



Water Main Replacement – Lake Conjola

Review of Environmental Factors
Part 5 Assessment EP&A Act 1979
27 June 2018
FILE:

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PROPOSED ACTIVITY

1.1. DESCRIPTION

The proposed activity is the renewal of the water trunk main which services Lake Conjola.

Shoalhaven City Council (SCC) is the proponent and the determining authority under Part 5 of the EP&A Act. The environmental assessment of the proposed activity and associated environmental impacts has been undertaken in the context of Clause 228 of the Environmental Planning and Assessment Regulation 2000. In doing so, the REF helps to fulfil the requirements of Section 5.5 of the Act that SCC examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

1.2. LOCATION

The proposed activity will be undertaken within the road reserve of Lake Conjola Entrance Road extending from Lot 2 DP 777956 to Lot 255 DP 1125372 and UPN 95342 Lake Conjola Entrance Road (Figure 1). UPN 95342 comprises an unnamed watercourse mapped as a Category 2 Watercourse (SLEP 2014) that flows directly into Lake Conjola. The section of water main to be renewed is approximately 1 km in length (Figure 1).

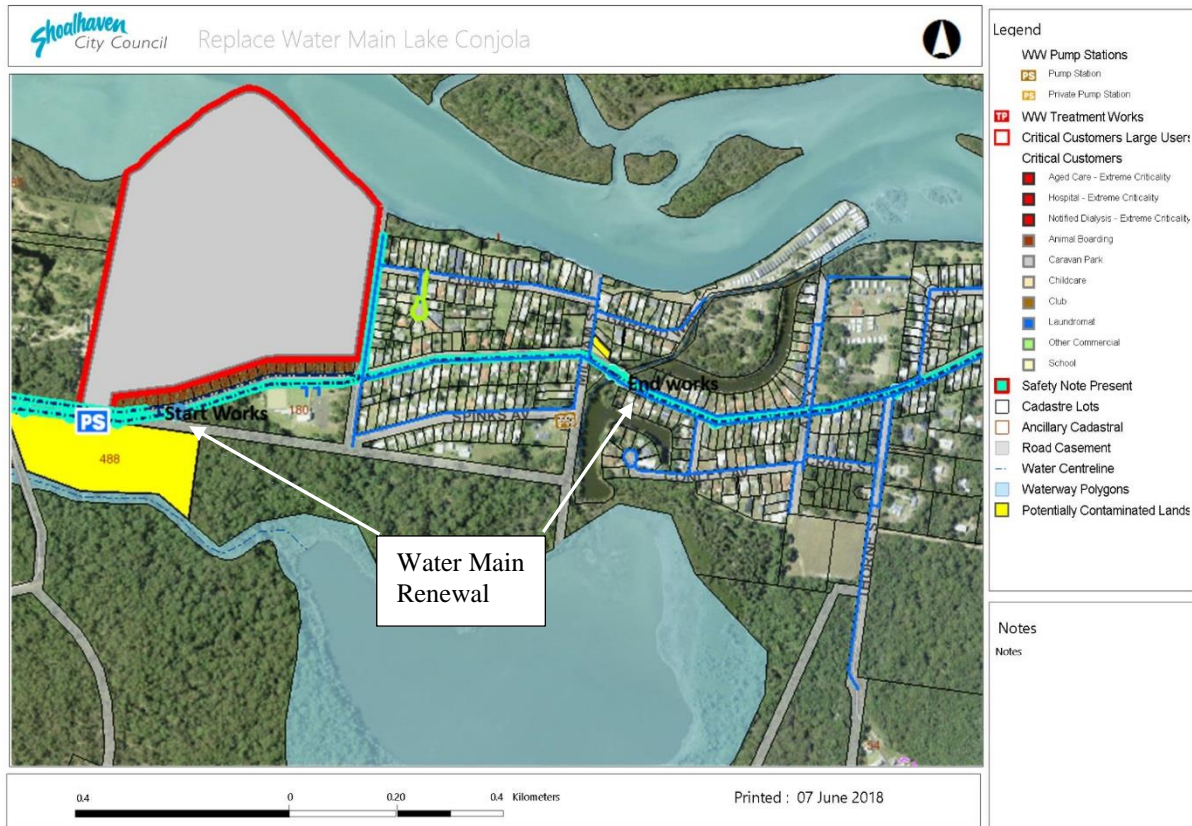


Figure 1: Location of Proposed Activity

1.3. PROPOSAL OBJECTIVES

The aim of the proposed activity is to replace existing water main to ensure continued water quality and reliability to Lake Conjola residents. The installation of a new main has been proposed to meet these objectives. Alternative options for the trunk main include doing nothing or repairing the main after failure. Neither of these options are viable as they present a public liability. This REF will assess the environmental impacts caused from construction activities.

1.4. MAJOR ELEMENTS OF THE PROPOSAL

Major elements of the proposed activity include:

- Pre-construction including design and tender process, installation of pipe and associated fittings, and commissioning.
- Construction methodologies will depend on the design and construction company awarded the tender. Conventional trench and lay methods involving the installation of the new main in a trench alongside the existing main will be preferred. This allows for the existing main to operate, minimising impacts on the community. When testing of the main is complete there will be short disruptions to water supply as the existing main is disconnected and new main becomes operational.

- Ground disturbance will be caused from excavation for installation of pipework, machinery and vehicular access.
- Erosion and sediment controls will be installed and maintained for the duration of construction works, minimising pollution flows into Lake Conjola drainage channels.
- The water main will be installed via bore under an existing watercourse to avoid disturbance to the creek banks or vegetation. Entry/exits pits will be in the order of 2 x 3m (approximately 1.5m deep). Pits will be set back to ensure no direct impact on the creek beds. SCC GIS identifies the water course as having potential Acid Sulfate Soils (Figure 2). An Acid Sulfate soils management plan will be prepared in accordance with the Acid Sulfate Soils Manual (Acid Sulfate Soil Management Advisory Committee Guidelines).
- Both built and natural features will be restored as similar as possible to the pre-works condition.
- No hollow bearing trees or potential habitat of threatened species will require removal.

1.5. EXISTING ZONING & PLANNING INSTRUMENTS

The existing LEP land use along the proposed activity is SP2 (Infrastructure - Road), with adjacent LEP land use comprising of RE2 (Public Recreation, Lake Conjola Bowling Club), and RU5 (Village).

There are no non-indigenous heritage items identified in Councils GIS system near the site. Under SLEP2014 Environmental Zones are located beyond the SP2, RE2 and RU5 zone, these include National Park Estate (E1) and private land (E3). Lands within the vicinity of the site are also classed as Riparian Lands with riparian watercourses (category 2 SLEP 2014). Acid sulphate soils area associated with the riparian land where earth works will be required to under bore the watercourse.

2. DESCRIPTION OF THE EXISTING ENVIRONMENT

2.1. FLORA & FAUNA

The proposed activity is to take place along the southern side of the Road Reserve, Lake Conjola Entrance Road. The main is to be located within a predominantly cleared road verge to the public road subject to existing disturbance associated with the existing water and sewer easements. A minor amount of vegetation removal (<.02ha) may occur within Lot 2 DP 777956. This vegetation is mapped on the NSW Biometric vegetation database as Turpentine - Red Bloodwood - Sydney Peppermint shrubby open forest on the foothills, southern Sydney Basin and northern South East Corner. The site is not affected by the NSW Biodiversity Values Map (NSW Department of Planning, www.lmbc.nsw.gov.au). The proposed works have been assessed via a test of significance and recommendations for impact mitigation pre- during and post construction works. No vegetation removal or disturbance to creek banks of the watercourse is required for the proposed works. As this alignment suggests there have previously been a large number of disturbances, therefore the presence of threatened flora or fauna within the proposed activity is reduced.

Search of SCC database (includes NSW NPWS Wildlife Atlas records) was undertaken to derive a list of threatened species and endangered ecological communities known to occur within 5km of the activity site. The results of this search were used in combination with site inspection, habitat assessment for threatened fauna and targeted surveys for threatened terrestrial orchids, undertaken by Councils' Environmental Assessment Unit to determine a list of species with potential to occur or be affected by the proposed activity. This list (likelihood of occurrence table) is contained within Section 4.1.

