NSW Public Works
Department of Regional NSW

Nelligen Water Supply and Sewerage Scheme Village Reticulation

Review of Environmental Factors

Report number: PGP- FY20220565-PWO-ENV-RP-0001

July 2023

Prepared for

eurobodalla shire council

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Cover image: Aerial view of Nelligen. SIX Maps, 2021

Certification

This Review of Environmental Factors (REF) has been prepared by NSW Public Works, Department of Regional NSW on behalf of Eurobodalla Shire Council. The report presents the assessment of potential impacts that may result from activities associated with the proposal to construct new water supply and sewerage scheme village reticulation infrastructure for Nelligen village.

Eurobodalla Shire Council is a public authority and a determining authority as defined in the *Environmental Planning & Assessment Act 1979* (EP&A Act). The proposal satisfies the definition of an activity under the Act, and as such Eurobodalla Shire Council must assess and consider the environmental impacts of the proposal before determining whether to proceed.

This REF has been prepared in accordance with Sections 5.5 and 5.7 of the EP&A Act and Section 171 of the *Environmental Planning and Assessment Regulation 2021* (EP&A Reg). It provides a true and fair assessment of the proposed activity in relation to its likely effects on the environment. It addresses to the fullest extent possible all matters affecting or likely to affect the environment as a result of the proposed activity.

On the basis of this REF it is concluded that:

(1) the proposed activity is not likely to have a significant impact on the environment. An Environmental Impact Statement is not required.

(2) the proposed activity is not likely to significantly affect threatened species, populations, ecological communities, or critical habitat. A Species Impact Statement (SIS) Biodiversity Development Assessment Report (BDAR) is not required.

(3) the proposed activity is not likely to affect or being carried out on any Commonwealth land, or significantly affect any Matters of National Environmental Significance.

Subject to implementation of the measures to avoid, minimise or manage environmental impacts listed in this REF, the proposed activity is recommended to proceed.

Author & Qualifications	Kristen Parmeter BSc (Hons)
Designation	Environmental Scientist
I certify that I have reviewed and endorsed the contents of this REF document and, to the best of my knowledge, it is in accordance with the EP&A Act, the EP&A Regulation and the Guidelines approved under section 170 of the EP&A Regulation, and the information it contains is neither false nor misleading.	
Reviewer & Qualifications	Liz Mathieson BSc
Designation	Principal Scientist
Organisation	NSW Public Works, Department of Regional NSW
Signature	
Date	18 July 2023

Verification

I have examined this Review of Environmental Factors and the Certification and accept the report on behalf of Eurobodalla Shire Council (the proponent).

Name	BRETT CORVEN
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Signature	

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Abbreviations

ACHA	Aboriginal Cultural Heritage Assessment
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
ASS	Acid Sulfate Soils
ASSMP	Acid Sulfate Soil Management Plan
BC Act	*Biodiversity Conservation Act 2016*
CEMP	Construction Environmental Management Plan
DPE - <agency>	Department of Planning and Environment
EEC	Endangered Ecological Community
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2021*
EPA	Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ESC	Eurobodalla Shire Council
ESCP	Erosion and Sediment Control Plan
FM Act	*Fisheries Management Act 1994*
HDD	Horizontal Directional Drilling
LEP	Local Environmental Plan
NPW Act	*National Parks and Wildlife Act 1974*
OEH	Office of Environment and Heritage (now Department of Planning and Environment – Environment and Heritage)
OEMP	Operation Environmental Management Plan
PASS	Potential Acid Sulfate Soils
POEO Act	*Protection of The Environment Operations Act 1997*
REF	Review of Environmental Factors
SEPP	State Environmental Planning Policy
TfNSW	Transport for NSW
TMP	Traffic Management Plan
WM Act	*Water Management Act 2000*

1 Introduction

This section provides an overview of the Proposal.

1.1 Background

Nelligen village is located on the Clyde River in the South Coast region of NSW, approximately 7 km north-west of Batemans Bay. The village is currently served by rainwater tanks for its potable water supply. Eurobodalla Shire Council (ESC) is proposing to construct reticulated potable water supply and sewerage schemes to provide the Nelligen village with a similar level of potable water supply and wastewater management services to the majority of the Eurobodalla Shire.

The Nelligen Water Supply and Sewerage Scheme project works (the Project) are being constructed as three separate packages (stages) of works including:

1. Stage 1 - Construction of a new water supply reservoir at Bay Ridge (Bay Ridge reservoir), which would be connected to the existing water supply network which serves the Eurobodalla region; and a new water supply reservoir and chlorination system at Old Nelligen Road, Nelligen (Nelligen reservoir);
2. Stage 2 - New Water Supply Transfer Main and Sewer Rising Main and associated Sewage Pump Station (SPS) at Nelligen, comprising
    - a 6.6 km long gravity pressure water supply transfer main along the Kings Highways from the Bay Ridge Estate subdivision to the new Nelligen reservoir, including a trunk main connection from the Nelligen reservoir to the new water supply reticulation network for the Nelligen village.
    - an 8 km long pressure and gravity sewer rising main and a new Sewage Pump Station (SPS) at Nelligen.
3. Stage 3 - New water supply and sewer reticulation (including property collection units) networks within the Nelligen village area including new transfer mains connections.

NSW Public Works has been engaged by ESC to prepare a Review of Environmental Factors (REF) for the Stage 3 works including the construction of the water supply and sewerage system reticulation networks within the Nelligen village area including new transfer mains connections (the Proposal).

The proposed associated Nelligen Water Supply and Sewerage Scheme Project water supply reservoir works (Stage 1) and the transfer mains and SPS (Stage 2) are subject to separate REF assessments.

1.2 Proposal Objectives

The Proposal is to meet the following objectives:

- Provide a reticulated potable water supply system to improve the quality, security and reliability of the water supply to Nelligen; and

- Provide a sewage collection and transfer system in Nelligen to address current wastewater defect and overflow issues.

1.3 Overview of the Proposal

The water supply transfer system and sewerage system works would include:

- Construction of a new water supply reticulation network within the Nelligen village area.
- Construction of a new pressure sewer reticulation and on-property collection systems in the Nelligen village area.

The proposed general construction of the water and sewer reticulation mains is via horizontal directional drilling (HDD) construction method within local road reserves and private property and via thrust boring across major roadways. Each property (tenement) in the Nelligen village to be serviced by the water and sewer reticulation networks would require an on-property pump unit (collection system) as part of the sewerage system and short pipeline connections for both the water and sewer reticulation networks to be installed in the property frontage.

A location map and an aerial overview of the proposed works are shown in Figure 1.1 and Figure 1.2. Photographs of the works area are provided in the Flora and Fauna and Aboriginal Cultural Heritage assessments provided in Appendix B and D. Detailed plans of the reticulation network alignments are provided in Appendix E.

1.4 Land Ownership

The proposed works would predominantly be located within public road reserves under the control of either Eurobodalla Shire Council or Transport for NSW (TfNSW). Access to a large number of private properties within Nelligen village would be required for installation of the sewerage scheme collection systems to service the properties and to connect to the water and sewer reticulation mains located in the road reserve.

A private freehold property at 43 Reid Street/ Runnyford Road (Lot 83 DP 755969), has been identified for potential use by the construction contractor as temporary compound/laydown area for the Proposal.

Land tenure of the Proposal works areas is summarised in Table 1-1 below.

Table 1-1 Nelligen Village Reticulation Land Tenure

Infrastructure	Land Parcel	Land Tenure/Authority
Reticulation Network – Nelligen Village (West)	Kings Highway - Road reserve	TfNSW
	Reid Street - Road Reserve	ESC
	Murray Street - Unformed Road Reserve	ESC
	Murray Street - Unformed Road Reserve (east of Lot 3 DP1074847)	Crown road reserve/ DPE-Crown lands
	Cowper Street - Unformed Road Reserve	ESC
	Braidwood Street - Road Reserve	ESC
	Runnyford Road - Road Reserve	ESC
	Currowan Street - Road Reserve	ESC
	Nelligen Street - Road Reserve	ESC
	Clyde Boulevarde - Road Reserve	ESC
	Maisies Lane - Road Reserve/ Car Park	ESC
	Wharf Street - Road Reserve	ESC
Reticulation Network – Nelligen Village (East)	Lot 1 DP 134253 - Public Reserve	ESC
	Lot 7013 DP 1052890 (along lot boundary – 15m)	Crown reserve (Reserve No: 15646/ 56494)/ DPE - Crown lands
	Thule Road - Road Reserve	ESC/ TfNSW
	Bridge View Road - Road Reserve	ESC/TfNSW
	Sproxtons Lane - Road Reserve	ESC
On-property sewer collection systems and water supply and sewer service (pipe) connections	Approx. 175 residential properties (incl. existing and future residences) and 3 large (Nelligen Holiday Park, Nelligen Hotel and Nelligen Motel) and 27 future commercial properties within Nelligen	Freehold/ Private Land Owners/ ESC
Temporary Construction Compound/Laydown site	43 Reid Road (also listed as 43 Runnyford Road (Lot 83 DP 755969)	Freehold/ Private Land Owner

