings associated with McCabe Cottage.</p> <p>The Project Area does contain paddocks which are part of the 'open space' character of this precinct. It also contains the eastern boundary which is to be considered for further planting.</p>
<p>Precinct 4: Baxter Track Mixed Use Precinct</p> <p><i>Conserve remnants of the former avenue of mature trees along the western boundary and group of scribbly gums. Appropriate modification of this precinct may be considered with respect to the heritage values of place and heritage landscape items are included in any proposal. (TKD Architects 2020, 147)</i></p>	<p>The mature trees along The Avenue are not located in the Project Area. It is unclear which scribbly gums are being referred to as the landscape item 'Group of Scribbly Gums' (L2) is in Precinct 5.</p> <p>No elements associated with this Precinct are within the Project Area.</p>
<p>Precinct 5: Heritage Precinct</p> <p><i>This precinct is to be maintained intact. No new buildings will be located on its eastern edge that would obscure or diminish the important view over the Eastern Playing Field and bushland to the Brisbane Waters. The active open space character defined by a cultural landscape and low built form is to be maintained. If any new buildings are considered the careful assessment of the existing character is to be undertaken so as not to diminish the heritage values of place. Visual connection to the adjacent precincts is to be carefully considered in relation to the open space character of these precincts and the cultural and built form character of Sports Field 1. The mid to late 20th century planting to the garden and landscaped spaces to the west of these core buildings will be acknowledged as part of the evolution of the use of the site (TKD Architects 2020, 147)</i></p>	<p>None of the buildings, playing fields or gardens as part of this Precinct are present in the Project Area.</p> <p>The landscape item 'Group of Scribbly Gums' (L2) is in the Project Area in the south-eastern corner.</p>

There are no buildings of significance in the Project Area, nor other features including fences, roads or tracks. However, there is one landscape item ‘Group of Scribbly Gums’ (L2). There are also general landscape values associated with Project Area, as part of the wider landscape of Mount Penang Parklands and its precincts.

Historical Archaeology (Conservation Policy 24)

This policy describes how historical archaeology is to be managed in accordance with its significance (and as part of that, an assessment of its potential) in accordance with the *Heritage Act 1977*.

The historic archaeological potential for Mount Penang relates closely to the main building group and quarrying in the vicinity of the ovals. The current CMP (unlike previous CMPs) does not define archaeological precincts for Mount Penang. It has identified different types of archaeological resources. The only resources with a medium potential chance of being present are quarrying and land modification (Table 6). Quarrying evidence has been identified around the oval and is postulated to be present adjacent to the buildings across the site (TKD Architects 2020 Appendix C, 10). Neither the oval or buildings are present in the Project Area and thus the area has no identified historic archaeological potential.

Table 6 Historic Archaeological Resources—Reproduced from (TKD Architects 2020 Appendix C, Table 2)

Archaeological Resource	Potential	Significance
Well	Low	Local/No
Underfloor deposits	Low	No
Evidence of quarrying and land modification	Medium	Local/No
Evidence of location of previous buildings, paths and roads	Low	No
Land clearance agricultural activities	Low	No

Services Upgrade (Conservation Policy 31) and Ground Disturbance/Excavation (Conservation Policy 32)

These conservation policies are applicable to the Proposal as the works include the installation of new services and ground disturbance. Under these policies the Proposal is to avoid physical and visual impacts to significant buildings, historic archaeological items, trees and other significant landscape elements.

3.2.2 Development Control Plan

The DCP for the site is listed as Kariong Mount Penang Parklands 5.3 under the Gosford DCP (2013) and generally conforms with the Gosford LEP 2014. The DCP provides detailed development principles and controls for the site, along with the objectives and requirements.

The vision in the DCP (Section 5.3.2.6) is:

Mount Penang is to be an ecologically sustainable development that complements the existing heritage character and landscape setting. A vibrant mix of uses is proposed to enhance the quality of life for people on the Central Coast by providing new opportunities for employment, recreation, education, business, speciality retail, accommodation, festivals, and

events. Extensive gardens, event venues, sports facilities, picnic, and bushland areas are to be established as a focus and amenity for the new facilities and the region.

Section 5.3.3.4 contains the following planning principles in relation to the HCA and Landscape Setting of Mount Penang Parklands:

The overall site is to continue to be ‘read’ and interpreted in the future as the original Gosford Farm Home for Boys - that is, as essentially a rural site. Landscape precincts and elements should be dealt with in accordance with their assessed cultural significance by;

- *Retaining and respecting its semi-rural character and ambience;*
- *Respecting the relationship of the buildings to the topography, with formal landscaping including avenues, groves, courtyard spaces, and paddocks;*
- *Preserving the natural bushland below the plateau to heavily vegetated nature and original setting of the Farm;*
- *Retaining, where appropriate, certain selected open spaces demonstrating the former character of the place;*
- *Preservation of view corridors within the site and from different parts of the site out to the surrounding landscape. Tree and shrub planting schemes should ensure access to important views out and linkages between heritage buildings and precincts are not eventually blocked when such vegetation matures;*
- *Retaining the mature historic plantings on the site, particularly the Avenue plantings along the entry roads and around the edges of the playing field; and*
- *Respecting the alignment of the original roads and pathways through the site, especially the major access point from the Pacific Highway and Kangaroo Road at Baxter’s Track. It should be recognised that these have changed over time.*

3.2.3 Statement of Significance for Mount Penang Parklands

The below statement of significance is quoted from the updated 2020 CMP for Mount Penang Parklands:

The Mount Penang Juvenile Justice Centre was the most important juvenile detention centre for NSW for most of the twentieth century and is a direct continuation of the nineteenth-century system of reformatory training ships and early Farm Home at Brush Farm, Eastwood.