Due to the suitability of the habitat and the proximity of known records in the locality, targeted survey was undertaken for two threatened terrestrial orchids, *Pterostylis ventricosa* and *Cryptostylis hunteriana* to discount presence (Figure 2). This was undertaken via walked transects by two qualified SCC ecologists in accordance with the methods outlined in *Threatened Biodiversity Survey and Assessment Guidelines, DECC 2004* as follows:

- The Leafless Tongue Orchid, *C. hunteriana*, (Schedule 2 NSW BC Act, Vulnerable EPBC Act) Walked transects were undertaken during the confirmed flowering period of the species (12 January 2018) within areas of potential habitat affected by the proposed activity. A local reference site (Burrill) was monitored to confirm flowering prior to survey.
- *Pterostylis ventricosa* (Serious and Irreversible Impact Species NSW BC Act). Walked transects were surveyed for this species in 18 April 2018 during the confirmed flowering period of the species (when it can be detected) within areas of potential habitat that could be affected by the activity.

Survey results:

- No foraging or suitable breeding habitat of threatened species known or predicted to occur within 5km of the site (Council GIS) was detected within areas directly impacted by the proposed works.
- Two hollow bearing trees were detected. These will not be affected by the proposed works (Figure 2).
- No *Pterostylis ventricosa* or *C. hunteriana* were detected within the proposed route or areas of vegetation immediately adjoining the proposed route (Figure 2).
- The Test of Significance (Section 4.1) has been applied to assess impacts of the activity on threatened species with potential to occur within areas subject to both direct and potential indirect impacts. The test has determined that the proposed activity is unlikely to result in a significant impact to threatened species, populations or endangered ecological communities pursuant to S5AA EP&A Act, and Section 7.3 BC Act. As such there is no requirement for further assessment via a Species Impact Statement.

Recommendations for impact mitigation pre- during and post construction are included in Section 5.

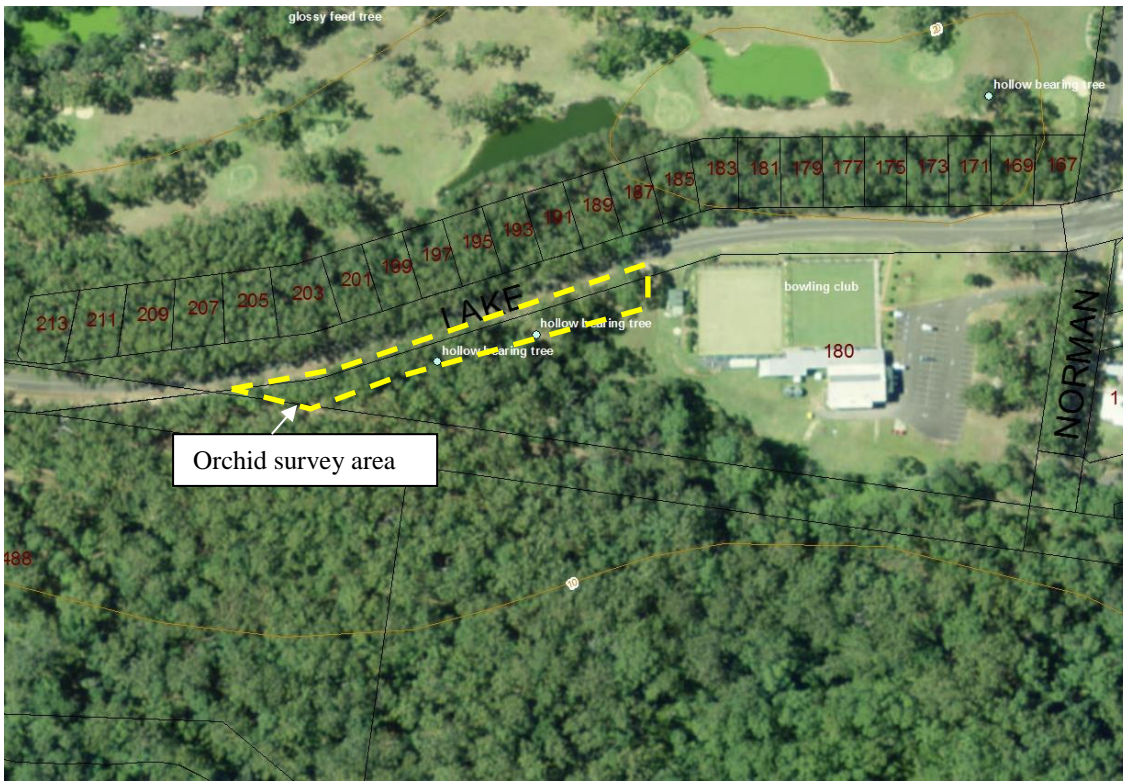


Figure 2 Location of threatened orchid surveys and hollow bearing trees that will not be impacted by works



Figure 3: Acid Sulphate Soils, Wetlands and Riparian Corridor

2.2. COMMUNITY/SOCIAL & ECONOMIC

The existing makeup of the proposed site is a combination of forested national parks and residential area, having community/social significance. This region of the South Coast is a large tourist area and has a large economic significance to the local community.

2.3. TOPOGRAPHY/GEOLOGY/SOILS/WATER/DRAINAGE

SCC GIS identifies the site of proposed works as:

- Is mapped as being partially within 40m of a drainage network (Figure 3)
- Is mapped as having the potential for acid sulphate soils (Figure 3),
- Is not mapped as having property vegetation plans,
- Is mapped as being partially within a flood planning area (Figure 3).
- Is mapped as greater than 50m from contaminated land (Figure 4).
- Is mapped at approximately 130m from an Aboriginal Heritage item 'open site'
- Is not within the proximity area to coastal wetlands (Figure 3)

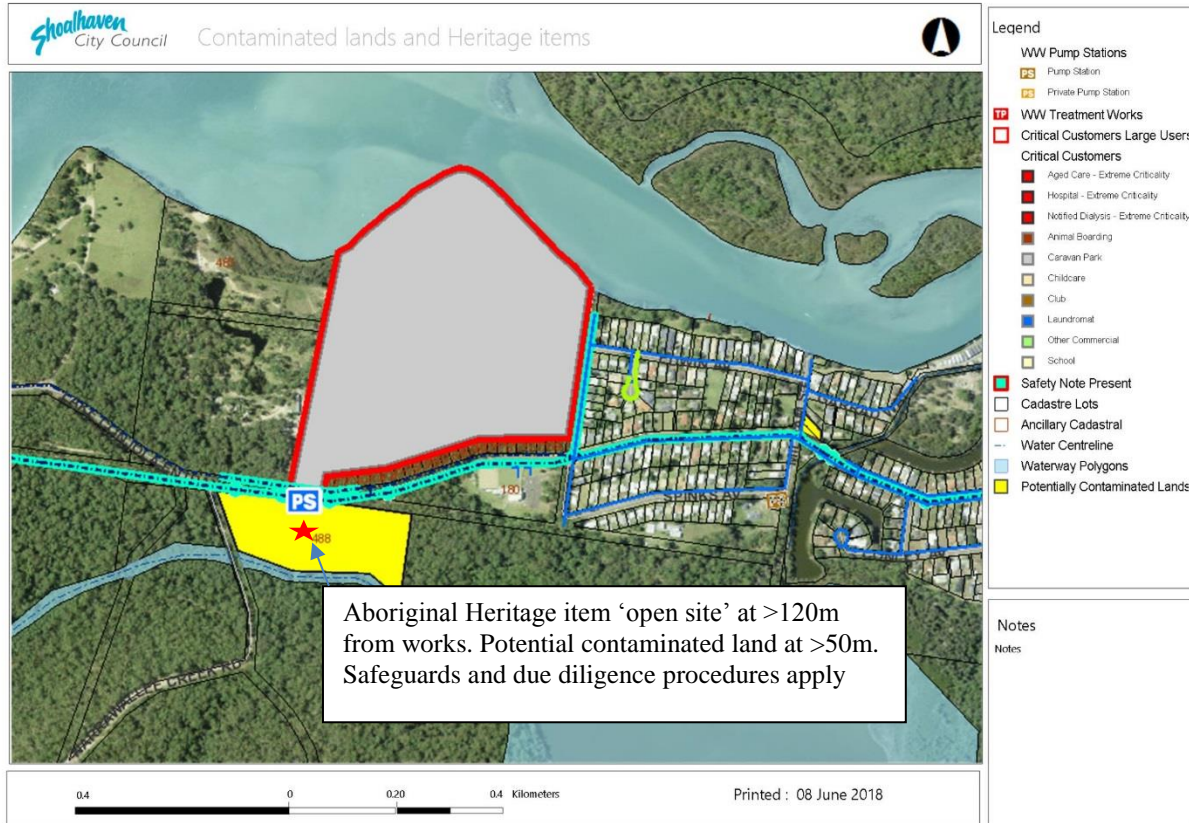


Figure 4: Proximity of Potentially Contaminated Land and Aboriginal Heritage Item (Open Site)

2.4. ARCHAEOLOGY/HERITAGE STATUS

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

In accordance with the Due Diligence Guidelines (DECCW 2010) a search on the Aboriginal Heritage Information Management System (obtained under Shoalhaven City Council’s Aboriginal Heritage Information

Licence Agreement) indicated that there is an “open site” approximately 130m to the southwest of the Thrust Connector on Lot 2 DP 777956 (Figure 4).