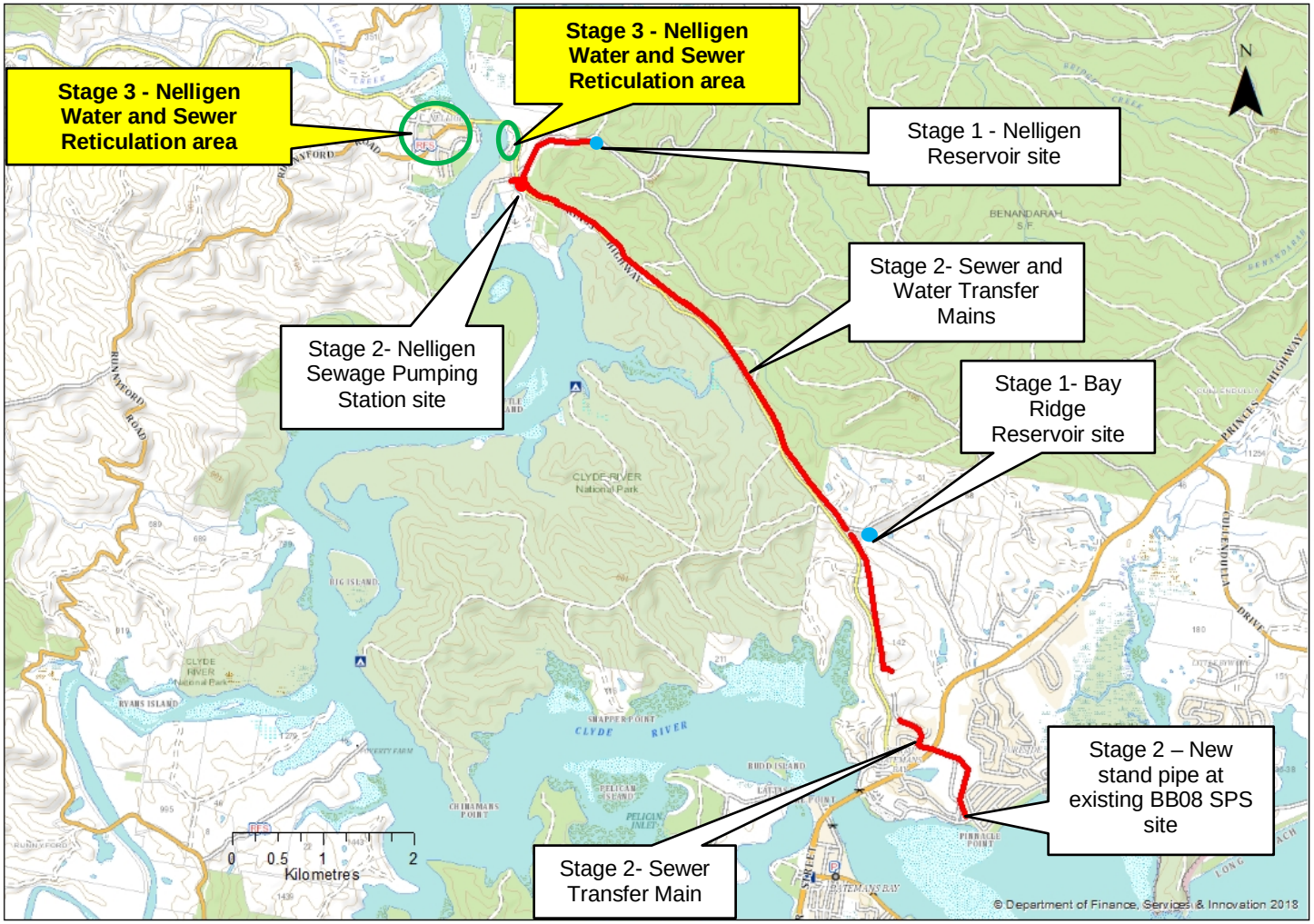


Figure 1.1 Location map of Nelligen and proposed Water Supply and Sewerage Supply Infrastructure in relation to Batemans Bay

Source: NSW LPI Base Map, accessed October 2022

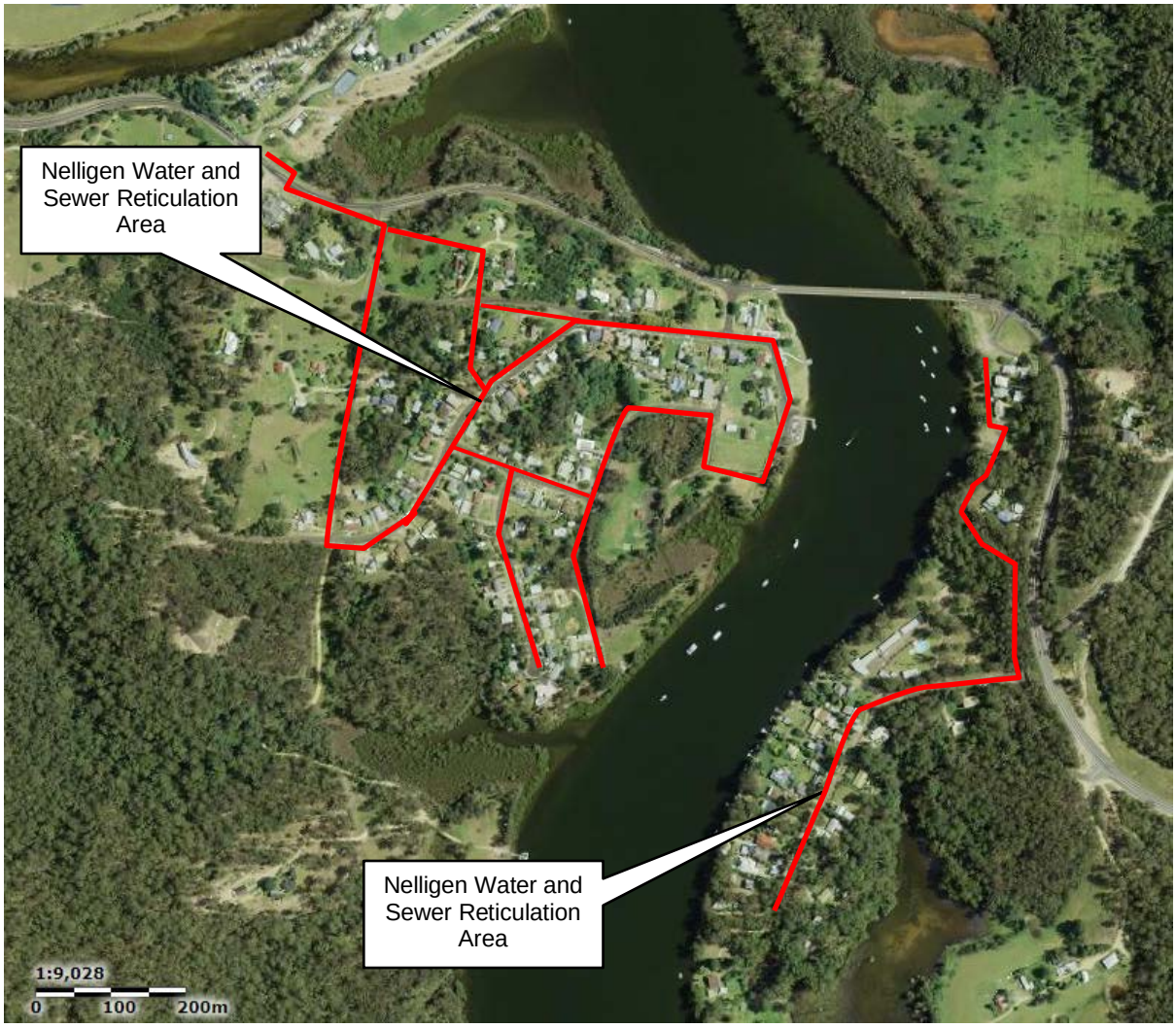


Figure 1.2 Aerial overview of the Proposal Nelligen Water and Sewer Reticulation works
Source: Six Maps, accessed April 2022

2 Statutory Planning Framework

This section presents the statutory planning and strategic policy context for the Proposal.

2.1 Environmental Planning Instruments

2.1.1 Eurobodalla Local Environmental Plan 2012

The Proposal is located within the Eurobodalla Shire Council (ESC) local government area (LGA). The proposed works would traverse a number of land use zones under the *Eurobodalla Local Environment Plan 2012* (LEP), as listed in Table 2-1 and shown in Figure 2.1.

The Eurobodalla LEP 2012 defines sewage reticulation system to mean *a building or place used for the collection and transfer of sewage to a sewage treatment plant or water recycling facility for treatment, or transfer of the treated waste for use or disposal, including associated:*

(a) pipelines and tunnels, and

(b) pumping stations, and

(c) dosing facilities, and

(d) odour control works, and

(e) sewage overflow structures, and

(f) vent stacks.

Under the LEP, a *water reticulation system* is defined as a building or place used for the transport of water, including pipes, tunnels, canals, pumping stations, related electricity infrastructure and dosing facilities.

The proposed works are generally permissible with consent under the Eurobodalla LEP with the exception of the SP2 land zoning where such development is prohibited (Table 2-1). The Proposal is not explicitly consistent with all of the aims of the various LEP land use zones which the proposed works would traverse. However, *State Environmental Planning Policy (Transport and Infrastructure) 2021* is the relevant environmental planning instrument for the Proposal and is discussed in Section 2.1.2. Furthermore, Section 5.12 (1) of the Eurobodalla LEP 2012 states that the LEP *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 (Transport and Infrastructure) 2021, Chapter 2.* Therefore, the development controls contained within the LEP would not be applicable to the proposed development.

Table 2-1: Land Zoning

Location	Zoning	LEP Permissibility
Nelligen Village **Water and Sewer reticulation**	R5 Large Lot Residential	Permitted with consent
	RU5 Village	Permitted with consent
	RE1 Public Recreation	Permitted with consent
	C2 Environmental Conservation	Permitted with consent
	C4 Environmental Living	Permitted with consent
	SP2 Infrastructure	Prohibited