The design of the early buildings, their configuration and the layout of the site itself and its landscaping, collectively and individually illustrate juvenile penal philosophies and practices of the period and their subsequent evolution over eighty-five years of operation. The location of Mount Penang Parklands is a feature in the historical expansion of metropolitan Sydney into its rural hinterland and its operations are an element in the development of Gosford and the Central Coast.

Mount Penang Parklands has notable aesthetic qualities associated with its site and the available views, the layout of the low-scale buildings and the landscaping. The earlier buildings are attractive, human-scaled structures which, while of an institutional character,

utilise colonial homestead architectural forms appropriate to their setting and construction techniques of particular interest. The most recent buildings emulate these forms to reinforce the characteristic appearance of the complex, whilst the McCabe Cottages group is an excellent example of the Inter-War Functionalist architectural style and is evidence of the innovative practices in juvenile reform that took place at Mount Penang.

The siting and relationship of buildings to each other and to the sports fields, paddocks and vistas are all components of the operational requirements and practices of the Centre. These relationships provide technical information regarding juvenile detention and reformatory practices. As well, the vistas across the site, which embrace natural and cultural landscape features and significant built elements, are an important component of Mount Penang Parklands' aesthetic significance.

The Bushland Precinct of Mount Penang is significant because it is an intact natural landscape that provides habitat for rare and endangered species of flora and fauna and provides a record of previous Aboriginal occupation of the place. It has aesthetic significance because of its topography and integrity. Scribbly gums in other parts of the site are also significant remnant of the original flora across the site.

Mount Penang is very important to the many Aboriginal and European boys and young men who were detained there over the course of nearly a century. For most detainees, Mount Penang is a place where unforgettable experiences occurred—experiences which strongly influenced the course of their lives. The place is also important to the many men and women who lived and worked at the former detention centre. For many of these people, it is a place of substantial personal and professional achievement. Mount Penang is also important to the local community as a landmark of historical and aesthetic importance. The place has functioned as a community meeting point, with many links between the wider community and the detainees and staff.

Mount Penang also has significance for the local Aboriginal people both pre and post-contact, and during the time when Mount Penang as used as a juvenile detention centre and accommodated a number of Aboriginal detainees for whom the site would have profound associations.

Because of the levels of disturbance across much of Mount Penang, there is Low Aboriginal archaeological potential apart from the eastern Bushland Precinct, which has Moderate to High archaeological potential. Mount Penang has a Low historical archaeological potential.

3.2.4 Significance of the Project Area

The significance of the Project Area has been considered in four CMPs (GML 2001; EJE Heritage 2012; Extent Heritage 2018; TKD Architects 2020) and they have identified that the majority of the Project Area has moderate significance and makes “*a moderate contribution to the overall heritage significance of the Mount Penang Parklands. It has undergone alteration that detracts from its heritage significance but still contributes to the overall significance of the place. Demolition/removal or inappropriate alteration may diminish the heritage significance of Mount Penang Parklands*” (TKD Architects 2020, 110). In addition, the south-eastern portion of the Project Area is assessed as having exceptional significance as part of Precinct 5: Heritage Precinct, and also contains a landscape item ‘Group of Scribbly Gums’ (L2).

3.3 Summary

The Project Area falls partially within a local heritage listing (61), a local HCA (C1), and a State Heritage Register listing (SHR1667). There are no built structures of heritage significance within the Project Area, however, there is one landscape item 'Group of Scribbly Gums' (L2) in the south-eastern corner. There are also general open space landscape values for the Project Area. There are no areas of historic or Aboriginal archaeological potential within the Project Area.

4 Site Visit and Physical Assessment

The site was inspected on 29 April 2021 by Crystal Phillips and Tessa Boer-Mah of Heritage Now. The purpose of the site inspection was to determine whether there were any historical structures, relics, or mature plantings that may be affected by the proposed works.

The northern portion of the Project Area within local heritage item (61) comprises grass (Plate 1). There are no structures associated with this listing within the Project Area. The area within the State Heritage Register listing (SHR1667) contains pine and other tree plantings (not heritage listed) (Plate 2). The central portion of the Project Area comprises a grassed paddock, a fence and smaller trees (Plate 3). From the southern portion of the paddock, the significant landscape item 'Scribbly Gum Group' (L2), part of the Mount Penang Parklands State Heritage Register listing (SHR1667), can be seen at the junction of McCabe Road and Parklands Road (Plate 4).



Plate 1 Area to right of track is within local heritage item (61), area left of the track is within the Mount Penang Parklands State Heritage Register listing (SHR1667), trees not of heritage significance, view to north-west

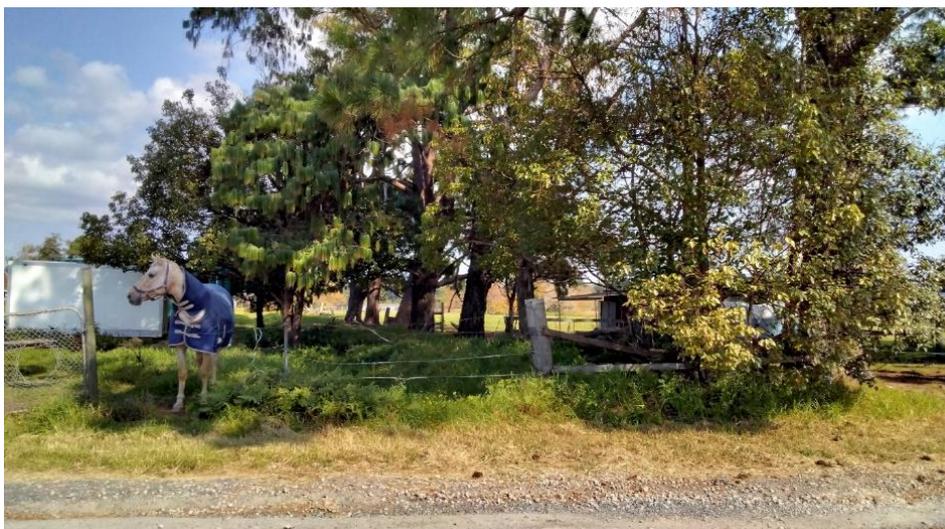


Plate 2 Northern portion of Project Area, view to south, trees to be removed (not of heritage significance)