The only other sites nearby are approximately 250m or more south of the location of the proposed activity and Lake Conjola Entrance Road towards Pattimores Lagoon.

The proposed activity is within lands which have been previously disturbed through construction of roads, clearing of vegetation and installation of services. The proposed activity is on disturbed land as defined by the Due Diligence Guidelines:

“Land is disturbed if it has been the subject of a human activity that has changed the land’s surface, being changes that remain clear and observable. Examples include ploughing, construction of rural infrastructure (such as dams and fences), construction of roads, trails and tracks (including fire trails and tracks and walking tracks), clearing vegetation, construction of buildings and the erection of other structures, construction or installation of utilities and other similar services (such as above or below ground electrical infrastructure, water or sewerage pipelines, stormwater drainage and other similar infrastructure) and construction of earthworks.”

The proposed works are not within the vicinity of any non-indigenous heritage items identified on the Shoalhaven Local Environmental Plan (2014).

2.5. EDUCATIONAL/RECREATIONAL/SCIENTIFIC ASPECTS

There are no areas of educational or scientific aspects.

2.6. LAND MANAGEMENT/BUSHFIRE MANAGEMENT /WATER MANAGEMENT

The proposed activity is mapped as being within bushfire zone vegetation category 1, vegetation category 2 and vegetation buffer.

2.7. EXISTING USE OF LAND; ADJOINING LAND USES; VISUAL AMENITY

The existing land use is road reserve. There are various land uses in the adjoining land, however it mainly comprises of Environmental Management/Conservation, National Parks and residential, with the visual amenity changing as the trunk main passes through these different environments. There will be no changes to land use.

2.8. PROVISIONS OF ANY OTHER LEGISLATION & CONTROLS

The proposed activity:

- Is mapped as being within the coastal zone and is partially within a sensitive coastal location,

- Is mapped as having ASS potential in the vicinity of the watercourse to be under-bored (Figure 2),
- Is mapped as being within the vicinity of known Aboriginal Cultural Heritage sites and Contaminated Land (Figure 4 section 2.4),
- Not mapped as having any non-Aboriginal heritage items in the surrounding area,
- The surrounding environment includes areas mapped as being a Habitat corridor and significant vegetation and excluded land (Figure 5).



Figure 5: Habitat Corridor, Significant Vegetation and Excluded Land

3. PERMISSIBILITY

Section 4.1 (Development that does not need consent) of the EP&A Act states that:

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

In this regard clause 125 of the State Environmental Planning Policy (Infrastructure) 2007 (hereafter referred to as the Infrastructure SEPP) states that *“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.”*

As the proposal does not require development consent, and as it constitutes an ‘activity’ for the purposes of Section 5.1 of the EP&A Act, being carried out by (or on behalf of) a public authority, environmental assessment under Part 5 of the EP&A Act is required. This REF provides this assessment.

The proposed activity is permissible under relevant environmental legislation (Table 1 below).

Table 1 Summary of legislation and permissibility

NSW State Legislation	
Environmental Planning and Assessment Act 1979 (EP&A Act)	
Permissible <input checked="" type="checkbox"/>	Not permissible <input type="checkbox"/>
Justification: <ul style="list-style-type: none"> • The Infrastructure SEPP provides for this work to be undertaken without development consent (refer above). • In circumstances where development consent is not required, the environmental assessment provisions outlined in Part 5 of the Act are required to be complied with. This REF fulfils this requirement. 	
State Environmental Planning Policy Coastal Management	
Permissible <input checked="" type="checkbox"/>	Not permissible <input type="checkbox"/>
Justification: The areas mapped as Proximity to Coastal Wetlands are not affected by the proposed activity to the extent that they will be cleared, no levee will be constructed and the land will not be drained or filled.	
Matters of consideration apply only when council prepares a draft LEP and when a consent authority considers a development application to carry out development on land to which this Policy applies. As this is neither a draft LEP nor a development application, the matters of consideration within this SEPP do not apply.	
State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011	
Permissible <input checked="" type="checkbox"/>	Not permissible <input type="checkbox"/>

<p>Justification:</p> <p>All works will be conducted outside the designated Sydney drinking water catchment. As such, this instrument does not apply.</p>
<p>Shoalhaven Local Environmental Plan 2014 (SLEP)</p>
<p>Permissible <input checked="" type="checkbox"/> Not permissible <input type="checkbox"/></p>
<p>Justification:</p> <p>Development consent is not required as the provisions of the Infrastructure SEPP prevail over the SLEP.</p>
<p>Biodiversity Conservation Act 2016 (BC Act)</p>
<p>Permissible <input checked="" type="checkbox"/> Not permissible <input type="checkbox"/></p>
<p>Justification:</p> <p>The proposed development is unlikely to have a significant impact on species and communities listed in the schedules of the Act. A licence to harm, pick, etc, is not required.</p> <p>The activity is considered permissible as this REF has been prepared and determined in accordance with Part 5 of the EP&A Act.</p>
<p>Wilderness Act 1987</p>
<p>Permissible <input checked="" type="checkbox"/> Not permissible <input type="checkbox"/></p>
<p>Justification:</p> <p>The proposed activity is not located within a wilderness area declared under this Act.</p>
<p>Water Management Act 2000</p>
<p>Permissible <input checked="" type="checkbox"/> Not permissible <input type="checkbox"/></p>
<p>Justification:</p> <ul style="list-style-type: none"> • Local councils are exempt from s.91E(1) of the Act in relation to all controlled activities that they carry out in, on or under waterfront land (by virtue of clause 38 of the Water Management (General) Regulation 2004. • The proposal will not interfere with the aquifer and therefore an interference licence is not required (s.91F)
<p>National Parks and Wildlife Act 1974 (NP&W Act)</p>
<p>Permissible <input checked="" type="checkbox"/> Not permissible <input type="checkbox"/></p>

Justification:

- The Act provides the basis for the legal protection and management of Aboriginal sites in NSW. Under Sections 86 and 90 of the Act it is an offence to disturb an Aboriginal object or knowingly destroy or damage, or cause the destruction or damage to, an Aboriginal object or place, except in accordance with a permit of consent under section 87 and 90 of the Act.
- The due Diligence Code of Practice was followed for the proposed activity. The results are as follows:
 - Step 1: The proposed activity would disturb the ground surface.
 - Step 2A: A search of the AHIMS data base indicated that there is one Aboriginal open site within approximately 130m to the southwest of the Thrust Connector on Lot 2 DP 777956 where works will be located.
 - Step 2B: The site is on disturbed land, as it has been impacted by activities such as the construction of the Lake Conjola Entrance Road and installation existing services.
 - Step 3: If the works can avoid any harm to the above sites, (i.e. no ground disturbance located within 10 – 20m of the site), works can proceed with caution without applying for an AHIP. If works are within the buffer zone, an AHIP is required. To determine the outcome of Step 3, a specialist investigation by Archaeologists will be undertaken.
- The activity is considered permissible as this REF has been prepared and determined in accordance with Part 5 of the EP&A Act.

Crown Lands Act 1989

Permissible Not permissible

Justification:

- The activity is to take place within Council Road reserve.
- The activity passes adjacent Crown Land.