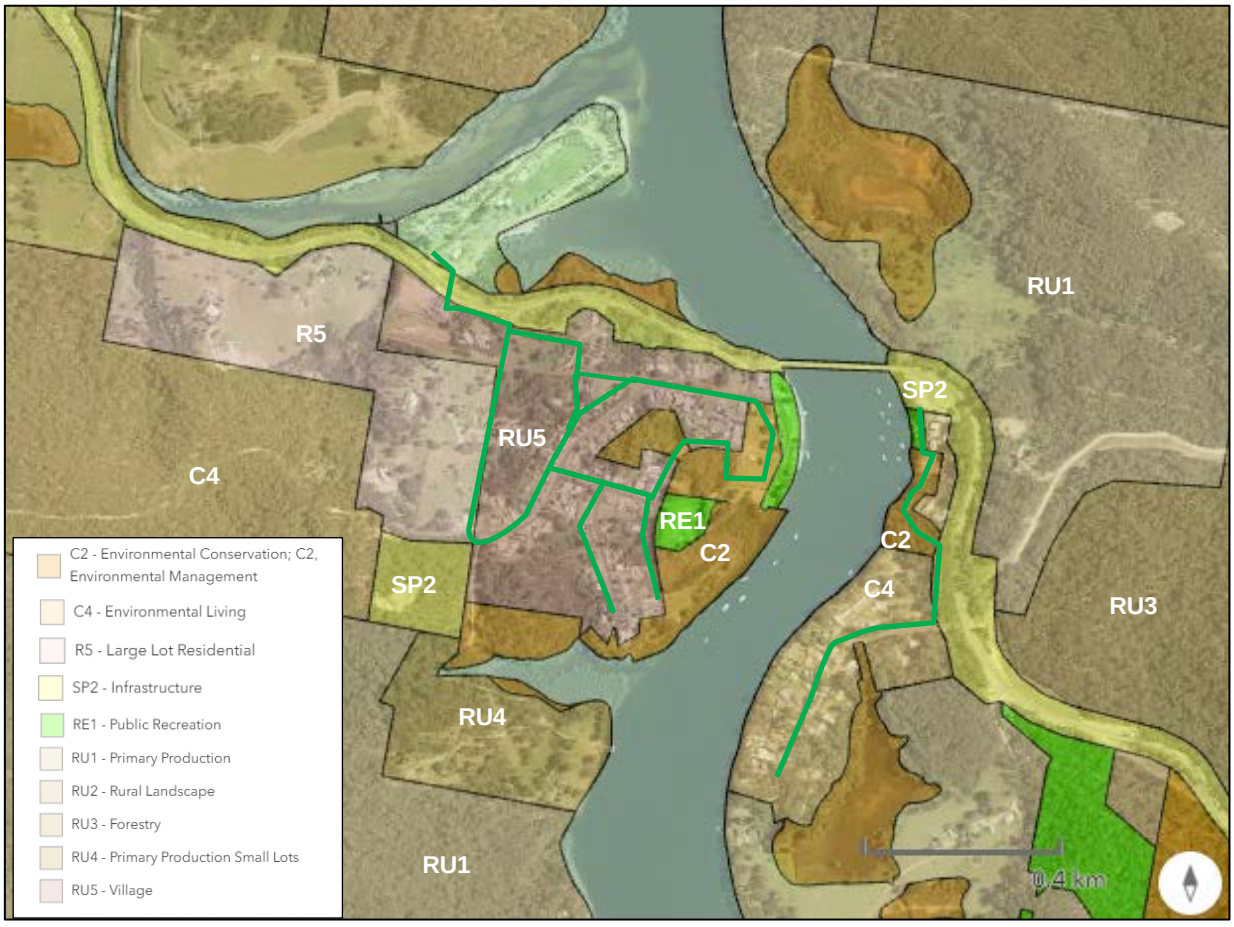


Figure 2.1 Land Zoning Nelligen Village area

Source: Department of Planning and Environment Planning Portal, accessed April 2022

Acid Sulfate Soils

Council's LEP maps indicate that the Proposal area in a section of Nelligen village may be affected by Class 2 Acid Sulphate Soils (ASS), as shown in Figure 2.2. Section 6.3 of the LEP identifies classes of land affected by acid sulfate soils and subsequently requires development consent for certain works below the ground surface and those which may lower the water table. It is noted that the Proposal does not require development consent and therefore these provisions do not apply. Nevertheless, the issue of acid sulfate soils as relevant to the Proposal is discussed in Section 5.3.

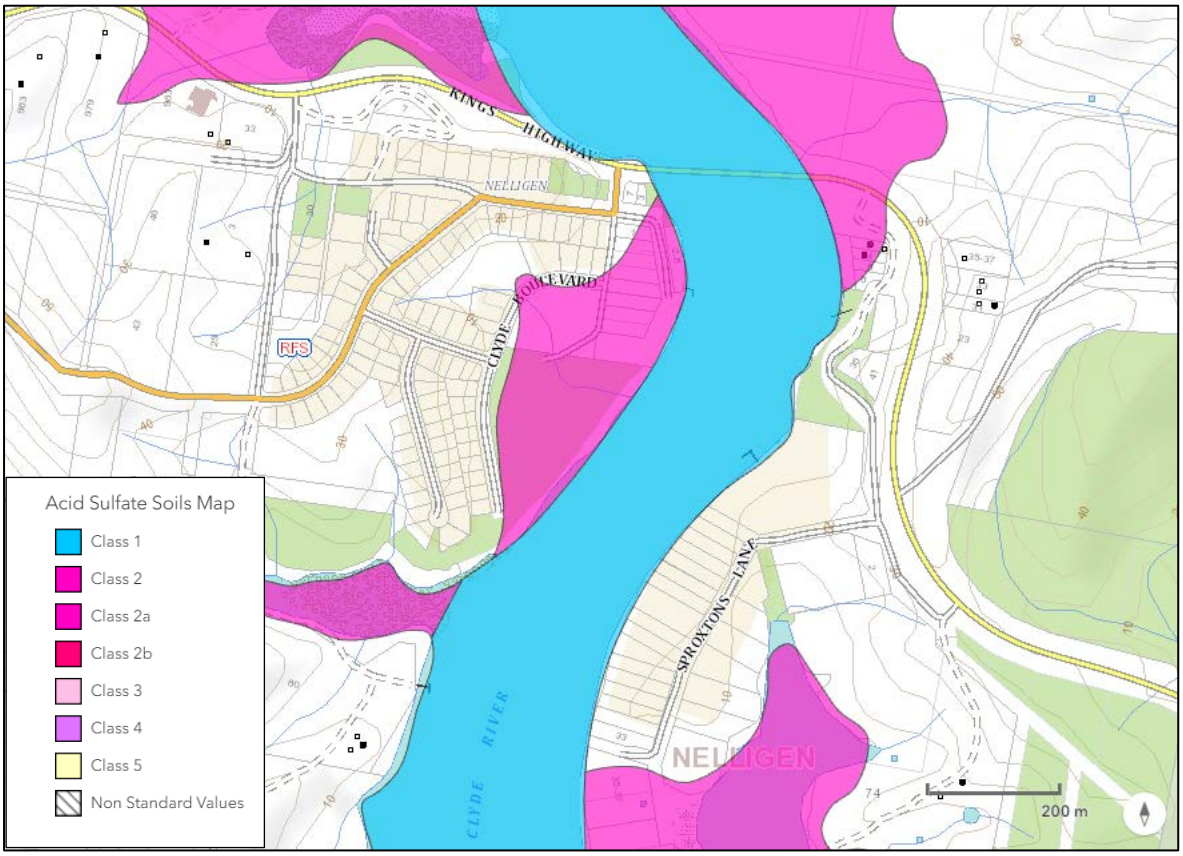


Figure 2.2 Acid Sulfate Soils LEP mapping showing Nelligen village area

Source: Department of Planning and Environment Planning Portal, accessed May 2023

Heritage

As shown in Figure 2.3, multiple sites in the Nelligen village area are listed as Environmental Heritage Items under schedule 5 of Eurobodalla LEP 2012.

Section 5.10 (3) (a) states that development consent is not required if the consent authority is satisfied that the development is of minor nature or is for the maintenance of a heritage item and would not adversely affect the heritage significance of the heritage item. It is noted that the Proposal does not require development consent and therefore these provisions do not apply however, as discussed in Section 5.7, the village reticulation works would not impact these heritage items as the reticulation works are predominantly being carried out within road reserves.

Figure 2.3 Heritage LEP Map showing Nelligen village area

Department of Planning and Environment Planning Portal, accessed July 2018

2.1.2 State Environmental Planning Policy SEPP (Transport and Infrastructure) 2021

Chapter 2 of *State Environmental Planning Policy SEPP (Transport and Infrastructure) 2021* (SEPP (Transport and Infrastructure) 2021) aims to assist in the effective delivery of public infrastructure throughout the State by improving certainty and regulatory efficiency through a consistent planning assessment and approvals regime for public infrastructure and services across NSW. The SEPP provides clear definition of the environmental assessment and approval process for public infrastructure and services facilities.

Under Section 2.125 of the SEPP (Transport and Infrastructure) 2021, 'sewage reticulation systems' are defined to have the same meaning as the Eurobodalla LEP 2012. Similarly, under Section 2.158 of SEPP (Transport and Infrastructure) 2021, 'water reticulation system' is defined to have the same meaning as the Eurobodalla LEP 2012, as described in Section 2.1.1 above, but also includes water supply reservoirs. The proposed water and sewerage supply infrastructure therefore meet the definitions of 'sewage reticulation system' and 'water reticulation system'.

Sections 2.126(1) and 2.126(6) of SEPP (Transport and Infrastructure) 2021 allow development for the purpose of sewage reticulation systems to be carried out by or on behalf of a public authority without consent on any land in the prescribed circumstances. Therefore, as the SEPP removes the need for development consent for the proposed sewage reticulation works, the sewerage system works would be assessed under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Furthermore, Section 2.159(1) of the SEPP (Transport and Infrastructure) 2021 permits development for the purpose of water reticulation systems carried out by or on behalf of a public authority to proceed without development consent on any land. The SEPP removes the need for development consent for the proposed water reticulation works and therefore the water supply works would be assessed under Part 5 of the EP&A Act.

2.1.3 State Environmental Planning Policy (*Resilience and Hazards*) 2021

State Environmental Planning Policy (*Resilience and Hazards) 2021* (Resilience and Hazards SEPP) sets the land use planning framework for coastal management and ensures implementation of the planning objectives of the *Coastal Management Act 2016* in NSW (see Section 2.2.15).

Chapter 2 of the SEPP applies to land that is mapped within one or more of the four coastal management areas identified by the *Coastal Management Act 2016,* which are:

- Coastal wetland and littoral rainforests areas, and lands in proximity to coastal wetland and littoral rainforests;
- Coastal vulnerability areas;
- Coastal environment areas; and
- Coastal use areas.

Where a site is mapped within one or more than one coastal management area, the Resilience and Hazards SEPP targeted development controls for these areas will apply, to guide appropriate development within the coastal zone, and give effect to management objectives under the *Coastal Management Act 2016.*

Based on the interactive maps accompanying the Resilience and Hazards SEPP, some sections of proposed works are located ‘in the proximity area for coastal wetlands’ and is within the ‘coastal environment area’ and the ‘coastal use area’ (see Figure 2.4 to Figure 2.6). No works are proposed within the areas mapped as coastal wetlands or littoral rainforests.