Plate 3 Grassed paddock in central portion of the Project Area, view to south



Plate 4 Paddock, view to south, significant 'Scribbly Gum Group' (L2) is marked by arrow

The 'Scribbly Gum Group' (L2) comprises nine trees, which have been labelled as per Figure 13. Only the trees within the Project Area from the L2 group have been labelled and there are more trees further south. Tree 1 (Plate 5), Tree 2 and Tree 3 (Plate 6) are located at the back of the group (within the Project Area) and are scribbly gums. Tree 4 is located on the east of the group and is a brush box (Plate 7). Tree 5 is the smallest tree in the 'Scribbly Gum Group' (L2) in the Project Area, approximately 3 m in height, and is a *Photonia* species (sometimes referred to as Christmas Berry). Trees 6 (Plate 9), 7 (Plate 10) and 8 (Plate 11) are the tallest contiguous stand of trees (all brush box) in the L2 group and are prominent in marking the southern side of the Parklands and McCabe Road intersection (Plate 13). Tree 9 is also a brush box and stands approximately 17 m from Trees 6–8 (Plate 12).

There was no evidence for historic material, which could be related to archaeological deposit and the CMP does not identify this portion of Mount Penang Parklands as being archaeologically sensitive.



Figure 13 Plan of trees in Project Area



Plate 5 Tree 1 in 'Scribbly Gum Group' (L2) (Source: Mara Consulting)



Plate 6 Trees 2 and 3 in 'Scribbly Gum Group' (L2) (Source: Mara Consulting)

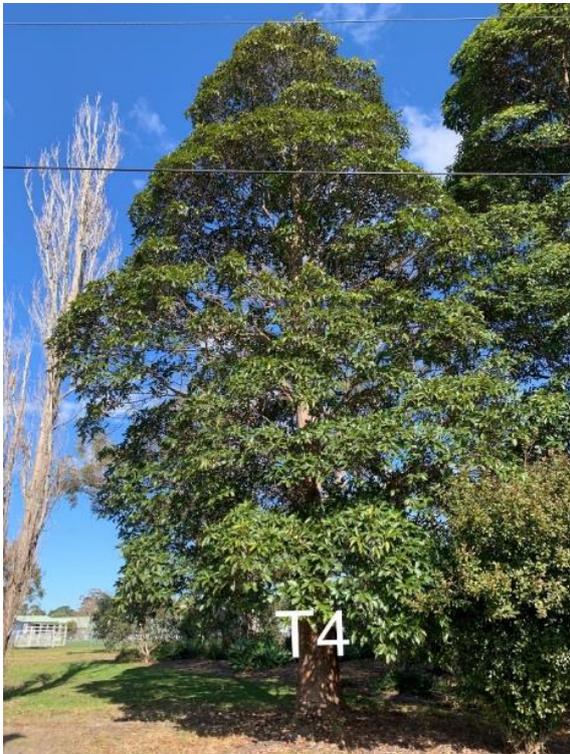


Plate 7 Tree 4 in 'Scribbly Gum Group' (L2) (Source: Mara Consulting)



Plate 8 Tree 5 in 'Scribbly Gum Group' (L2) (Source: Mara Consulting)

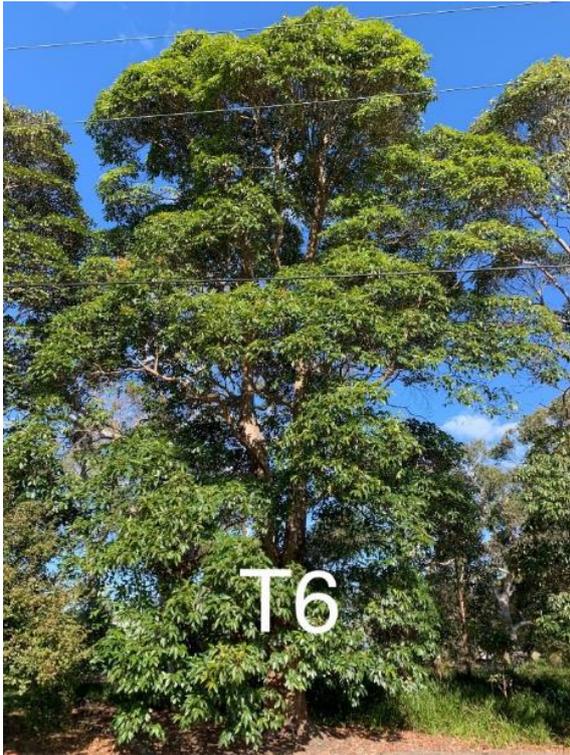


Plate 9 Tree 6 in 'Scribbly Gum Group' (L2) (Source: Mara Consulting)