Fisheries Management Act 1994

Permissible Not permissible

Justification:

The proposed activity:

- Does not involve dredging or reclamation works (Part 7, Division 3)
- Would not impact mangroves and marine vegetation (Part 7, Division 4)
- Would not involve disturbance to gravel beds where salmon or trout spawn (s.208 of the Act)
- Does not involve the release of live fish (Part 7, Division 7)
- Does not involve the construction of dams and weirs (s.218)
- Would not result in the blocking of the passage of fish (s.219)
- Would not impact declared threatened species of endangered ecological communities (Part 7A)
- Does not constitute a declared key threatening process (Part 7A)
- Would not use explosives in a watercourse (Clauses 70 and 71 of the Fisheries Management (General) Regulation 2010).

A licence is therefore not required.

Protection of the Environment Operations Act 1997

Permissible Not permissible

Justification:

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

Heritage Act 1977

Permissible Not permissible

Justification:

- The proposed activity will not disturb an item of state heritage significance.
- The Act also provides statutory protection to relics, archaeological deposits, artefacts or deposits. Section 139 to 146 of the Act require that excavation that is likely to contain, or is believed may contain, archaeological relics is undertaken in accordance with an excavation permit issued by the Heritage Council. The Act defines an archaeological relic as “any deposit, artefact, object or material evidence that:
 - relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement; or
 - is of state and local heritage significance”
- As the site has little to no (non-indigenous) archaeological potential, a permit is not required.

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

Permissible Not permissible

Justification:

The proposed activity would not be undertaken on Commonwealth land and no matters of National Environmental Significance would be significantly impacted by the proposed activity. The proposed activity is therefore not a controlled action and does not require Commonwealth referral or approval.

4. ASSESSMENT OF LIKELY ENVIRONMENTAL IMPACTS

(Beneficial or adverse; short term or long term; reversible or irreversible; direct and/or indirect; local and/or regional)

Part 5 of EP&A Act:

Despite development consent not being required, Section 5.5 in Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act) requires that Council, and those determining Authorities whose approval may be required, must examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the activity. The EP&A Act (Part 1.7) requires application of Part 7 of the BC Act in regard to whether the proposed activity is likely to have a significant effect on the environment, or on threatened species, populations or ecological communities, or their habitats and therefore whether an Environmental Impact Statement and/or Species Impact Statement is required. The following section of this Review of Environmental Factors (REF) documents the required environmental assessment.

Subsections under Part 5.5 of the Environmental Planning and Assessment Act and Regulations (Part 14) require that determining Authorities consider the effect of the activity on the following specific matters:

Matter to be considered	Comments
Wilderness Act 1987	There are no wilderness areas within the locality of the proposed activity.
In the case of threatened species, populations and ecological communities, and their habitats, whether there is likely to be a significant effect on those species, populations or ecological communities, or those habitats.	It is considered unlikely that the proposed activity will have a significant effect on any threatened species or ecological communities. This outcome is determined as the proposed activity is unlikely to have an adverse effect on the life cycle of a species to put it at risk of extinction as the activity does not involve substantial adverse modification to the area. In addition the habitat of threatened species will not be removed.
Any impact of the activity on the habitat of protected animals (within the meaning of the BC Act 2016)	All native fauna in NSW are protected. The potential impact on fauna habitat is expected to be minimal due to the small footprint. The degree that the activity may endanger, displace or disturb fauna or create a barrier to their movement is not considered as significant. There are no protected native plants in the area affected by the proposed activity, therefore no further consideration is necessary.

4.1. “Test of Significance” – Section 7.3 BC ACT 2016

Section 7.3 BC Act 2016 identifies a number of factors that must be taken into account to determine whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats. These factors must be taken into account when addressing Section 5.5 (EP&A Act) matters listed above.

The species and communities that have been deemed to potentially occur in the vicinity of the proposed activities are listed in Table 2. The results of the site surveys and habitat assessment have been used to determine those species requiring further impact assessment via the test of significance, also shown in Table 2 below. Based on the results of this analysis the following have been determined as requiring assessment pursuant to Section 7.3 BC Act:

- Eastern Freetail-bat *Mormopterus norfolkensis*
- Greater Broad-nosed Bat *Scoteanax rueppellii*

No species listed under the schedules of the NSW Fisheries Management Act 1994 are expected to occur at the site. A test of significance for these threatened microbat species is provided below.

Table 2 Threatened species records within 5km and likelihood of occurrence assessment

Species	NSW BC Act	EPBC Act	Likelihood of occurrence	Need for Significance Assessment
<p><i>Pterostylis ventricosa</i></p> <p>Predominantly in more open areas of tall coastal eucalypt forest often dominated by one or more of the following tree species:- Turpentine, Spotted Gum, Grey Ironbark, Blackbutt, White Stringybark, Scribbly Gum and Sydney Peppermint. Often favours more open areas such as along powerline easements and on road verges where the tree overstorey has been removed or thinned. Grows in a range of groundcover types, including moderately dense low heath, open sedges and grasses, leaf litter, and mosses on outcropping rock. Soil type ranges from moisture retentive grey silty loams to grey sandy loams. Sometimes found in skeletal soils on sandstone rock shelves</p>	CE	E	<p>Unlikely.</p> <p>Targeted survey undertaken during the confirmed flowering period (18 /04/2018) did not detect the species.</p>	No
<p>Leafless Tongue Orchid <i>Cryptostylis hunteriana</i></p> <p>The species is known from a range of vegetation communities including swamp-heath and woodland. The larger populations typically occur in woodland dominated by Scribbly Gum <i>Eucalyptus sclerophylla</i>, Silvertop Ash <i>E. sieberi</i>, Red Bloodwood <i>Corymbia gummifera</i> and Black Sheoak <i>Casuarina littoralis</i>, where it appears to prefer open areas in the understorey of this community and is often found in association with the Large Tongue Orchid <i>C. subulata</i> and the Tartan Tongue Orchid <i>C. erecta</i></p>	V	V	<p>Unlikely.</p> <p>Areas of suitable habitat are present however targeted surveys of suitable habitat undertaken after confirmed flowering at local reference site (12/01/2015) failed to detect the species.</p>	No
<p>Glossy Black-cockatoo <i>Clyptorhynchus lathami</i></p> <p>The GBC inhabits open forest and woodlands of the coast where stands of she-oak occur. In the Jervis Bay region they feed almost exclusively on the seeds of the black she-oak <i>Allocasuarina littoralis</i>, shredding the cones with their bill</p>	V		<p>Possible</p> <p>There are <i>Allocasuarina</i> species (foraging habitat) in the areas to be affected by the proposed activity however no foraging signs (feed trees) were detected via survey. No birds were observed during surveys. No suitable breeding habitat (large hollows in HBT) will be affected. No foraging habitat detected in areas to be impacted. Foraging resources were observed to be plentiful in adjacent forested areas.</p>	No
<p>Gang Gang Cockatoo <i>Callocephalon fimbriatum</i></p> <p>Tall mountain forests and woodlands, particularly in heavily timbered and mature</p>	V		<p>Possible</p> <p>It is possible that the species would fly over the site and forage from time to time. The</p>	No

Species	NSW BC Act	EPBC Act	Likelihood of occurrence	Need for Significance Assessment
wet sclerophyll forests. In winter, may occur at lower altitudes in drier more open eucalypt forests and woodlands, and often found in urban areas. preferring more open eucalypt forests and woodlands, particularly in box-ironbark assemblages, or in dry forest in coastal areas. Favours old growth attributes for nesting and roosting			proposed activity is unlikely to impact the species as no suitable foraging habitat or breeding habitat will be impacted	
<p>Freckled Duck</p> <p>Breeds in large temporary swamps created by floods in the Bulloo and Lake Eyre basins and the Murray-Darling system, particularly along the Paroo and Lachlan Rivers, and other rivers within the Riverina. The duck is forced to disperse during extensive inland droughts when wetlands in the Murray River basin provide important habitat. The species may also occur as far as coastal NSW and Victoria during such times.</p> <p>Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds</p>	V		No. Habitat not present	No
<p>Swift Parrot</p> <p><i>Lathamus discolor</i></p> <p>Migrates to the Australian south-east mainland between March and October. On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany (<i>Eucalyptus robusta</i>), Spotted Gum (<i>Corymbia maculata</i>), Red Bloodwood (<i>C. gummifera</i>), Mugga Ironbark (<i>E. sideroxylon</i>), and White Box (<i>E. albens</i>). Commonly used lerp infested trees include Inland Grey Box <i>E. microcarpa</i>, Grey Box <i>E. moluccana</i> and Blackbutt <i>E. pilularis</i>. Return to some foraging sites on a cyclic basis depending on food availability. Following winter they return to Tasmania where they breed from September to January, nesting in old trees with hollows and feeding in forests dominated by Tasmanian Blue Gum <i>Eucalyptus globulus</i>.</p>	E	E	<p>Possible</p> <p>It is possible that the species would fly over the site and forage from time to time. The proposed activity is unlikely to impact the species as no suitable foraging habitat or breeding habitat will be impacted.</p>	No
<p>White bellied Sea Eagle</p> <p>Coastal habitats (especially those close to the sea-shore) and around large areas of open water (larger rivers, swamps, lakes). Terrestrial habitats include coastal dunes,</p>	P	CAMB A	Unlikely. May fly over the site but no suitable roosting or breeding habitat present within areas affected by the proposed works	No