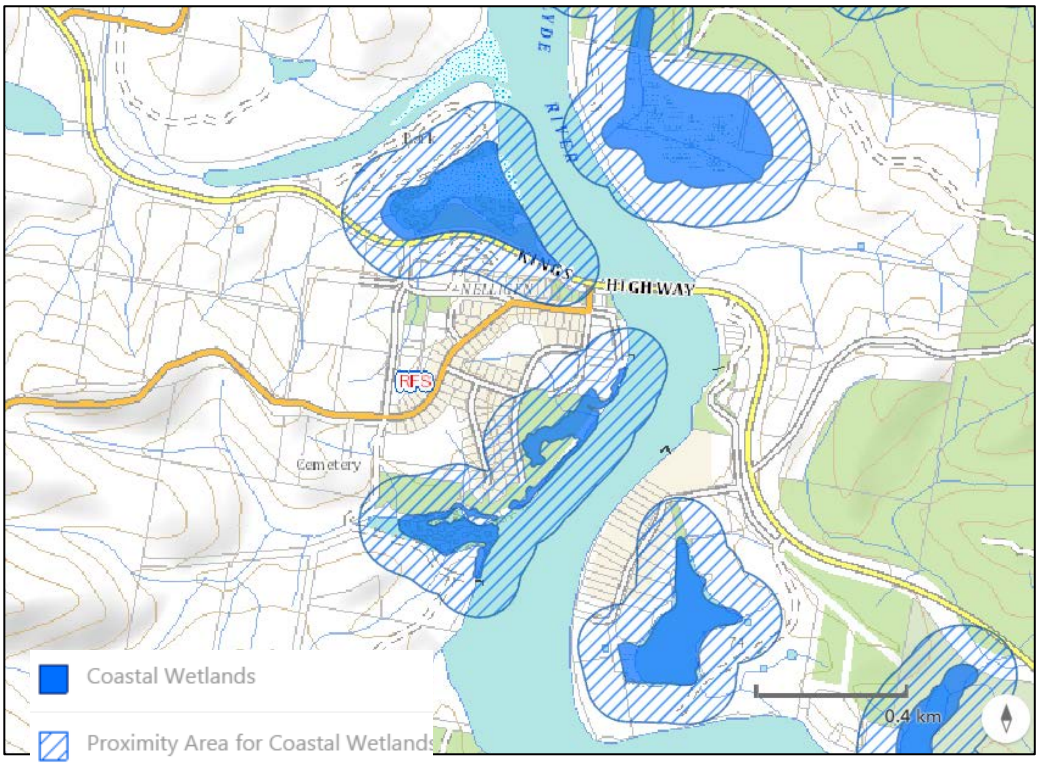


Figure 2.4: Coastal Zone Map Extract (Proximity Area for Coastal Wetlands Area)

Source: Resilience and Hazards SEPP Maps, accessed April 2022

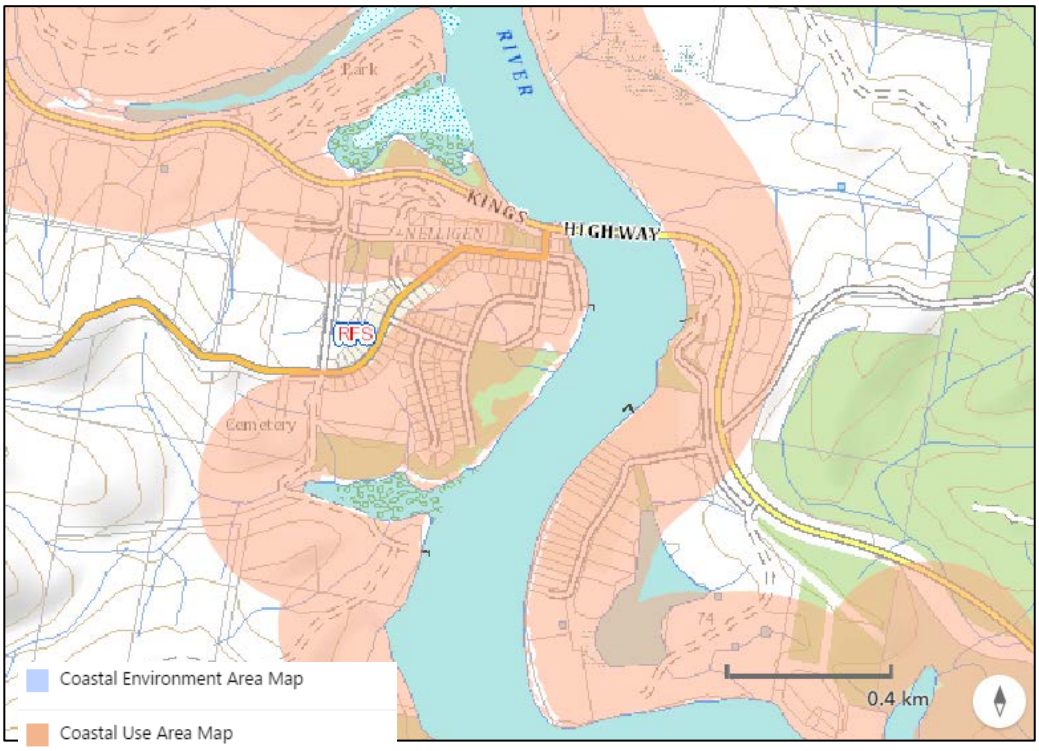


Figure 2.5: Coastal Zone Map Extract (Coastal Use Area)

Source: Resilience and Hazards SEPP Maps, accessed April 2022

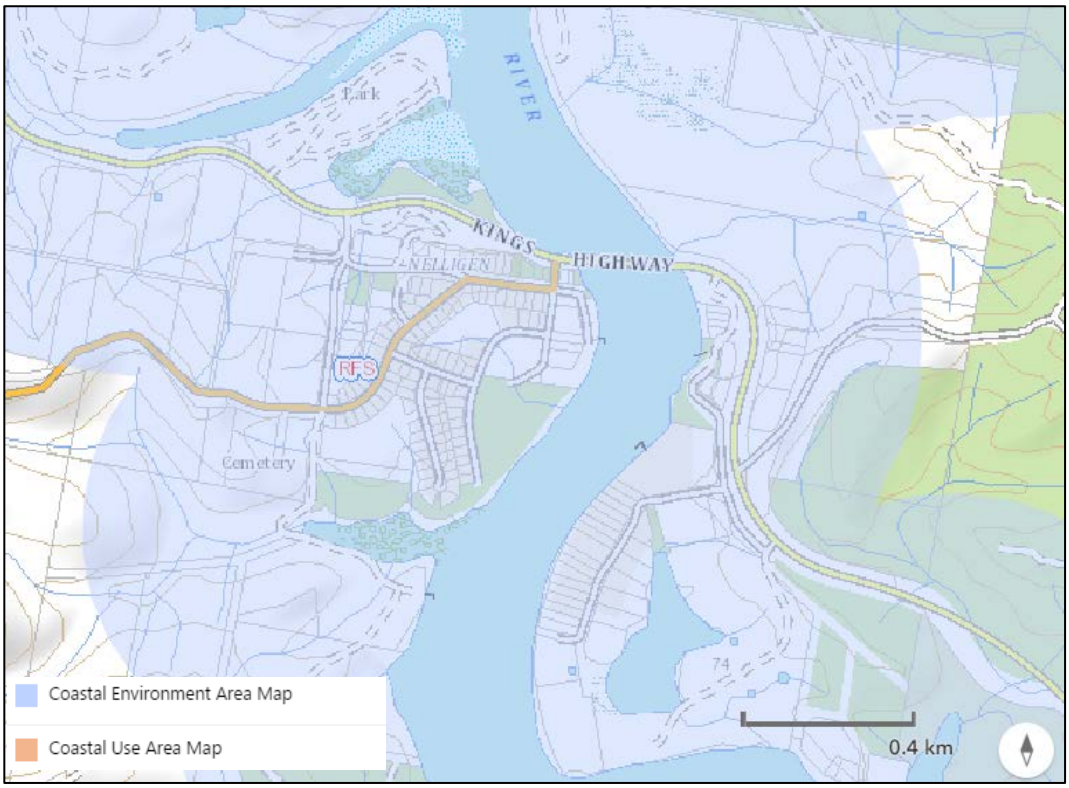


Figure 2.6: Coastal Zone Map Extract (Coastal Environment Area)

Source: Resilience and Hazards SEPP Maps, accessed April 2022

The Proposal does not require consent under Part 4 of the *Environmental Planning and Assessment Act 1979* and therefore Part 2.2, Division 1 - 4 of the Resilience and Hazards SEPP do not apply. However, the consent requirements have been considered in this REF as they are relevant to coastal works in general. These requirements are addressed in the table below.

Table 2-2 Consent requirements in coastal management areas

Division 1, Section 2.8: Development on land in proximity to coastal wetlands or littoral rainforest	
Consent Requirement	**Response**
Development consent must not be granted unless the consent authority is satisfied that the proposed development will not significantly impact on: (a) the biophysical, hydrological or ecological integrity of the adjacent coastal wetland or littoral rainforest, or	The proposed works is not located on land mapped as containing littoral rainforest. However, some sections of the pipeline are located on land in proximity to coastal wetlands in Nelligen. **Biophysical, hydrological and ecological coastal values and coastal processes** The proposed works are not anticipated to have an impact on the integrity and resilience of the biophysical, hydrological, ecological environment and coastal environmental values or coastal

(b) the quantity and quality of surface and ground water flows to and from the adjacent coastal wetland or littoral rainforest.	natural process, as the works involve installation of subsurface pipeline and associated infrastructure in areas previously cleared for residential development A Flora and Fauna assessment indicated that the proposed works would not have a significant impact on ecological values; as it is highly disturbed as a result of residential development in Nelligen (see Section 5.4). **Surface and ground water flows** The ground disturbance associated with the Proposal works is anticipated to present a minor risk to surface water flow due to the potential sediment and other materials movement off site. However, any such adverse impacts are not anticipated to be significant due to the proposed implementation of appropriate mitigation measures, as listed in Section 5. The Proposal is not anticipated to significantly impact surface and ground water flows as the Proposal involves subsurface pipelines connected to managed sewer and water infrastructure networks.
Division 2, Section 2.9: Development on land within the coastal vulnerability area	
Consent Requirement	**Response**
Development consent must not be granted to development on land that is within the area identified as "coastal vulnerability area" on the *Coastal Vulnerability Area Map* unless the consent authority is satisfied that: (a) if the proposed development comprises the erection of a building or works—the building or works are engineered to withstand current and projected coastal hazards for the design life of the building or works, and (b) the proposed development: (i) is not likely to alter coastal processes to the detriment of the natural environment or other land, and	NA There is no coastal vulnerability area map at this point in time.