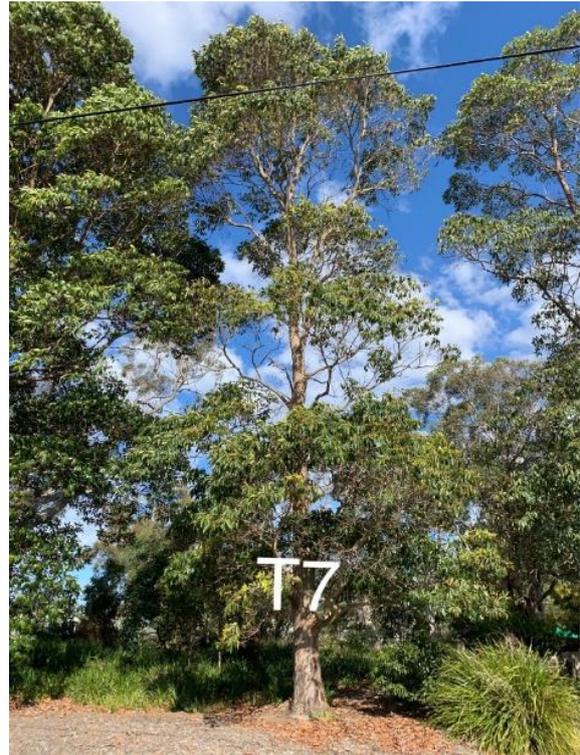


Plate 10 Tree 7 in 'Scribbly Gum Group' (L2) (Source: Mara Consulting)

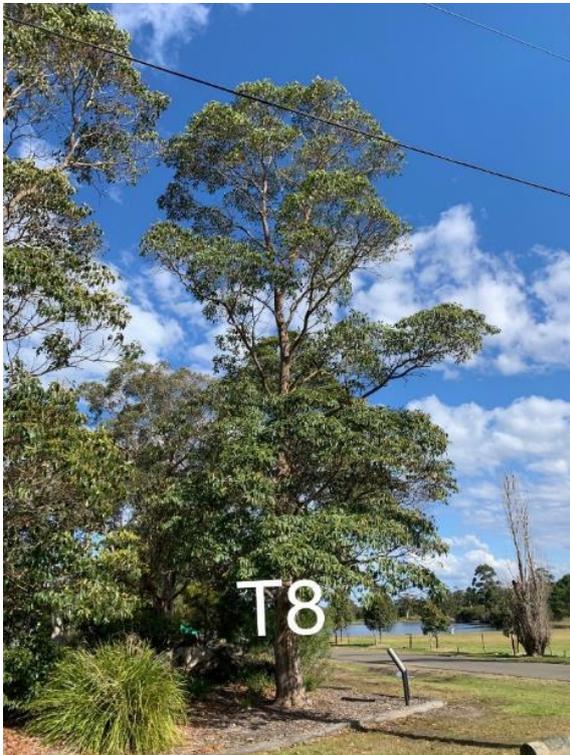


Plate 11 Tree 8 in 'Scribbly Gum Group' (L2) (Source: Mara Consulting)



Plate 12 Tree 9 in 'Scribbly Gum Group' (L2) (Source: Mara Consulting)

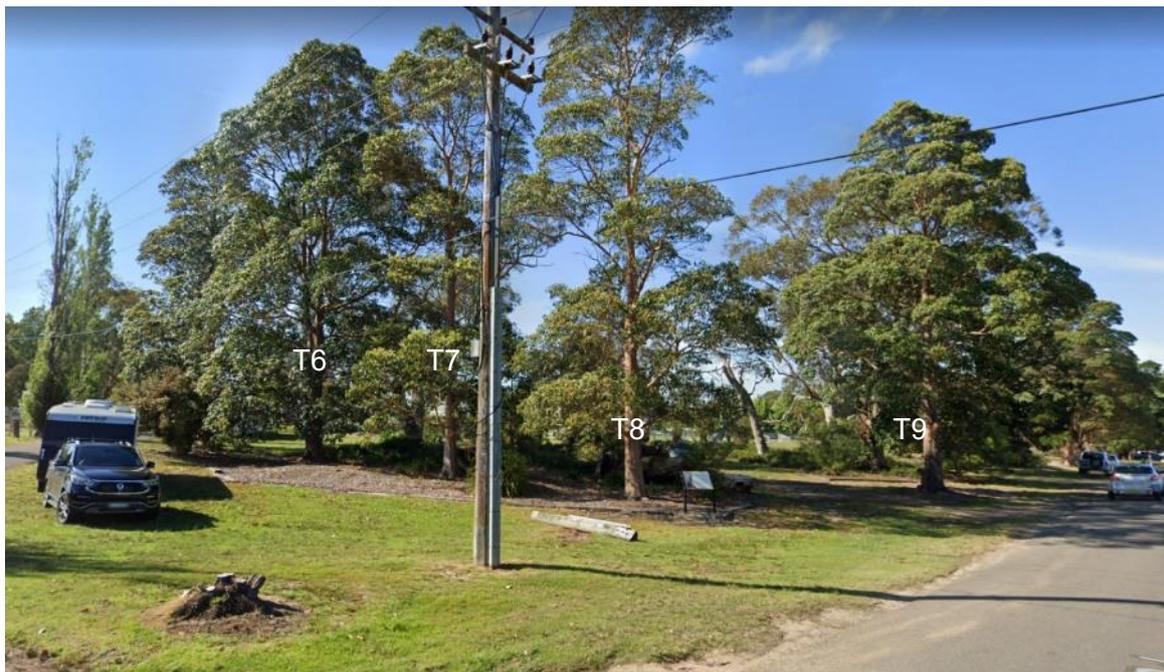


Plate 13 Stand of 'Scribbly Gum Group' (L2) as viewed from the intersection of Parklands and McCabe Roads, view to south (Source: Mara Consulting)

4.1 Summary

There are no buildings or other items in the Project Area associated with local heritage listing (61) in the Project Area. The significant landscape item 'Scribbly Gum Group' (L2) as part of the Mount Penang Parklands State Heritage Register listing (SHR1667) is present in the southern portion of the Project Area, of which there are nine trees within the Project Area. Other trees were noted in the area, but are not identified as being of heritage significance. No areas of potential archaeological deposit were identified within the Project Area.