Species	NSW BC Act	EPBC Act	Likelihood of occurrence	Need for Significance Assessment
<p>tidal flats, grassland, heathland, woodland, forest (including rainforest) and even urban areas close to water. Breeding territories are located close to water, and mainly in tall open forest or woodland, although nests are sometimes located in other habitats such as dense forest (including rainforest), closed scrub or in remnant trees on cleared land.</p> <p>Will also forage over open terrestrial habitats (such as grasslands).</p>				
<p>White- throated Needletail</p> <p>Almost exclusively aerial, they occur over most types of habitat. Certain preferences exhibited by the species include above wooded areas, including open forest and rainforest. May also fly between trees or in clearings, below the canopy, but they are less commonly recorded flying above woodland. Commonly occur over heathland, but less often over treeless areas, such as grassland or swamps. In coastal areas, they are sometimes seen flying over sandy beaches or mudflats, and often around coastal cliffs and other areas with prominent updraughts, such as ridges and sand-dunes.</p>		JAMBA /CAMB A	<p>Unlikely</p> <p>No suitable habitat present within the study area</p>	No
<p>Fork-tailed Swift</p> <p>Occurring over inland plains but sometimes above foothills or in coastal areas. They often occur over cliffs and beaches and also over islands and sometimes well out to sea. They also occur over settled areas, including towns, urban areas and cities. They mostly occur over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh. They are also found at treeless grassland and sandplains covered with spinifex, open farmland and inland and coastal sand dunes</p>		JAMBA /CAMB A	<p>No suitable habitat present within the study area</p>	No
<p>Hooded Plover <i>Thiornis rubricollis</i></p> <p>In south-eastern Australia, Hooded Plovers prefer sandy beaches, especially those that are broad and flat, with a wide wave-wash zone for feeding, much beach-cast seaweed, and backed by sparsely vegetated sand-dunes for shelter and nesting. Occasionally Hooded Plovers are found on tidal bays and estuaries, rock platforms and rocky or sand covered reefs near sandy beaches, and small beaches in lines of cliffs. They also regularly use near-coastal saline and freshwater lakes and lagoons, often with saltmarsh. No such habitat exists in the vicinity of the area that would be affected by the works.</p>	CE		<p>No habitat not present</p>	No

Species	NSW BC Act	EPBC Act	Likelihood of occurrence	Need for Significance Assessment
Osprey <i>Pandion cristatus</i> The Osprey is a water-dependent bird of prey and favours coastal areas, especially mouths of large rivers, lagoons and lakes			No No suitable habitat exists in the vicinity of the area that would be affected by the proposed activity.	No
Pied Oystercatcher <i>Haematopus longirostris</i> The Pied Oystercatcher favours intertidal flats of inlets and bays, open beaches and sandbanks			No. No habitat exists in the vicinity of the area that would be affected by the works.	No
Regent Honeyeater <i>Anthochaera Phrygia</i> The Regent Honeyeater inhabits dry open forest and woodland, particularly Box-Ironbark woodland and riparian forests of River Sheoak. The species inhabit woodlands that support a significantly high abundance and species richness of bird species. The woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes	Critically Endangered	E	No No habitat exists in the vicinity of the area that would be affected by the proposed activity.	No
Sooty Oystercatcher	V		N/a Shorebird	No
Hooded Plover	CE		N/a Shorebird	No
Bar-tailed Godwit	P		N/a Shorebird	No
Eastern Curlew	P	CE CAMB A/JAM BA	N/a Shorebird	No
Pied Oystercatcher	E		N/a Shorebird	No
Caspian Tern	P	CAMB A/JAM BA	N/a Shorebird	No
Little Tern	E	CAMB A/JAM BA	N/a Shorebird	No
Flame Robin Breeds in upland tall moist eucalypt forests and woodlands, often on ridges and slopes. Prefers clearings or areas with open understoreys. The ground layer of the breeding habitat is dominated by native grasses and the shrub layer may be wither sparse or dense. Occasionally occurs in temperate rainforest.	V		No. May occasionally traverse the study area, however given the mobile nature of the species, is unlikely to be affected by the works	No

Species	NSW BC Act	EPBC Act	Likelihood of occurrence	Need for Significance Assessment
In winter, birds migrate to drier more open habitats in the lowlands (i.e. valley below the ranges, and to the western slopes and plains. Often occurs in recently burnt areas; however, habitat becomes unsuitable as vegetation closes up following revegetation. In winter lives in dry forests, open woodlands and in pastures and native grasslands, with or without scattered trees. In winter, occasionally seen in heathland or other scrublands in coastal areas				
Powerful Owl <i>Ninox strenua</i> Powerful Owls are associated with a wide range of wet and dry forest types with a high density of prey, such as arboreal mammals, large birds and flying foxes. Large trees with hollows at least 0.5 metres deep are required for shelter and breeding	V		No. The study area may form part of the foraging habitat within the species home range. The species may traverse the study area, however no suitable roosting or nesting habitat was observed within the vicinity of the proposed works. No hollow bearing trees will be removed and given the mobile nature of the species, is unlikely to be affected by the works.	No
Masked Owl. Dry eucalypt forests and woodlands from sea level to 1100 m. Inhabits forest but often hunts along the edges of forests, including roadsides. The typical diet consists of tree-dwelling and ground mammals, especially rats. Pairs have a large home-range of 500 to 1000 hectares. Roosts and breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting Requires old growth elements-hollow bearing tree resources for nesting and prey source	V		No. No. The study area may form part of the foraging habitat within the species home range. The species may traverse the study area, however no suitable roosting or nesting habitat was observed within the vicinity of the proposed works. No hollow bearing trees will be removed and given the mobile nature of the species, is unlikely to be affected by the works.	No
Spotted- Tailed Quoll Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Individual animals use hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites. Will hunt possums and gliders in tree hollows and prey on roosting birds. Use communal 'latrine sites', often on flat rocks among boulder fields, rocky cliff-faces or along rocky stream beds or banks. Such sites may be visited by	V	E	No. No such habitat exists in the vicinity of the area that would be affected by the works	No

Species	NSW BC Act	EPBC Act	Likelihood of occurrence	Need for Significance Assessment
multiple individuals and can be recognised by the accumulation of the sometimes characteristic 'twisty-shaped' faeces deposited by animals. Females occupy home ranges up to about 750 hectares and males up to 3500 hectares. Are known to traverse their home ranges along densely vegetated creeklines				
White-footed Dunnart. Dry sclerophyll forests, sedgeland or heathland- coastal dune vegetation, coastal forest, tussock grassland and woodland and forest post disturbance – open understorey layer. They shelter in bark nests in hollows under standing or fallen timber, burrows in the ground, piles of logging debris, large grass clumps such as provided by Grass Trees <i>Xanthorrhoea</i> spp. and Cycads <i>Macrozamia</i> spp. and rock crevices	V		No No such habitat exists in the vicinity of the area that would be affected by the works	No
Greater Glider Forest with old growth elements. Large Eucalypt Hollows for denning. Feeds exclusively on eucalypt leaves, buds, flowers and mistletoe. Shelter during the day in tree hollows and will use up to 18 hollows in their home range. Occupy a relatively small home range with an average size of 1 to 3 ha.	-	V	Unlikely No suitable habitat within the study area	No
Yellow-bellied Glider Forest with old growth elements. Large Eucalypt Hollows for denning- Inhabits mature or old growth Blackbutt-Bloodwood forest with heath understorey in coastal areas. Prefers mixed species stands with a shrub or Acacia mid storey. Feed primarily on plant and insect exudates, including nectar, sap, honeydew and manna with pollen and insects providing protein. Extract sap by incising (or biting into) the trunks and branches of favoured food trees, often leaving a distinctive 'V'-shaped scar. Very mobile and occupy large home ranges between 20 to 85 ha to encompass dispersed and seasonally variable food resources	V		No The study area may form part of the foraging habitat within the species home range. The species may traverse the study area, however no suitable roosting or nesting habitat was observed within the vicinity of the proposed works. No hollow bearing trees will be removed and given the mobile nature of the species, is unlikely to be affected by the works.	No
Grey Headed Flying Fox Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20km of a regular food source and are	V	V	No The study area may form part of the foraging habitat within the species home range. The species may traverse the study area, however no suitable roosting habitat was observed within the vicinity of the proposed works. Given the	No