(ii) is not likely to reduce the public amenity, access to and use of any beach, foreshore, rock platform or headland adjacent to the proposed development, and (iii) incorporates appropriate measures to manage risk to life and public safety from coastal hazards, and (c) measures are in place to ensure that there are appropriate responses to, and management of, anticipated coastal processes and current and future coastal hazards.	
Division 3, Section 2.10: Development on land within the coastal environment area	
Consent Requirement	**Response**
(1) Development consent must not be granted to development on land that is within the coastal environment area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following: (a) the integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment, (b) coastal environmental values and natural coastal processes, (c) the water quality of the marine estate (within the meaning of the *Marine Estate Management Act 2014*), in particular, the cumulative impacts of the proposed development on any of the sensitive coastal lakes identified in Schedule 1, (d) marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms, (e) existing public open space and safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability, (f) Aboriginal cultural heritage, practices and places,	**Biophysical, hydrological and ecological coastal values and coastal processes** The proposed works are not anticipated to have an impact on the integrity and resilience of the biophysical, hydrological, ecological environment and coastal environmental values or coastal natural process, as the works involve installation of subsurface pipelines. The assessment results indicated that the proposed works would not have a significant impact on this vegetation community as it is highly disturbed as a result of development in Nelligen. **Water Quality** The ground disturbance associated with the proposed works is anticipated to present a minor risk to water quality due to the potential sediment and other materials movement off site. However, any such adverse impacts are not anticipated to be significant due to the proposed implementation of appropriate mitigation measures, as listed in Section 5. **Marine Vegetation and Habitats** The proposed works would not involve the removal of any marine vegetation, that would result in the harm of marine vegetation, their habitats and associated marine species. Therefore, the impact

(g) the use of the surf zone.	on marine vegetation and habitats is considered to be negligible. **Aboriginal Cultural Heritage** Aboriginal items are known to occur within the Proposal works area. The risk to Aboriginal sites has been assessed and recommendations and mitigation measures provided as part of an Aboriginal Cultural Heritage Assessment (see Section 5.6). However, any such adverse impacts are not anticipated to be significant due to the proposed implementation of appropriate mitigation measures, as listed in Section 5. **Open Space Use and Public Access** The proposed works would not be located within the foreshore, beach, headland or rock platform areas.
(2) Development consent must not be granted to development on land to which this section applies unless the consent authority is satisfied that: (a) the development is designed, sited and will be managed to avoid an adverse impact referred to in subsection (1), or (b) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or (c) if that impact cannot be minimised—the development will be managed to mitigate that impact.	The proposed works would be managed to mitigate any adverse impacts (refer to Section 5).
Division 4, Section 2.11: Development on land within the coastal use area	
Consent Requirement	**Response**
(1) Development consent must not be granted to development on land that is within the coastal use area unless the consent authority: (a) has considered whether the proposed development is likely to cause an adverse impact on the following:	The proposed works would be undertaken within previously disturbed areas within residential and cleared areas adjacent to a roadway, not within foreshore, beach, headland or rock platform areas. The works would require temporary fencing as a safety precaution. This would restrict public access and use of the sites and parts of the surrounding areas. However, no permanent

(i) existing, safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability, (ii) overshadowing, wind funnelling and the loss of views from public places to foreshores, (iii) the visual amenity and scenic qualities of the coast, including coastal headlands, (iv) Aboriginal cultural heritage, practices and places, (v) cultural and built environment heritage, and (b) is satisfied that: (i) the development is designed, sited and will be managed to avoid an adverse impact referred to in paragraph (a), or (ii) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or (iii) if that impact cannot be minimised—the development will be managed to mitigate that impact, and (c) has taken into account the surrounding coastal and built environment, and the bulk, scale and size of the proposed development.	access restrictions (e.g. fencing) are currently proposed along the foreshore, beach, headland or rock platform areas. The proposed works would not significantly alter the existing surrounding coastal and built environment as the majority of the Proposal would be underground or at locations outside of the coastal use area. Works would be managed to avoid adverse any adverse impacts (Refer to Section 5. The risk to Aboriginal sites has been assessed, and recommendations and mitigation measures provided as part of an Aboriginal Cultural Heritage Assessment (see Section 5.6). The proposed works would be managed to mitigate any adverse impacts (refer to Section 5).

2.1.4 State Environmental Planning Policy (Biodiversity and Conservation) 2021

Parts 3 and 4 of the *State Environmental Planning Policy (Biodiversity and Conservation)* 2021 aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline. The Eurobodalla LGA is identified under Schedule 2 – Local Government Areas of the SEPP, being a local government area to which this part applies. It is noted that the SEPP does not apply to proposals assessed under Part 5 of the EP&A Act, nevertheless as a best practice measure consideration of this SEPP has been undertaken as part of the REF.

A Flora and Fauna Assessment undertaken for the entire Nelligen Water Supply and Sewerage Scheme Project identified one tree species (Forest Red Gum (*Eucalyptus tereticorni*)) recognised under Schedule 3 of the SEPP as a Koala use tree. However, Forest Red Gum

was not identified in the Nelligen village area. Therefore, an individual Plan of Management for the conservation and management of areas of Koala habitat is not required to be prepared as part of the current Proposal.

2.2 Relevant Legislation

2.2.1 Environmental Planning and Assessment Act 1979 (NSW)

The relevant environmental planning instrument for the Proposal is the SEPP (Transport and Infrastructure) 2021 which removes the requirement to obtain development consent. Therefore, the Proposal has been assessed under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Eurobodalla Shire Council is the proponent and the determining authority for the development.

This REF has been prepared in accordance with Section 5.5 of the EP&A Act, which requires that the proponent take into account to the fullest extent possible all matters affecting or likely to affect the environment due to the proposed activity. Consideration of the factors listed under Section 171 of the *Environmental Planning and Assessment Regulation 2021 (*EP&A Regulation) has been used to assist in assessing the significance of the Proposal, and is provided in Appendix A.

2.2.2 Local Government Act 1993 (NSW)

Section 60 of the *Local Government Act 1993* (LG Act) states that a Council must seek approval from the Department of Planning and Environment (DPE) - Water to provide for sewage from its area to be discharged, treated or supplied to any person. Accordingly, approval would be required for the new sewage collection network under Section 60(c) of the LG Act.

Council must not, except in accordance with the approval of the Minister for Primary Industries, construct or extend water treatment works. As the proposed water supply works for Nelligen do not require construction or extension of a dam or water treatment works, approval is not required under the LG Act.

Under Section 59A(2) and 191A(1) of the LG Act, Council, as a sewerage and water utility, is permitted to enter premises (excluding National Parks and Wildlife reserve land) without a licence or permit to undertake sewerage and water supply and associated works. Accordingly, the Proposal works would be permissible by Council within both private and public land (excluding National Parks and Wildlife reserve land), subject to appropriate prior written notification by Council or prior consent from the land owner or relevant government authority. It is noted that no National Parks or Wildlife reserve land is affected by this Proposal.

2.2.3 Pipelines Act 1967

The *Pipelines Act 1967* aims to:

- implement a timely and efficient approvals system to facilitate the construction of cross-country transmission pipelines in New South Wales;
- ensure the effect of a pipeline project commenced under the Act on the environment, landowners and native titleholders is properly considered and managed;

- ensure pipeline licensees protect the environment, pipeline employees and the public from dangers arising from both pipeline construction and the transmission of potentially hazardous substances.

Under the *Pipelines Act 1967*, any person who wishes to construct and operate a pipeline for the purposes of any substance, can do so under an authorisation or Licence.

However, Section 5 of the *Pipelines Act 1967* has a number of exemptions to a licence under that Act, including a pipeline constructed by a public authority, or a pipeline for the purpose of water supply. Therefore, this Act does not apply to the Proposal.

2.2.4 National Parks and Wildlife Act 1974 (NSW)

The *National Parks and Wildlife Act 1974* (NPW Act) provides for the statutory protection of Aboriginal cultural heritage places, objects and features. Part 6 of the NPW Act provides specific protection for Aboriginal objects and declared Aboriginal places by establishing offences of harm. It is a defence against prosecution for unintentionally harming Aboriginal Objects if due diligence had been exercised to determine that no Aboriginal object would be harmed, or the harm or desecration was authorised by an Aboriginal heritage impact permit (AHIP).

Investigations have been undertaken into the Aboriginal cultural heritage impacts of the Proposal, including a Due Diligence Assessment and an Aboriginal Cultural Heritage Assessment (see Appendix C). These determined that an AHIP would be required for impacts to several Aboriginal sites which occur in the vicinity of the Project works at North Batemans Bay and Nelligen. However, no Aboriginal sites are located in the Proposal works area in Nelligen village (see Section 5.6). Therefore, no Aboriginal objects or sites would be impacted by the village reticulation works and an AHIP for these works is not required.

2.2.5 Heritage Act 1977

The *Heritage Act 1977* protects and aims to conserve the environmental heritage of New South Wales. Environmental heritage is broadly defined under Section 4 of the *Heritage Act* 1977 as consisting of “those places, buildings, works, relics, moveable objects, and precincts, of State or local heritage significance” (Heritage Branch, DoP 2009:4). Aboriginal places or objects that are recognised as having high cultural value (potentially of local and State significance) can be listed on the State Heritage Register and protected under the provisions of the *Heritage Act* 1977.