5 Assessment of Heritage Impact and Mitigation

This section provides an overview of significance, impact assessment and mitigation. The impact assessment includes the consideration of enhancement and detrimental impact to heritage item/s, as well as alternatives according to Heritage NSW's guideline *Statements of Heritage Impact*.

5.1 The Proposal

The Proposal is to extend Parklands Avenue approximately 210m north to connect to Baxter Track. The road will be constructed to Central Coast Council standards and include intersections with Baxter Track and McCabe Road. The proposal also includes the provision of services, sewer connection, cycleway and street tree landscaping adjacent to the road alignment.

Refer to Appendix B for the Proposal drawings.

The arborist report has assessed the Proposal and particularly the roundabout in the southern section of the Project Area (Mara Consulting 2021), which contains landscape item 'Scribbly Gum Group' (L2). Each tree in that area has been assessed and none will be impacted by the works (Mara Consulting 2021, 28–29). Note that the trees in the Mara report are numbered 86–94, which is equivalent to trees 1–9 in this report.

5.2 Impact Assessment

The southern section of the Project Area overlaps the northern portion of the Mount Penang Parklands State Heritage Register listing (SHR1667) and the Mount Penang Heritage Conservation Area (C1), which shares the same curtilage as the SHR item, and while locally listed in the Gosford LEP, is identified as being State significant. As these listings have the same curtilage and significance ranking, they have been assessed concurrently.

The northern section of the Project Area partially overlaps with the southern portion of local heritage item (61).

The impact assessment for land within the Mount Penang Parklands State Heritage Register listing (SHR1667) and the Mount Penang Heritage Conservation Area (C1) has primarily used the 2020 CMP conservation policies as a framework for undertaking the assessment. While there are individual planning principles in the DCP for the Kariong Mount Penang Parklands Heritage Conservation Area, these are covered in more detail in the conservation policies of the 2020 CMP and therefore are not assessed separately. The impact of the Proposal has been assessed in relation to each of the conservation policies as they relate to the Project Area.

For local heritage item (61), the impact assessment has addressed potential impacts in relation to built and landscape items, and archaeological heritage, along with views and vistas, as well as the rural character of the area.

The impact assessment is presented in Table 7.

Table 7 Heritage Items, Elements of Significance, Relevance to the Project Area and Impact Assessment

Heritage Type and Conservation Policy	Relevance to Project Area	Impact Assessment
Mount Penang Parklands (SHR1667) & Mount Penang Heritage Conservation Area (C1)		
Built	None within Project Area	Nil
Cultural Landscape (Conservation Policy 17)	The Project Area is characterised by its open character as well as intrinsic visual and physical character to be preserved. There is one landscape item within the Project Area, 'Scribbly Gum Group' (L2).	Nil – The landscape item 'Scribbly Gum Group' (L2) will not be impacted from the works (Mara Consulting 2021, 28–29). Trees to be removed are not identified as landscape items and they will be replaced by tree plantings on either side of the Parklands Road extension.
Significant Views and Vistas (Conservation Policy 18)	This portion of the Project Area has open grassed paddocks with some trees along Baxter Track and is of moderate significance in relation to Mount Penang Parklands.	Nil – The area will retain an open setting. The Proposal is at grade and thus will not impact views. The trees removed will be replaced by tree plantings to the north and south of the track and therefore frame the entryway as one of the approaches to Mount Penang Parklands.
Landscape Precincts (Conservation Policy 21)	Precinct 3: Festival Gardens Precinct	Negligible – There are no built heritage items or archaeology in the Project Area as part of this precinct. Trees to be removed are not identified as being significant landscape items. The Proposal would provide a roadway where there is not one currently, however, this road is aligned with edge of the McCabe Cottage cultivation area and thus will further define the boundary of this area. The tree plantings in the Proposal on the western side of the road will provide a visual demarcation of the cultivation area and provide a more interpretable space between the proposed road and McCabe Cottage. The Proposal plantings would also be in alignment with the guidelines under Conservation Policy 21 (TKD Architects 2020, 146–47).

Heritage Type and Conservation Policy	Relevance to Project Area	Impact Assessment
Landscape Precincts (Conservation Policy 21)	Precinct 4: Baxter Track Mixed Use Precinct	Negligible – There are no built heritage items or archaeology in the Project Area as part of this precinct. Trees to be removed are not identified as being significant landscape items. The Proposal would provide a roadway where there is not one currently, however, this road is aligned with edge of the McCabe Cottage cultivation area and thus will further define the boundary of this area. The Proposal is also at grade and would have minimal impact on surrounding views. As such, the Proposal would have a negligible impact on the significance of this Precinct with the open space and rural character of the area being retained.
Landscape Precincts (Conservation Policy 21)	Precinct 5: Heritage Precinct	Negligible - There are no built heritage items or archaeology in the Project Area as part of this precinct. No trees will be removed in relation to the landscape item ‘Scribbly Gum Group’ (L2) and there will be no adverse effects on the trees in this group as a result of the Proposal (Mara Consulting 2021, 28–29). The Proposal will include a roundabout at the junction of Parklands and McCabe Road. While this will change the road configuration slightly, it will provide better access to the site and continue the current alignment of Parklands Road. There will be negligible impact on this precinct as a result of the Proposal.
Historic Archaeology (Conservation Policy 24)	No potential identified	Nil
Services Upgrade (Conservation Policy 31) Excavation (Conservation Policy 32)	Project Area comprises open grassed paddocks with existing vehicle tracks and roadways on either end. Under these policies the Proposal is to avoid physical and visual impacts to significant buildings, historic archaeological items, trees and other significant landscape elements.	Negligible—There is no built or archaeological heritage in the Project Area. There will be some tree removals, but none that are regarded as significant landscape items. The Proposal will also include plantings on either side of the proposed roadway, which will be in accordance with the guidelines under Conservation Policy 21 (TKD Architects 2020, 146–47).