Species	NSW BC Act	EPBC Act	Likelihood of occurrence	Need for Significance Assessment
commonly found in gullies, close to water, in vegetation with a dense canopy			mobile nature of the species, is unlikely to be affected by the works.	
<p>Eastern Freetail-bat <i>Mormopterus norfolkensis</i></p> <p>Small tree hollows/fissures in bark for roosting in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range</p>	V		<p>Potential.</p> <p>Suitable foraging habitat occurs over the site and suitable roosting habitat is present within areas that may be affected by the proposed works. No hollow bearing trees will be removed however. Vegetation disturbance will be restricted to disturbed edges suitable foraging habitat.</p>	yes
<p>Large Eared Pied Bat</p> <p>Found mainly in areas with extensive cliffs and caves, from Rockhampton in Queensland south to Bungonia in the NSW Southern Highlands. It is generally rare with a very patchy distribution in NSW. There are scattered records from the New England Tablelands and North West Slopes. Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (<i>Petrochelidon ariel</i>), frequenting low to mid-elevation dry open forest and woodland close to these features</p>	V		<p>No.</p> <p>No such habitat exists in the vicinity of the area that would be affected by the works</p>	No
<p>Greater Broad-nosed Bat <i>Scoteanax rueppellii</i></p> <p>Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest. Open woodland habitat and dry open forest provides foraging habitat. Tree hollows are utilised for roosting and breeding.</p>			<p>Potential.</p> <p>Suitable foraging habitat occurs over the site and suitable roosting habitat is present within areas that may be affected by the proposed works. No hollow bearing trees will be removed however. Vegetation disturbance will be restricted to disturbed edges suitable foraging habitat.</p>	Yes
<p>Southern Myotis</p> <p>Predominantly roosts in caves, however, is known to roost in trees and man-made structures close to water. Roosts are generally located close to water, where bats forage in small groups of three or four. They have a strong association with streams and permanent waterways in areas that are vegetated rather than cleared (Churchill, S 2008, Australian Bats, Jacana Books, Crows Nest, NSW</p>	V		<p>Unlikely.</p> <p>May occasionally forage over the site but no suitable roosting or breeding habitat present within areas affected by the proposed works. Vegetation disturbance will be restricted to disturbed edges located outside suitable foraging habitat.</p>	No

Species	NSW BC Act	EPBC Act	Likelihood of occurrence	Need for Significance Assessment
<p>Eastern Bent-wing Bat</p> <p>Specific caves are known maternity sites with other caves being primary roosting habitat outside breeding period. Also uses derelict mines, storm-water tunnels, buildings and other man-made structures. Hunts in forested areas, catching moths and other flying insects above the tree tops</p>	V		<p>Unlikely.</p> <p>May occasionally forage over the site but no suitable roosting or breeding habitat present within areas affected by the proposed works. No hollow bearing trees are located in vicinity of proposed works. Vegetation disturbance will be restricted to disturbed edges of marginally suitable foraging habitat.</p>	No
<p>Green and Golden Bell Frog <i>litoria aurea</i></p> <p>Heath, woodland and open dry sclerophyll forest on a variety of soil types except clay based. Whilst in non-breeding habitat it burrows below the soil surface or in the leaf litter. Breeding frogs will call from open spaces, under vegetation or rocks or from within burrows in the creek bank. Egg masses are laid in burrows or under vegetation in small pools. After rains, tadpoles are washed into larger pools where they complete their development in ponds or ponded areas of the creekline. Tadpole development ranges from Breeding habitat of this species is generally soaks or pools within first or second order streams. They are also commonly recorded from 'hanging swamp' seepage lines and where small pools form from the collected water.</p>	E	V	<p>Unlikely</p> <p>No suitable habitat within the study area</p>	No
Coastal Saltmarsh in the NSW North Coast, Sydney Basin and South East Corner Bioregions			Not present	No
Illawarra Lowlands Grassy Woodland in the Sydney Basin Bioregion			Not present	No
Swamp oak floodplain forest of the NSW North Coast, Sydney Basin and South East Corner bioregions			Not present	No
Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions			Not present	No
Bangalay Sand Forest of the Sydney Basin and South East Corner Bioregions			Not present.	No

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Test of Significance

Greater Broad-nosed Bat *Scoteanax rueppellii*, and Eastern Freetail-bat *Mormopterus norfolkensis*

7.3 Test for determining whether proposed development or activity likely to significantly affect threatened species or ecological communities, or their habitats

(1) The following is to be taken into account for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats:

<p>Part (a) <i>in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.</i></p> <p>The proposed activity will cause disturbance to vegetation within proximity to potential roosting and breeding habitat (Hollow bearing trees). These trees will be protected from disturbance. Increased noise during construction may cause temporary disturbance during the day time but is not expected to cause sufficient disturbance that would cause abandonment of these resources, given the proximity of the existing public road and infrastructure. As such the proposed activity, would not have an adverse effect on the life cycle of a species such that a viable local population is likely to be placed at risk of extinction. A species impact statement for this part is therefore not required</p>
<p>Part (b) <i>in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:</i></p> <p>(i) <i>is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or</i></p> <p>(ii) <i>is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.</i></p> <p>N/a</p>
<p>Part (c) <i>in relation to the habitat of a threatened species or ecological community:</i></p> <p>(i) <i>the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and</i></p> <p>(ii) <i>whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and</i></p> <p>(iii) <i>the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality.</i></p> <p>The activity will not directly impact foraging or roosting habitat. Midstorey vegetation and groundcover within potential foraging habitat will be disturbed along the existing road edge but will not further fragment habitat. Indirect impacts will be confined to disturbed areas subject to existing fragmentation, noise and disturbance associated with the public road and associated infrastructure that are not considered likely to be important to the long term survival of the species.</p>
<p>Part (d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly).</p> <p>n/a</p>
<p>Part (e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.</p> <p>The proposal is considered not likely to result in the operation, or significantly increase the impact of a key threatening process (listed below) and a species impact statement is not required for this Part.</p>

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Current version for 1 December 2017 to date (accessed 26 April 2018 at 11:03)

Schedule 4 Key threatening processes

(Section 4.31)

Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners, *Manorina melanocephala* (Latham, 1802)

Alteration of habitat following subsidence due to longwall mining

Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands (as described in the final determination of the Scientific Committee to list the threatening process)

Anthropogenic Climate Change

Bushrock removal (as described in the final determination of the Scientific Committee to list the threatening process)

Clearing of native vegetation (as defined and described in the final determination of the Scientific Committee to list the key threatening process)

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

Competition and habitat degradation by Feral Goats, *Capra hircus* Linnaeus 1758

Competition from feral honey bees, *Apis mellifera* L.

Death or injury to marine species following capture in shark control programs on ocean beaches (as described in the final determination of the Scientific Committee to list the key threatening process)

Entanglement in or ingestion of anthropogenic debris in marine and estuarine environments (as described in the final determination of the Scientific Committee to list the key threatening process)

Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners

Herbivory and environmental degradation caused by feral deer

High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition

Importation of Red Imported Fire Ants *Solenopsis invicta* Buren 1972

Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations

Infection of frogs by amphibian chytrid causing the disease chytridiomycosis

Infection of native plants by *Phytophthora cinnamomi*

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

Introduction of the Large Earth Bumblebee *Bombus terrestris* (L.)