The Proposal would not impact any listed State listed heritage items. The Nelligen village reticulation route alignment enters into the curtilage of one locally listed heritage item and passes in close proximity to the curtilage of twelve locally significant heritage items located within the Nelligen village registered on the Eurobodalla LEP. However, the works can be carried out to avoid impacting all identified heritage items, as discussed in Section 5.7.

2.2.6 Protection of the Environment Operations Act 1997 (NSW)

The *Protection of the Environment Operations Act 1997* (POEO Act) regulates air, noise, land and water pollution. The Environment Protection Authority (EPA) is generally responsible for implementing the POEO Act and would be the appropriate regulatory authority for the Proposal.

Schedule 1 of the POEO Act lists scheduled activities which are required to be licensed by the EPA. Sewage treatment is listed as a scheduled activity which is defined as *the operation of sewage treatment systems (including the treatment works, pumping stations, sewage overflow structures and the reticulation system) that involve the discharge or likely discharge of wastes or by-products to land or waters*. The village collection system would form part of the Bateman's Bay STP sewerage scheme, which has a licence as a scheduled activity under this Act (Environment Protection Licence (EPL) No. 1397 granted to Eurobodalla Shire Council). The new sewerage scheme would not exceed the existing licence load or waste limits, therefore a variation under section 58 of the PEPO Act is not required from the EPA.

The activity is both scheduled under the POEO Act and being undertaken by a Public Authority and therefore the EPA will be the Appropriate Regulatory Authority in relation to environmental pollution matters.

The water supply reticulation network does not constitute a scheduled activity listed under Schedule 1 of the POEO Act and therefore an EPL is not required for these works.

Section 120 of the POEO Act makes it an offence to pollute waters. It is considered that the construction and operation of the Proposal can be carried out without causing water pollution; as appropriate mitigation measures would be implemented to prevent water pollution during the works. Therefore, it is unlikely that a licence would be required under Section 120 of the POEO Act for the pollution of waters.

Other relevant provisions of the POEO Act that the Proposal would need to comply with include:

- Section 115 – It is an offence to dispose of waste in a manner that harms or is likely to harm the environment.
- Section 116 – It is an offence to cause any substance to leak, spill or otherwise escape (whether or not from a container) in a manner that harms or is likely to harm the environment.
- Section 139 – The occupier of any premises who operates any plant (other than control equipment) at those premises in such a manner as to cause the emission of noise from those premises is guilty of an offence if the noise so caused, or any part of it, is caused by the occupier's failure: (a) to maintain the plant in an efficient condition, or (b) to operate the plant in a proper and efficient manner.
- Section 167 – The occupier of any premises must maintain any control equipment installed at the premises in an efficient condition. The occupier of any premises must operate any control equipment installed at the premises in a proper and efficient manner.

2.2.7 Protection of the Environment Operations (Waste) Regulation 2014 (NSW)

The *Protection of the Environment Operations (Waste) Regulation* 2014 sets out the provisions with regards to non-licensed waste activities and non-licensed waste transporting, in relation to the way in which waste must be stored, transported, and the reporting and record-keeping requirements. The proposed works (in particular aspects such as removal of spoil) would be undertaken to be consistent with the requirements of this regulation.

2.2.8 Water Management Act 2000 (NSW)

The objects of the *Water Management Act 2000* (WM Act) are to provide for the sustainable and integrated management of the water sources of the state for the benefit of both present and future generations.

The proposed works involves the carrying out of a controlled activity (that is, carrying out of work or excavation) as defined under the WM Act. Section 91(E) of the WM Act states that a controlled activity cannot be carried out in, on or under waterfront land otherwise than in accordance with a controlled activity approval. However, Section 41 of the *Water Management (General) Regulation 2018* (WM (General) Reg) states that public authorities are exempt from the requirement to obtain a controlled activity approval. Therefore, this approval would not be applicable to the works.

Section 91B(1) of the WM Act requires a water supply works approval to be obtained for a number of works, including:

…

c) a work (such as a water pipe or irrigation channel) that is constructed or used for the purpose of conveying water to the point at which it is to be used.

Section 37 of the WM (General) Reg states that a water supply works approval is not required for the construction of a water pipe for use solely for conveying water from one place to another, or for the construction of a water reticulation work on land the subject of a water use approval, except when the works are undertaken on land that is reserved for any purpose under the *National Parks and Wildlife Act 1974*, land within a State forest within the meaning of the *Forestry Act 2012* or on waterfront land (other than waterfront land relating to a minor stream).

Waterfront land is defined under the WM Act to mean:

(a) the bed of any river, together with any land lying between the bed of the river and a line drawn parallel to, and the prescribed distance inland of, the highest bank of the river, or

(a2) the bed of any estuary, together with any land lying between the bed of the estuary and a line drawn parallel to, and the prescribed distance inland of, the mean high water mark of the estuary.

Where the prescribed distance is 40 metres or (if the regulations prescribe a lesser distance, either generally or in relation to a particular location or class of locations) that lesser distance.

Accordingly, a water supply works approval would be required for any works on waterfront land (other than waterfront land relating to a minor stream), under Section 91B(1) of the WM Act.

Section 91(F) of the WM Act states that an aquifer interference activity cannot be carried out without, or otherwise than as authorised by, an aquifer interference approval. However, extracting less than 3ML of groundwater per annum is exempt from requiring an aquifer interference licence.

It is noted that geotechnical investigations undertaken for the proposed upgrade works indicated that groundwater may be encountered during the works. If more than 3ML of groundwater dewatering is required during construction works, an aquifer interference approval would be required for the works. If dewatering of less than 3ML is required for the

Proposal, a water access licence exemption for aquifer interference activities taking 3 ML or less of groundwater per year should be lodged with DPE- Water (NRAR).

Water sharing plans under the WM Act govern the sharing of water in a particular water source between water users and the environment and rules for the trading of water in a particular water source. Water access licences (WALs) entitle licence holders to specified shares in the available water within a particular water management area or water source (the share component), and to take water at specified times, rates or circumstances from specified areas or locations (the extraction component). WALs may be granted to access the available water governed by a water sharing plan under the *Water Management Act 2000*.

Nelligen is located in the Clyde Estuaries Tributaries catchment and is subject to the *Draft Water Sharing Plan for the Clyde Unregulated and Alluvial Water Sources 2013.* Council currently sources water from the Deua and Tuross Rivers under existing WALs. These are subject to the *Water Sharing Plan for the Deua River Unregulated and Alluvial Water Sources 20*16, and *Water Sharing Plan for the Tuross Unregulated and Alluvial Water Source 2016.* The Eurobodalla water supply system is an integrated system and the demand for Nelligen has been modelled and can be accommodated within the existing WALs. No changes to the existing entitlement will be required.

2.2.9 Roads Act 1993 (NSW)

Under Section 138 of the *Roads Act 1993* (Roads Act) a person must not erect a structure or carry out a work in, on or over a public road, otherwise than with the consent of the appropriate roads authority. However, Schedule 2, Section 5(1) states that a public authority is not required to obtain a roads authority's consent under Section 138 to exercise the public authority's functions in, on or over an unclassified road other than a Crown road. Where the pipelines would be installed within Crown road reserve, Council may lodge an application with DPE - Crown Lands to transfer the unformed Crown road to Council control under Section 152I of the Roads Act.

The reticulation mains would cross under the Kings Highway as well as local roads within Nelligen. Transport for NSW (TfNSW) is the road authority for the Kings Highway which is a classified road, and Council is the roads authority for unclassified roads. In addition, the village reticulation pipelines will be installed along Thule Road and Bridge View Road which is TfNSW land. As the works would impact upon classified roads and TfNSW land, consent under Section 138 is required.

2.2.10 Crown Land Management Act 2016 (NSW)

Two small sections of the village reticulation mains would be constructed within Crown Reserve land.

Section 9.2 of the *Crown Land Management Act 2016* (CLM Act) states that a person shall not, without lawful authority, erect a structure on, clear, dig up or cultivate public land. As such, works within Crown land require authorisation by a lease, licence or other permit from the DPE – Crown Lands, or, in relation to formed and unformed Crown roads, acquisition by ESC. Section 5.21 of the CLM Act allows for the granting of licenses to occupy and use Crown land for a particular purpose.

2.2.11 Biodiversity Conservation Act 2016 (NSW)

The Biodiversity Conservation Act 2016 (BC Act) protects species of threatened flora and fauna, endangered populations and endangered ecological communities and their habitats in NSW. It also lists Key Threatening Process that adversely affects threatened species, populations or ecological communities or that may cause species, populations or ecological communities that are not threatened to become threatened.

Amongst other matters, offences are established for damage to habitats of threatened species or threatened ecological communities. Defences to those offences include that the act was necessary for the carrying out of an activity by a determining authority within the meaning of, and after compliance with, Part 5 of the EP&A Act. Part 4 of the *Biodiversity Conservation Act 2016* sets out provisions for threatened species and threatened ecological communities and introduces a new biodiversity assessment method (BAM), a new biodiversity offset scheme (BOS) and an expanded biodiversity certification program.

A Flora and Fauna Assessment has been prepared to assess impacts to threatened species and is attached in Appendix B. The assessment concluded that there would be no significant impact to threatened flora or fauna species or their habitat, endangered populations or endangered ecological communities of State conservation significance, provided that the mitigation measures proposed are implemented (see Section 5.4). No approval under the BC Act is therefore required.

2.2.12 Biosecurity Act 2015

The *Biosecurity Act 2015* guides the management of weeds at the regional level throughout NSW. Under the Act, all plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant who knows or ought to know of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable. Individual land holders and managers are required under the Act to control priority weeds for their area according to the relevant biosecurity toolset.

One weed species listed under Schedule 3 of the *Biosecurity Act 2015* was identified within the Proposal works area and is discussed further in Section 5.4. This weed species would be managed in accordance with the *Biosecurity Act 2015* and the *Biosecurity Regulation 2017*.

2.2.13 Fisheries Management Act 1994 (NSW)

The objects of *the Fisheries Management Act 1994* (FM Act) are to conserve, develop and share the fishery resources of the State for the benefit of present and future generations. In particular, the objects of this Act include:

- to conserve fish stocks and key fish habitats, and
- to conserve threatened species, populations and ecological communities of fish and marine vegetation, and
- to promote ecologically sustainable development, including the conservation of biological diversity.