Heritage Type and Conservation Policy	Relevance to Project Area	Impact Assessment
Local Heritage Item (61) 'Remnant farm buildings, the barn, storage shed and dairy'		
Built	No heritage buildings within the Project Area	Nil
Landscape Items	None within Project Area	Nil
Archaeological	No potential identified	Nil
Vistas and landscape values	The portion of the Project Area, which is within this listing comprises open paddocks.	Nil—The Project Area will retain an open setting as a result of the Proposal. The Proposal is at grade and thus will not impact views. The trees removed will be replaced by tree plantings on either side of the roadway.
Rural character	The portion of the Project Area which is within this listing comprises open paddocks.	Nil—The Proposal would have a negligible impact on the rural character, being at grade, and the change in road surfacing is a minor change within the wider rural context of this portion of local heritage item (61).

5.2.1 Summary of Impact Assessment

This section summarises the enhancements to the heritage items, detrimental impact and alternatives considered in accordance with the Statements of Heritage Impact guidelines (Heritage Office NSW [now Heritage NSW] 2002). As per the guidelines, the enhancement of heritage items is to be assessed along with the assessment of detrimental impacts, as well as consideration of the alternatives.

5.2.2 Enhancement of Heritage Item/s

The Proposal will increase the amenity of Mount Penang Parklands by providing access to the site. The proposed tree plantings along the upgrade track will frame the roadway and compliment other roadway plantings throughout Mount Penang Parklands. The addition of additional tree plantings will also assist in defining the boundary of the McCabe Cottage cultivation area, which aligns with the guideline for tree planting under Conservation Policy 21 (TKD Architects 2020, 146–47).

5.2.3 Detrimental Impact to Heritage Item/s

The Project Area in relation to the Mount Penang Parklands has a rural character with open paddocks with tree plantings along the edge of the McCabe Cottage cultivation area. This open and rural character is of moderate significance in relation to the overall significance of the Mount Penang Parklands (SHR 1667) listing. The Proposal would result in a slight change in the form and layout of access to Mount Penang Parklands, however, this change would have a negligible impact on the significance of rural character of the area.

Once the works are completed the site will continue to be interpretable as an open landscape. The Project Area will maintain its open landscape values, and will be in accordance with CMP conservation polices (TKD Architects 2020, 147).

5.2.4 Alternatives

The Proposal will not directly impact the significance of the Mount Penang Parklands (built, landscape, archaeological, vistas and rural character) and thus no other solutions have been considered.

5.3 Statement of Heritage Impact

The southern section of the Project Area partially is within the northern portion of the Mount Penang Parklands State Heritage Register listing (SHR1667) and the Mount Penang Heritage Conservation Area (C1). The Mount Penang Heritage Conservation Area (C1) shares the same curtilage as the SHR item and, while locally listed in the Gosford LEP, is identified as being State significant. The northern section of the Project Area partially overlaps with the southern portion of local heritage item (61) 'Remnant farm buildings, the barn, storage shed and dairy'.

The Project Area does not contain built or archaeological heritage associated with these heritage listings. While it does contain a significant landscape item 'Scribbly Gum Group' (L2), there will be no physical impacts to this item. The Project Area forms part of the vistas for the heritage items and conservation area, which are of moderate significance. The Proposal will not impact these vistas, with the works being subsurface or at-grade with the existing level. The rural character of the area is of moderate significance to the heritage listings and the Project Area is 50 m from the nearest

significant built item and 120 m east of McCabe Cottage. The Proposal would result in a slight change in the form and layout of access to Mount Penang Parklands, however, this change would have a negligible impact on the significance of the rural character of the area. The Parklands Road extension will provide new access to the site and the approach to the roundabout would be framed by the 'Scribbly Gum Group' (L2) thus enhancing the group as a landscape element.

Once the works are completed, the site will continue to be interpretable as an open landscape. The Project Area will maintain its open landscape values, and will be in accordance with the conservation policies (TKD Architects 2020, 147).

5.4 Management and Mitigation

For works on State Heritage Register items, there are standard exemptions, as well as two approval pathways available for proposed works: s60 fast track and s60 approval.

5.4.1 Standard exemption 8: Excavation

Under standard exemption 8, the following works do not require approval under subsection 57(1):

- a) *Excavation or disturbance of land that is:*
 - i. *For the purpose of exposing underground utility services infrastructure which occurs within an existing service trench, or*
 - ii. *To carry out inspections or emergency maintenance or repair on underground utility services, or*
 - iii. *To maintain, repair or replace underground utility services to buildings, or*
 - iv. *To maintain or repair the foundations or an existing building, or*
 - v. *To expose survey marks, or*
 - vi. *Associated with feral animal/insect eradication*

The Proposal does not meet standard exemption (i) for subsurface work because the installation of the water and sewer is a new installation and is not within an existing service trench and does not meet (ii) to (vi) either.

5.4.2 Section 60 Fast Track

A s60 fast track is for minor works. For a project to be eligible, the proposal must relate to activities or works to an SHR or Interim Heritage Order (IHO), which:

1. *will have little or no adverse impact on the heritage significance of the item, (and)*
2. *is not listed as an exemption under the Heritage Act 1977, (and)*
3. *has a cost of works of up to \$150,000.*

The Proposal will have little impact on the heritage significance of the item and is not listed as an exemption, however, the cost of works is \$3,067,994 ex GST and therefore does not meet the fast-track criteria.