Invasion and establishment of exotic vines and scramblers

Invasion and establishment of Scotch Broom (*Cytisus scoparius*)

Invasion and establishment of the Cane Toad (*Bufo marinus*)

Invasion, establishment and spread of Lantana (*Lantana camara* L. *sens. lat*)

Invasion of native plant communities by African Olive *Olea europaea* subsp. *cuspidata* (Wall. ex G. Don) Cif.

Invasion of native plant communities by *Chrysanthemoides monilifera*

Invasion of native plant communities by exotic perennial grasses

Invasion of the Yellow Crazy Ant, *Anoplolepis gracilipes* (Fr. Smith) into NSW

Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants

Loss of hollow-bearing trees

Loss or degradation (or both) of sites used for hill-topping by butterflies

Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*

Predation by *Gambusia holbrooki* Girard, 1859 (Plague Minnow or Mosquito Fish) (as described in the final determination of the Scientific Committee to list the threatening process)

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

Predation by the Feral Cat *Felis catus* (Linnaeus, 1758)

Predation by the Ship Rat *Rattus rattus* on Lord Howe Island

Predation, habitat degradation, competition and disease transmission by Feral Pigs, *Sus scrofa* Linnaeus 1758

Removal of dead wood and dead trees

Table 3: Photographs



Photo 1: Vegetated section, Lake Conjola Entrance Road southern road verge where works will be located. No hollow bearing trees are in this location. Soil disturbance will be limited to existing disturbed areas.



Photo 2: Vegetation edge within southern road verge that may be impacted. No hollow bearing trees will be removed



Photo 3: Works will be limited to existing disturbed roadside. No hollow bearing trees will be removed (Figure 2)



Photo 4: End of vegetated roadside section. No trees are to be removed

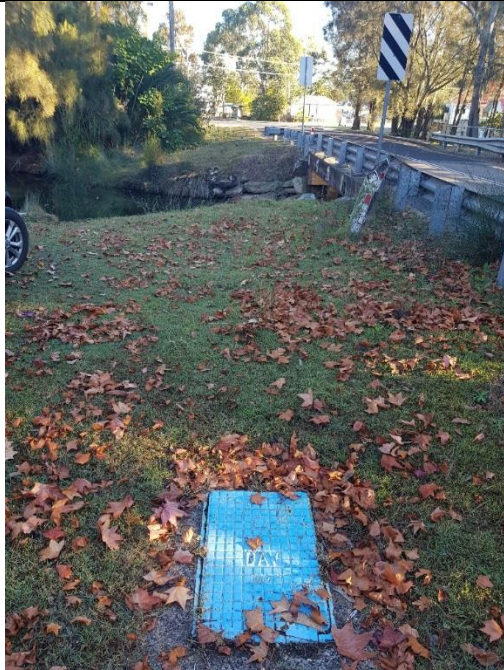


Photo 5: Eastern extent of works and waterway where under-boreing pit will be located. Potential Acid sulfate soils are mapped in this location (Figure 3)

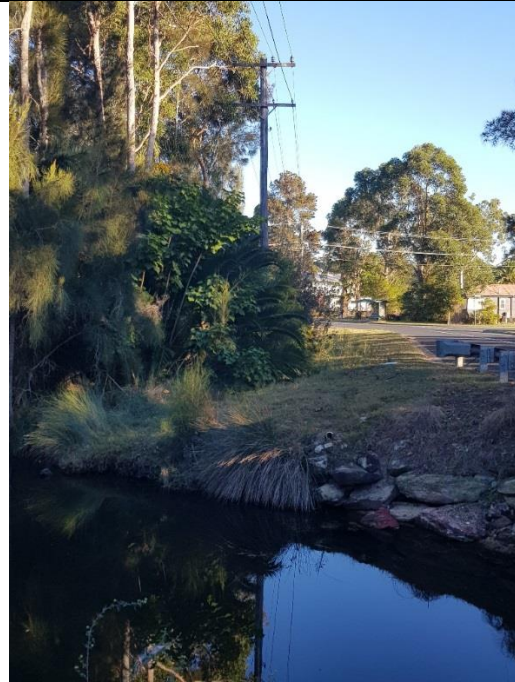


Photo 9: Western edge of waterway where under-boreing pit will be located. No trees will be removed. Potential Acid sulfate soils are mapped in this location (Figure 3)

4.2. Clause 228 matters of consideration

Clause 228(2) of the Environmental Planning and Assessment Regulation 2000 lists the factors to be taken into account when consideration is being given to the likely impact of an activity on the environment under part 5 of the Environmental Planning and Assessment Act 1979. The following assessment deals with each of the factors in relation to the proposal.

DOES THE PROPOSAL:	POINTS TO CONSIDER
<p>a) Have any environmental impact on a community?</p> <p>The proposed activity will have minimal impacts on the community in terms of traffic disruptions during the works. In the long term the proposed activity will provide a benefit by reducing the number of breaks experienced. This will be beneficial to the community in terms of health effects and also to the environment.</p> <p>In order to minimise the impacts of the proposed activity on the community, the appropriate level of community engagement/consultation shall be undertaken.</p> <p>The proposed activity will not have an impact on the safety of the community in terms of increased bushfire risk, flooding, landslides or exposure to hazards. However the potential impacts may consist of increased noise levels and an increase to people in the area.</p> <p>There is not expected to be any impacts on other community services and infrastructure such as power, wastewater, waste management, medical or social services.</p>	<p><i>Working hours. Detours. Property access Notifications. Staging works. Duration.</i></p>
<p>b) Cause any transformation of a locality?</p> <p>The surrounding environment will not be transformed due to the works.</p> <p>Visual amenity from the surrounding properties will remain unchanged but clearing of vegetation for machine access and installation may be required.</p> <p>The area, type and number of trees to be removed has not yet been determined. The plan will be approached to ensure that as little vegetation is removed as practicable.</p>	<p><i>Modify vehicle and people movements. Purpose of project.</i></p>

<p>During the construction period there will be short term adverse effects to the movements of vehicles and people.</p>	
<p>c) Have any environmental impact on the ecosystem of the locality? It is considered unlikely that the proposed activity will have a significant impact on the ecosystem. This outcome is determined as the proposed activity is unlikely to have an adverse effect on the life cycle of a species, putting it at risk of extinction. The activity does not involve large scale adverse modification of area. In addition, works are also located within partially cleared areas which offer a low quality environment. No trees or food resources critical to the survival for a particular species would be removed. Long term impacts include vegetation removal, however these cleared areas will not be maintained by Council and natural regrowth will take place. The alignment of the existing main passes a watercourse, with installation activities being within 40 m of the waterway. Drainage networks are associated with this waterway. An increase in sediment load into these networks from excavation activities will not cause any long term negative impacts. The implementation of an erosion and sediment control plan will minimise any short term impacts. There will be no large scale long term changes to overland flows, with no increases to impervious area.</p>	<p><i>Permanent clearing. Restoration. Affect on watercourse and Acid Sulfate Soils Increase impervious area. Change of overland flows Acid Sulfate Management Plan.</i></p>
<p>d) Cause a diminution of the aesthetic, recreational, scientific or other environmental quality or value of a locality? The proposed activity will cause no long term changes to the aesthetic quality of the locality. After completion of the proposed activity, any cleared areas will be allowed to naturally restore to the previous state. There will be no long term changes to the recreational quality of the site and surrounding areas. There are no other areas of environmental quality such as rock platforms.</p>	<p><i>Landscape plan. Wetlands. Rock platforms. Vandalism. Long term erosion.</i></p>
<p>e) Have any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical,</p>	<p><i>Due Diligence Code of Practice applies</i></p>