The Act includes schedules of threatened aquatic species, populations and ecological communities, which must be considered in accordance with Section 5A of the EP&A Act. A Flora and Fauna Assessment has been prepared to assess impacts to threatened species and is attached in Appendix B. The assessment concluded that no species or communities listed under the FM Act are considered likely to be impacted by the Proposal (see Section 5.4).

The proposed works do not involve harm to mangroves or other protected marine vegetation, or blocking of fish passage, and therefore a permit under the FM Act is not required.

Section 200 of the FM Act requires a local government authority to obtain a permit for dredging or reclamation work in waterland. For the purposes of Section 200 of the FM Act, dredging works includes any work that involves excavating water land, and reclamation work includes:

(a) using any material (such as sand, soil, silt, gravel, concrete, oyster shells, tyres, timber or rocks) to fill in or reclaim water land, or

(b) depositing any such material on water land for the purpose of constructing anything over water land (such as a bridge), or

(c) Draining water from water land for the purpose of its reclamation.

Waterland includes land submerged by water whether permanently or intermittently, or whether forming an artificial or natural body of water.

The village reticulation pipeline alignments would not cross any 3rd order or above waterways, which are generally excluded from the definition of 'key fish habitat' and the requirement for a permit. Therefore a permit for dredging and reclamation works from DPI Fisheries under Section 200 of the FM Act would not be required.

2.2.14 Marine Estate Management Act 2014 (NSW), Marine Estate Management Regulation 2009 (NSW), Marine Estate Management (Management Rules) Regulation 1999 (NSW)

Some areas of the works would be located in proximity to the Clyde River near Nelligen, which is classified as Habitat Protection Zone within the Batemans Marine Park Marine Protected Area.

The Batemans Marine Park is principally concerned with ensuring that an activity does not adversely affect the marine biodiversity and ecological values of the park. These values are expressed and regulated through the *Marine Estate Management Act 2014*, the *Marine Estate Management Regulation 2009*, and the *Marine Estate Management (Management Rules) Regulation 1999.*

The objects of this Act are as follows:

(a) to provide for the management of the marine estate of New South Wales consistent with the principles of ecologically sustainable development in a manner that:

(i) promotes a biologically diverse, healthy and productive marine estate, and

(ii) facilitates:

- economic opportunities for the people of New South Wales, including opportunities for regional communities, and

- the cultural, social and recreational use of the marine estate, and
- the maintenance of ecosystem integrity, and
- the use of the marine estate for scientific research and education,

(b) to promote the co-ordination of the exercise, by public authorities, of functions in relation to the marine estate,

(c) to provide for the declaration and management of a comprehensive system of marine parks and aquatic reserves.

The purposes of marine parks, as described in Section 22 of the *Marine Estate Management Act 2014*, are as follows:

(1) The primary purpose of a marine park is to conserve the biological diversity, and maintain ecosystem integrity and ecosystem function, of bioregions in the marine estate.

(2) The secondary purposes of a marine park are, where consistent with the primary purpose:

(a) to provide for the management and use of resources in the marine park in a manner that is consistent with the principles of ecologically sustainable development, and

(b) to enable the marine park to be used for scientific research and education, and

(c) to provide opportunities for public appreciation and enjoyment of the marine park, and

(d) to support Aboriginal cultural uses of the marine park.

An operational plan is required for each marine park under section 23 of the Marine Parks Act 'to identify and define a scheme of the strategies, actions or activities that are proposed to be undertaken by the Authority (including arrangements with other agencies) to operate a marine park, consistent with the zoning plan for the marine park and the objects of the Act'.

The waters of the Clyde River lie within a 'Habitat Protection Zone', the objects of a habitat protection zone (Cl.1.8 *Marine Estate Management (Management Rules) Regulation 1999)* are:

(a) to provide a high level of protection for biological diversity, habitat, ecological processes, natural features and cultural features (both Aboriginal and non-Aboriginal) in the zone, and

(b) where consistent with paragraph (a), to provide opportunities for recreational and commercial activities (including fishing), scientific research, educational activities and other activities, so long as they are ecologically sustainable and do not have a significant impact on any fish populations or on any other animals, plants or habitats.

The Proposal would not require a permit in terms of the *Marine Estate Management (Management Rules) Regulation 1999* as it is located outside the Habitat Protection Zone. Overall, it is anticipated that with the implementation of appropriate mitigations measures during construction works to protect surrounding ecology and water quality of the Clyde River (Section 5.3 and 5.4). The Proposal would be consistent with the aims and objectives risk of

the *Marine Estate Management Act 2014*, the *Batemans Marine Park Zoning Plan* and the *Batemans Marine Park Operational Plan*.

2.2.15 Coastal Management Act 2016

The *Coastal Management Act 2016* enables integrated and strategic management of the NSW coast.

The objects of the *Coastal Management Act 2016* are to manage the coastal environment of NSW in a manner consistent with the principles of ecologically sustainable development for the social, cultural and economic well-being of the people of the State.

The Act defines the 'coastal zone' as the area of land comprised of the following coastal management areas:

- the coastal wetlands and littoral rainforests area,
- the coastal vulnerability area,
- the coastal environment area, and
- the coastal use area.

Based on the interactive maps accompanying the Act and the Resilience and Hazards SEPP, some sections of the Proposal are located within the coastal zone and lies within the coastal environment area and coastal use area. A review of the objects of these zones is presented below.

Coastal Environment Area

The coastal environment area means the land identified by a State Environmental Planning Policy to be the coastal environment area for the purposes of this *Coastal Management Act 2016* (see Section 2.1.3), being land containing coastal features such as the coastal waters of the State, estuaries, coastal lakes, coastal lagoons and land adjoining those features, including headlands and rock platforms.

The management objectives for the coastal environment area are as follows:

(a) to protect and enhance the coastal environmental values and natural processes of coastal waters, estuaries, coastal lakes and coastal lagoons, and enhance natural character, scenic value, biological diversity and ecosystem integrity,

(b) to reduce threats to and improve the resilience of coastal waters, estuaries, coastal lakes and coastal lagoons, including in response to climate change,

(c) to maintain and improve water quality and estuary health,

(d) to support the social and cultural values of coastal waters, estuaries, coastal lakes and coastal lagoons,

(e) to maintain the presence of beaches, dunes and the natural features of foreshores, taking into account the beach system operating at the relevant place,

(f) to maintain and, where practicable, improve public access, amenity and use of beaches, foreshores, headlands and rock platforms.

Coastal Use Area

The coastal use area means the land identified by a State Environmental Planning Policy to be the coastal use area for the purposes of the *Coastal Management Act 2016* (see Section 2.1.3), being land adjacent to coastal waters, estuaries, coastal lakes and lagoons where development is or may be carried out (at present or in the future).

The management objectives for the coastal use area are as follows:

> *(a) to protect and enhance the scenic, social and cultural values of the coast by ensuring that:*
>
> > *(i) the type, bulk, scale and size of development is appropriate for the location and natural scenic quality of the coast, and*
> >
> > *(ii) adverse impacts of development on cultural and built environment heritage are avoided or mitigated, and*
> >
> > *(iii) urban design, including water sensitive urban design, is supported and incorporated into development activities, and*
> >
> > *(iv) adequate public open space is provided, including for recreational activities and associated infrastructure, and*
> >
> > *(v) the use of the surf zone is considered,*
>
> *(b) to accommodate both urbanised and natural stretches of coastline.*

The proposed works are not considered to be inconsistent with the management objectives of these coastal management areas, and accordingly is consistent with the objects of the Act through promoting the protection, enhancement, maintenance and restoration of the environment of the coastal zone.

Development controls for the coastal environment and coastal use areas are provided in Sections 13 and 14 of the Act. These controls reflect those provided in the Resilience and Hazards SEPP which have been addressed in Table 2-2.

2.2.16 Native Title Act 1993 (Commonwealth)

The *Native Title Act 1993* sets up processes to determine where native title exists, how future activity impacting upon native title may be undertaken, and to provide compensation where native title is impaired or extinguished. The Act gives Indigenous Australians who hold native title rights and interests or who have made a native title claim, the right to be consulted and, in some cases, to participate in decisions about activities proposed to be undertaken on the land.

A search of the National Native Title Register found one application which covers the Proposal area (South Coast People – NC2017/003). Consultation with the NTSCorp and South Coast People is therefore required prior to proceeding with the works. It is noted that consultation has been undertaken with these organisations as part of the Aboriginal Cultural Heritage Assessment (ACHA) consultation process for the Project (see Appendix C).

2.2.17 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides for Commonwealth involvement in development assessment and approval in circumstances where there exist 'matters of national environmental significance'. Matters of national environmental significance include:

- world heritage properties
- national heritage places
- wetlands of international importance
- nationally threatened species and ecological communities
- migratory species
- Commonwealth marine areas
- the Great Barrier Reef Marine Park
- nuclear actions (including uranium mining)
- a water resource, in relation to coal seam gas development and large coal mining development.

A Biodiversity Assessment has been prepared to assess impacts to threatened species and is attached in Appendix B. The assessment concluded that it is unlikely that the Proposal would significantly impact any matters of national environmental significance as listed under the EPBC Act, therefore referral to the Commonwealth under the EPBC Act is not required (See section 5.4).

2.3 Relevant Policies, Guidelines and Standards

The following general policies, guidelines and standards would need to be considered as part of the Proposal and are addressed in this REF;

- *Interim Construction Noise Guidelines* (DECC, 2009)
- *Managing Urban Stormwater: Soils and Construction - Volume 1, 4th Edition* (Landcom, 2004)
- *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW, 2010)
- *NSW Guidelines on Assuring Future Urban Water Security - Assessment and Adaption Guidelines for NSW Local Water Utilities*
- *Guidelines for Controlled Activities on Waterfront Land - Guidelines for laying pipes and cables in watercourses on waterfront land* (NSW Office of Water, 2012)
- *Controlled Activities on Waterfront Land – Guidelines for watercourse crossings on waterfront land* (NOW,2012)
- *Code of Practice – Work near Overhead Power Lines* (Workcover NSW 2006)

2.3.1 Batemans Marine Park Operational Plan (MPA, 2010)

The *Batemans Marine Park Operational Plan* (MPA, 2010) details management actions being undertaken by the Marine Parks Authority for the Batemans Marine Park (see Section 2.2.14). These actions focus on meeting key objectives related to conservation of marine biodiversity, as well as provision of opportunities for ecologically sustainable use, public appreciation, enjoyment and understanding of the marine park. *The Batemans Marine Park Operational Plan* explains the role and priorities of the Marine Parks Authority and other organisations in the management of the marine park.