5.4.1 Section 60

The Proposal does not meet the criteria for an exemption or for a s60 fast track application and therefore, although the impact will be minor, a s60 application is required.

The s60 application needs to include the following:

- A Statement of Heritage Impact,
- Drawings of proposed works,
- Owners consent, and
- A copy of the Conservation Management Plan.

The s60 needs to be approved by Heritage NSW before the commencement of construction works in the Project Area. Works are to be undertaken in accordance with the s60 approval.

In addition to a s60 approval, all on-site personnel are to be made aware of their obligations under the *NSW Heritage Act 1977*, including the reporting of any historic, or suspected historic material. This may be implemented through an on-site induction or other suitable format.

In the unlikely event that archaeological, or suspected archaeological material is uncovered during works, then works in that area are to cease and the area is to be cordoned off. The material is to be inspected by a heritage consultant and works in that area are only to recommence once heritage clearance has been gained and/or mitigation and management measures implemented.

6 Conclusions and Recommendations

Part of the southern section of the Project Area is within the northern portion of the Mount Penang Parklands State Heritage Register listing (SHR1667) and the Mount Penang Heritage Conservation Area (C1). The Mount Penang Heritage Conservation Area (C1) shares the same curtilage as the SHR item and, while locally listed in the Gosford LEP, is identified as being State significant. Part of the northern section of the Project Area overlaps with the southern portion of local heritage item (61), 'Remnant farm buildings, the barn, storage shed and dairy'.

The most recent Conservation Management Plan (CMP) for the State Heritage Register listing (SHR1667) indicates that the majority of the Project Area is of moderate significance and notes that the open character and rural setting are important characteristics to be conserved. The southern portion of the Project Area is of exceptional significance associated with the landscape item 'Scribbly Gum Group' (L2).

The Project Area does not contain built or archaeological heritage associated with these heritage listings. While it does contain a significant landscape item 'Scribbly Gum Group' (L2), there will be no physical impacts to this item. The Project Area forms part of the vistas for the heritage items and conservation area, which are of moderate significance. The Proposal will not impact these vistas, with the works being subsurface or at-grade with the existing level. The rural character of the area is of moderate significance to the heritage listings and the Project Area is 50 m from the nearest significant built item and 120 m east of McCabe Cottage. The Proposal would result in a slight change in the form and layout of access to Mount Penang Parklands, however, this change would have a negligible impact on the significance of rural character of the area.

Once the works are completed, the site will continue to be interpretable as an open landscape. The Project Area will maintain its open landscape values, and will be in accordance with the conservation polices (TKD Architects 2020, 147).

The Proposal has been assessed in relation to the standard exemptions and Section 60 Fast Track, however, the proposed works do not meet the requirements for either. As such, a Section 60 application is required. The s60 needs to be approved by Heritage NSW before the commencement of construction works in the Project Area. Works are to be undertaken in accordance with the s60 approval.

In addition, to a s60 approval, all on-site personnel are to be made aware of their obligations under the *NSW Heritage Act 1977*, including the reporting of any historic, or suspected historic material. This may be implemented through an on-site induction or other suitable format.

In the unlikely event that archaeological, or suspected archaeological material is uncovered during works, then works in that area are to cease and the area is to be cordoned off. The material is to be inspected by a heritage consultant and works in that area are only to recommence once heritage clearance has been gained and/or mitigation and management measures implemented.

The works are to be carried out following the recommendations below.

Recommendation 1

The proponent is to apply for a s60 approval from Heritage NSW. This approval is needed before construction works are undertaken in the Project Area.

Recommendation 2

All on-site personnel are to be made aware of their obligations under the *NSW Heritage Act 1977*, including the reporting of any historic, or suspected historic material. This may be implemented through an on-site induction or other suitable format.

Recommendation 3

The landscape item 'Scribbly Gum Group' (L2) is to be clearly marked on all construction drawings as a no-go zone and temporary visual demarcation of this tree group is to be installed to prevent inadvertent impact during construction.

Recommendation 4

In the unlikely event that archaeological, or suspected archaeological material is uncovered during works, then works in that area are to cease and the area is to be cordoned off. The material is to be inspected by a heritage consultant and works in that area are only to recommence once heritage clearance has been gained and/or mitigation and management measures implemented.

Recommendation 5

If there are any alterations to the proposed works, further heritage assessment will be required.

7 References

- EJE Heritage. 2012. "Mount Penang Parklands Conservation Management Plan." Conservation Management Plan. Newcastle, NSW.
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- GML. 2001. "Mount Penang Conservation Management Plan." Conservation Management Plan H05232-MOUN. Redfern, NSW: Report to Festival Development Corporation and Urban Design Advisory Service.
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- Heritage Office NSW [now Heritage NSW]. 2002. *Statements of Heritage Impact*. Sydney, NSW: Heritage Office NSW.
- Heritage Office NSW [now, Heritage NSW]. 2015. *Assessing Heritage Significance*. Sydney, NSW: Office of Environment and Heritage.
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Appendix A Extract of CMP



Reference: DOC21/488689

Megan Jones
Practice Director
Tanner Kibble Denton Architects Pty Ltd

Via email: MJones@tkda.com.au

Mount Penang Conservation Management Plan - amending Diagram

Dear Ms Jones

I refer to your email and letter dated 11 June 2021 requesting amendment of Figure 94 from page 115 of the endorsed Conservation Management Plan. I understand that this is required because 'Item L1 (Old Pine Tree Group)' was identified in the wrong location on the original plan.