<p>scientific, or social significance or other special value for present or future generations?</p> <p>The site of the proposed activity has no significant architectural, or scientific values, and as such, the proposed activity will have no impact on these qualities. Any impacts on aesthetic values will be short term.</p> <p>There are numerous Aboriginal artefacts identified near the site (see Section 2.4). Further investigations will be undertaken to identify these objects. It is recommended that the proposed activity avoid harming any Aboriginal objects. In accordance with the NSW Department of Environment, Climate Change and Water's Due Diligence Code of Practice, the proposed activity does not require an Aboriginal Heritage Impact Permit if an assessment is made that no impacts are likely. Alternatively in the case that a contractor cannot avoid an area of archaeological significance, an AHIP will be required.</p>	
<p>f) Have any impact on the habitat of protected fauna (within the meaning of the National Parks & Wildlife Act 1974)?</p> <p>It is concluded that the proposed activity is unlikely to have a significant impact on threatened fauna. The works will not create isolated habitats, instead clearing activities will remove vegetation on the edge of habitats where exotic species often reside.</p> <p>There are no food resources critical for a particular species. There will be no tree removal</p>	<p><i>Virtually all native animals are protected. Habitat creation (i.e. place logs) Inspect trees prior to felling for animals. Isolated vegetation. Existing flora/fauna.</i></p>
<p>g) Cause any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?</p> <p>There are no species likely to rely on the site of the proposed works to the extent that modification would put them further in danger.</p>	<p><i>GIS Inquiry and site visit. Endangered species (frogs, gliders, plants etc.) Habitat creation (i.e. place logs) Inspect trees prior to felling for animals. Isolated vegetation. Existing flora/fauna.</i></p>
<p>h) Have any long term effects on the environment?</p>	<p><i>Additional traffic. Additional people. Additional long term noise. Increased run off.</i></p>

<p>There will be no long term adverse effects on the environment, as the impacted area will stabilise and vegetation regrow. There will be no long term hydrological changes.</p> <p>Short term adverse effects will consist of additional vehicle movements, additional people and increased noise, however these will only impact during normal working hours. Other short term changes will include increases in erosion. Appropriate measures such as sediment control and traffic control will be put in place.</p>	
<p>i) Cause any degradation of the quality of the environment?</p> <p>During the construction period there will be slight changes in the quality of the local environment however environmental safeguards will be undertaken to minimise the impacts and risks. There will be no changes to the topography, geology, or amount of paved areas. Upon completion of the works there will be long term beneficial effects due to a decrease in the number of breaks on the main.</p>	<p><i>Water quality. Under scrubbing. Paved areas. Topography. Geology.</i></p>
<p>j) Cause any risk to the safety of the environment?</p> <p>The proposed activity would not intentionally introduce noxious weeds, vermin or feral animals into the area, contaminate soil or increase bushfire risk.</p> <p>Any hazardous materials used during the construction period will be appropriately handled and stored in accordance with MSDS. Spill kits will be on site and used appropriately when needed. Soil will be managed through an erosion and sediment control plan.</p> <p>No long term adverse effects.</p>	<p><i>Design ARI. Hazardous materials. Soil/water management. Water ponds. Importing weeds. Fire. Speed zones.</i></p>
<p>k) Cause any reduction in the range of beneficial uses of the environment?</p> <p>The proposed activity will not cause a reduction in the beneficial use of the surrounding environment as the proposed activity is not changing the land use.</p>	<p><i>Existing Use. Paved areas. Public access. Parking. Change of land use (not necessarily zoning).</i></p>

<p>l) Cause any pollution of the environment? Short term adverse effects will include increases in noise levels due to construction and an increase in sediment runoff from soil exposure. There may be a decrease in the quality of the surrounding air from dust and machinery. Spillage of materials may occur during construction and will be mitigated through the presence of spill kits. No long term adverse effects.</p>	<p><i>Noise - construction vehicles. Water – storm water. Air - dust, smoke. Spillages - Paint, bitumen, lime.</i></p>
<p>m) Have any environmental problems associated with the disposal of waste? No short or long term adverse effects. Green waste and any other construction waste will be disposed of to an appropriate licensed waste management facility.</p>	<p><i>Impervious Areas. Clean sediment Traps. Stumps. Concrete. Spoil. Hazardous waste. Oil/Grease.</i></p>
<p>n) Cause any increased demands on resources (natural or otherwise) which are, or are likely to become, in short supply? No short or long term adverse effects identified. The amount of resources that will be used are not considered significant and would not increase demands on current resources such that they would become in short supply.</p>	<p><i>Water. Gravels. Topsoil. Licensed suppliers.</i></p>
<p>o) Have any cumulative environmental effect with other existing or likely future activities? No short or long term adverse effects identified.</p>	<p><i>Catalyst for development. Population growth. Sterile land. Loss of natural areas.</i></p>

5. PROPOSED ENVIRONMENTAL SAFEGUARDS AND MEASURES TO MINIMISE IMPACTS

- Undertake a “dial before you dig” to identify any underground services in this location. Confirm the location of underground services by potholing with hand tools.
- Notify residents and community members prior to works taking place.
- Implementation of an RTA approved Traffic Control Plan where necessary.
- Implementation and maintenance of Environmental Safeguards, such as sediment and erosion control measures in accordance with the ‘Blue Book’ (Landcom 2004) to address possible water and sediment movement.
- Hollow bearing trees identified in Figure 2 shall be located and marked for protection prior to works commencing. These trees must be protected from disturbance. There shall be no disturbance to the structural root zone of these trees.
- An Acid Sulphate Soil Management Plan shall be developed and implemented for affected areas (Figure 3).
- Spill kits on site for the management of chemical spills.
- In accordance with the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (Section 2.4), works are associated with Clause 80B NSW NPW Regulation *Defence of carrying out certain low impact activities: section 87 (4)*. Should the presence of Aboriginal Heritage Sites or items be detected, works shall cease and NSW OEH shall be notified in accordance with the Due Diligence guidelines.

6. CONCLUSION

The purpose of this REF is to determine whether the proposed activity is likely to have a significant impact on the environment and if it is therefore necessary to prepare a Species Impact Statement or Biodiversity Assessment Report (BC Act). To determine if the potential impacts of the proposed activity are significant the following are taken into consideration:

- How extensive the impacts are,
- How adverse the impacts are on environmentally sensitive areas,
- Are the impacts acceptable, considering the nature of impacts and need of the activity.

The renewal of the water main will ensure continued water supply for the village of Lake Conjola. This assessment has found that, given the implementation of environmental safeguards, there will be no significant impacts on the environment as a result of the proposed activity. As such a species impact statement is not required. There are numerous threatened species identified within 300m of the proposed activity. The Test of Significance concluded that these species will not be impacted to the extent that the works will put the species in further danger.

The impacts are confined to a public road edge. Disturbance to native vegetation will be minimal and confined to areas subject to existing disturbance. Such areas will be allowed to regenerate naturally following

completion of the activity. Impact mitigation measures will be employed to reduce any adverse indirect impacts to adjoining vegetated areas associated with construction works.

There are Aboriginal heritage sites located within the vicinity of the proposed activity and are buffered by > 120m from the proposed works. Works are located within disturbed land and are not expected to impact Aboriginal Sites or items however should the presence of Aboriginal Heritage Sites or items be detected, works shall cease and NSW OEH shall be notified in accordance with the Due Diligence guidelines.

7. DETERMINATION

This Review of Environmental Factors has assessed the likely environmental impacts (in the context of Clause 228 of the Environment Protection and Assessment Regulation 2000) of a proposal by Shoalhaven City Council (Shoalhaven Water Group) for the renewal of the water main to Lake Conjola.

Shoalhaven City Council has considered the potential environmental effects of the proposal and the effectiveness and feasibility of measures for reducing or preventing detrimental effects. It is determined that:

1. It is unlikely that there will be any significant environmental impact as a result of the proposed work.
2. The proposed safeguards identified in the report shall be adopted and implemented.
3. A Species Impact Statement, or Biodiversity Offset Report (BC Act) is not required for the proposed works.



Carmel Krogh

Director Shoalhaven Water
Shoalhaven City Council

Date:13/7/18.....

The REF has been prepared by: Angela Jenkins

Position: Environmental Assessment Officer

Date: 27 June 2018

Reviewed by: Jared Brignell

8. REFERENCES:

DECCW (Department of Environment, Climate Change and Water, NSW) 2010 Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales.

DECCW (Department of Environment, Climate Change and Water, NSW), National Parks and Wildlife Act 1974, <http://www.legislation.nsw.gov.au/maintop/view/inforce/act+80+1974+cd+0+N>

DECC (Department of Environment and Conservation, NSW) 2004 Threatened Biodiversity Survey and Assessment Guidelines for Developments and Activities Working Draft