Accordingly, the amended Figure 94 as shown on page 2 of this correspondence is now considered Endorsed and can be substituted into the endorsed CMP in place of the original figure.

If you have any questions regarding the above matter please contact Katrina Stankowski, Senior Team Leader, Heritage NSW on 9873 8569 or at katrina.stankowski@environment.nsw.gov.au.

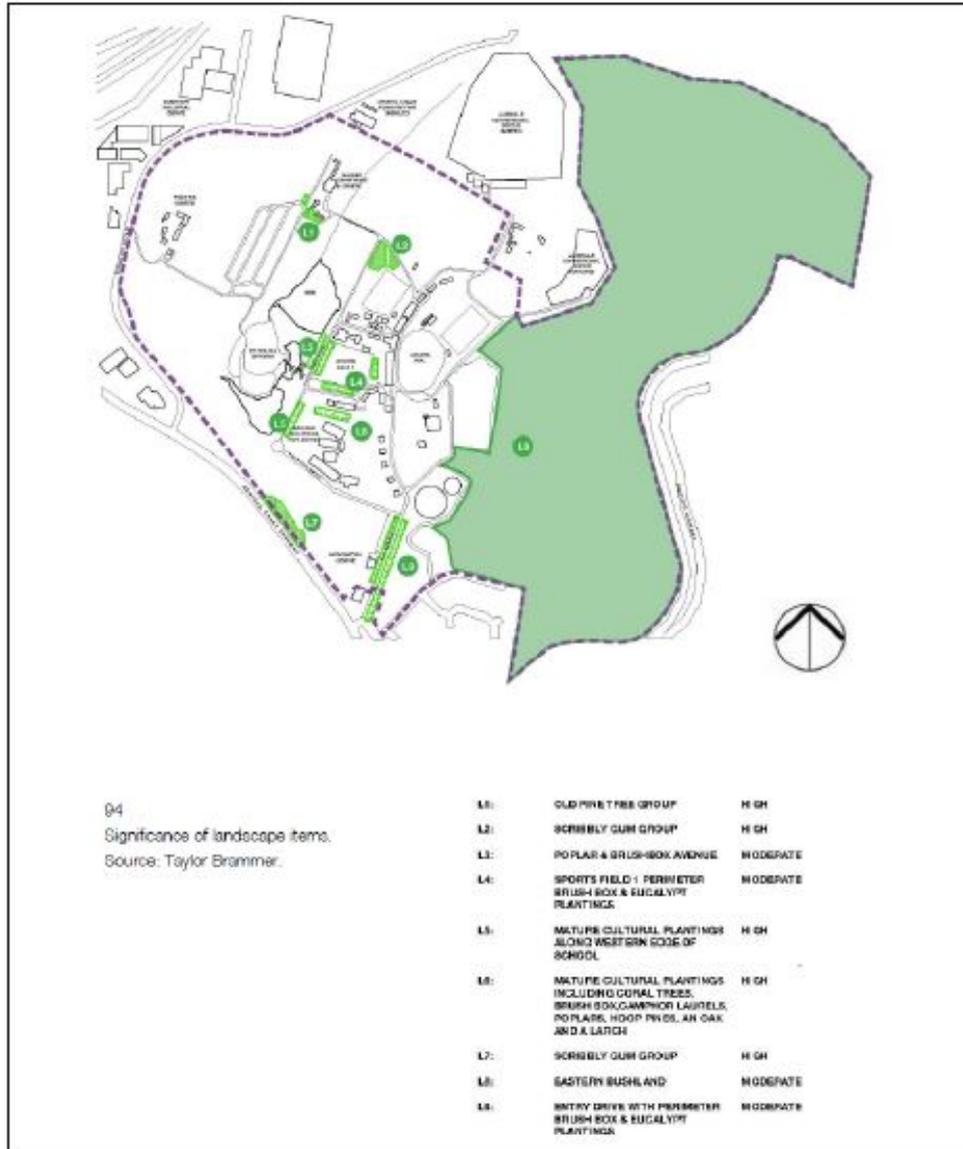
Yours sincerely



Steve Meredith
Manager, North Region
Heritage NSW
As Delegate of the Heritage Council

14 July 2021

Amended Endorsed Figure 94 – Mount Penang Parklands Conservation Management Plan 2020.



Appendix B Proposal Drawings



CONCEPT DESIGN

DRAWN: JBEVTT
 DESIGNED: JBEVTT
 JOB MANAGER: K SINCLAIR
 VERIFIER:

LEGEND	
	BOUNDARY LINE
	INDICATIVE LOCATION OF STORMWATER PIPE
	INDICATIVE LOCATION OF STORMWATER PIT
	INDICATIVE LOCATION OF STORMWATER CULVERT
	INDICATIVE LOCATION OF STORMWATER CULVERT HEADWALL
	DESIGN CONTOURS
	EXISTING CONTOURS

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	JB	BC		24.06.21
2	ISSUED FOR INFORMATION	JB	BC		25.06.21
3	ISSUED FOR INFORMATION	JB	BC		02.07.21
4	ISSUED FOR INFORMATION	JB	BC		28.07.21
5	ISSUED FOR INFORMATION	JB	BC		29.07.21
6	ISSUED FOR INFORMATION	JB	BC		16.08.21

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 SCALE 1:1000 @ A1

PROJECT
MT PENANG PARKLANDS KARIONG NSW 2250
CONCEPT DESIGN

DRAWING TITLE
CIVIL ENGINEERING PACKAGE
BAXTER TRACK UPGRADE OVERVIEW

JOB NUMBER
NL191249
 DRAWING NUMBER
CD-03-C1.00
 REVISION
6
DRAWING SHEET SIZE = A1