The *Batemans Park Marine Park Operational Plan* is consistent with and supports the Batemans Marine Park Zoning Plan (see Section 2.2.14). Marine park objectives and management actions have been organised under the following strategies;

Objective 1 – To conserve marine biodiversity, marine habitats and maintain ecological processes in the marine park, includes:

1) identification and adaptive management of threats to marine biodiversity and habitats
2) protection of high conservation areas and threatened species.

Objective 2 – To provide for ecologically sustainable uses (including commercial and recreational fishing), includes:

1) assessing developments in and affecting the marine park to minimise impacts
2) maximising voluntary compliance with the marine park zoning plan
3) ecologically sustainable management of commercial activities.

Objective 3 – To provide opportunities for public appreciation, understanding and enjoyment, includes:

1) delivering an ecological, social, cultural and economic research and monitoring program
2) promotion of sustainable tourism and recreational uses, as well as facilitating a greater appreciation of marine biodiversity
3) ensuring management is consistent with the cultural aspirations of Aboriginal people.

The Proposal is considered to be consistent with the above objectives for the Batemans Marine Park.

2.4 Summary of Approvals

The following table provides a summary of the approvals required for the Proposal. Council would be responsible for ensuring that all permits and approvals are obtained, either by Council or by others on behalf of Council, prior to commencement of the relevant works.

Table 2-3 Summary of Approvals and Requirements

Agency/Stakeholder	Requirements	Reference
Eurobodalla Shire Council	Determination of the Proposal	Part 5 of EP&A Act
Transport for NSW (TfNSW)	Approval for works within classified roads and TfNSW land	Section 138 of Roads Act
DPE - Water	Approval for new sewage collection network Approval for water supply works on waterfront land Aquifer Interference Licence (if more than 3ML of groundwater is likely to be extracted per annum during construction works). Alternately, a water access licence exemption should be lodged with DPE- Water (NRAR) for aquifer interference activities taking 3ML or less of groundwater per year.	Section 60(c) of LG Act and Section 292 WM Act Section 91B(1) of the WM Act. Section 91F of the WM Act
DPE - Crown lands	Licence to lay a structure in Crown Land Application to transfer Crown road to Council	Section 9.2 of CLM Act Section 152I of Roads Act
EPA	Variation to STP EPL No. 1397 (if required for increased waste discharge or altered load limits)	Section 58 of the POEO Act
Private Landowners	Landowner/ occupier consent or notification for Council infrastructure works within private land/	Sections 191A(1) and 193 of LG Act

2.5 Consultation

A number of government agencies were consulted during the preparation of the REF. A list of agencies contacted, and a summary of their response is provided in Table 2-4 below. Copies of the responses received are provided in Appendix D.

Table 2-4 Agency consultation applicable to the Nelligen village reticulation works

Agency	Summary of Comments	Addressed in REF
Roads and Maritime Services (RMS), now TfNSW	No response received.	N/A
Department of Primary Industries Fisheries (DPI Fisheries) and Batemans Marine Parks (joint DPI Fisheries (Aquatic Ecosystems/Marine Operations response))	The responsibilities of DPI Fisheries include ensuring that; • Fish stocks are conserved and that there is no net loss of key fish habitats upon which they depend. To achieve this, DPI Fisheries ensures that developments comply with the requirements of the *Fisheries Management Act 1994* (FM Act) and ensuring the sustainable management of commercial, recreational and Aboriginal cultural fishing, aquaculture and marine protected areas within NSW. • Within marine parks marine biological diversity and marine habitats are conserved and ecological processes are maintained. With regard to land use planning and approvals the Department ensures that development activities comply with or are consistent with the requirements of the *Marine Estate Management Act 2014*, *Marine Estate Management Regulation 2017* and the *Marine Estate Management (Management Rules) Regulation 1999*. The potential impacts of the proposal on the aquatic habitats and fish communities in the Clyde River, its associated tributaries and wetlands during construction works and in particular the ongoing operation of the reticulated sewer system and sewage pump stations are of interest to this Department in relation to this proposal.	Noted. Section 2.2.13, 5.3 and 5.4 Noted. Section 2.2.14, 5.3 and 5.4 Noted. Works would not occur within the Clyde River or wetland areas. Third order tributaries or

Agency	Summary of Comments	Addressed in REF
	Comments • DPI Fisheries supports the transition of coastal towns from septic to reticulated sewerage systems. The use of previously disturbed areas for the location of infrastructure is encouraged. • With respect to crossing the Clyde River DPI Fisheries understands that the required infrastructure will be attached to the new Nelligen bridge - DPI Fisheries supports the use of existing infrastructure for waterway crossings. • When installing underground infrastructure, where there is no existing infrastructure, DPI Fisheries supports the use of underboring of 3rd order or above waterways. Where underboring or existing infrastructure is used a permit for dredging and reclamation will not be required, provided adequate riparian buffers of at least 10m are maintained	above to be underbored. Noted Design has changed - underboring of Clyde River has been undertaken by TfNSW - (outside scope of the Proposal). Section 5.4 Noted – Section 5.3, 5.4
	The Review of Environmental Factors (REF) for the proposed development should include information on the following: • Location of works • Description of works to be undertaken, including proposed methodology. • Description and condition of riparian and aquatic habitat located within or adjacent to the footprint.	Section 0 Section 5.4

Agency	Summary of Comments	Addressed in REF
	• Analysis of any interactions of the proposed works with aquatic environments, riparian habitats and water quality, including downstream. • Analysis of potential effluent overflow impacts on aquatic environments, riparian habitats and water quality on adjacent waterways including downstream. • Safeguards to mitigate any construction impacts upon aquatic environments, riparian habitats and water quality. • Safeguards to mitigate any operational impacts upon aquatic environments, riparian habitats and water quality. • Potential impacts on any aquatic threatened species, populations and ecological communities listed under the *Fisheries Management Act 1994* and safeguards to mitigate any potential impacts.	Section 5.3,5.4 Section 5.3, 5.4 Section 5.3,5.4 Section 5.4
	Approvals • Dredging and reclamation. Any dredging or reclamation in a waterway (below the high bank) (e.g. pipeline crossings) will require approval from DPI Fisheries. • Removal or movement of Large Woody Debris (snags) or boulders. Works that involve removal or movement of large woody debris or snags require approval from DPI Fisheries.	Section 2.4 and 5.4. Pipeline crossings of 3rd order or above waterways will be underbored. N/A

Agency	Summary of Comments	Addressed in REF
	• Works within a habitat protection zone. Should any of the proposed works occur below the mean high water level a permit under Cl 1.16 (2)(a) the *Marine Estate Management (Management Rules) Regulation 1999* will be required	N/A- works would not take place within habitat protection zone
	A copy of the REF is requested to be provided to DPI Fisheries for review and comment.	To be considered by ESC
Office of Environment and Heritage (OEH) – **(NB. now DPE-Environment and Heritage)** **including National Parks and Wildlife Service (NPWS)**	**OEH – 16/11/17** The REF should comprehensively cover the potential direct and indirect impacts of the proposal on flooding, water quality, impacts in river/estuary health, biodiversity and Aboriginal cultural heritage. An Aboriginal Cultural Heritage Assessment (ACHA) report will be produced for the proposal. The ACHA report will consider the geotechnical report as well as the construction works for the rising main. This ACHA and the need for any formal Aboriginal Impact permit (AHIP) to be issued under the *NPW Act 1974* should be referred to South East Regional Operations Division at the Office of Environment and Heritage Office. **NPWS - 30/04/18** For the main project of the pipelines an REF should be prepared to carry out the environment assessment required under *Part* 5 *of the EP&A Act 1979.*	Section 5.3, 5.4 and 5.6
Environment Protection Authority (EPA)	<u>Water pollution – overflows from new pumping systems</u> For new (sewerage) reticulation systems, EPA considers that a combination of design, construction, contingency planning and long-term maintenance should result in a system where overflows occur only in exceptional circumstances. Accordingly, the REF must demonstrate that the reticulation system would be designed and constructed so that:	Section 4.4

Agency	Summary of Comments	Addressed in REF
	• Overflows from the reticulation system do not occur as a result of a failure to operate and maintain any part of the system in a proper and efficient manner. • Wet weather overflows from the reticulation system are minimised. It is also important that new sewerage reticulation developments are designed to allow for extensions to the reticulation system which would not adversely affect the performance of the existing system. The REF should demonstrate that the licensee has in place procedures to ensure the appropriate construction, inspection and testing of the new system components. The REF must demonstrate that the design and operation of the proposal is consistent with the document "Licensing Guidelines for Sewage Treatment Systems" (NSW EPA, 2003). <u>Water Pollution - General</u> The EPA considers that particular care and attention must be placed in the design and operation of the proposal as the receiving waters, the Clyde River, form part of the environmentally sensitive and high conservation value Batemans Marine Park. The EPA also considers that through appropriate environmental assessment and planning, and the implementation of best management stormwater and sediment and erosion control practices, maximum protection of water quality can be achieved. Sediment and erosion control management must be carried out to ensure that any discharge from the site complies with Section 120 of the POEO Act. The environmental assessment should present all of the pollution control measures employed at the site (such as sediment curtain placement etc), any operational procedures, any operational procedures that would be required to prevent the pollution of waters and must also demonstrate that the measures are consistent with the 'Blue Book'. <u>Waste</u> Any waste generated during the project should be assessed in accordance with the Waste Classification Guidelines (EPA, 2014). Any waste that cannot be re-used or recycled must be transported to a place	Section 2.2.6, 4.4, 5.3 Section 5.3 Section 5.11

Agency	Summary of Comments	Addressed in REF
	that can lawfully accept such waste for disposal in accordance with the POEO Act and the *POEO (Waste) Regulation 2014.* <u>Noise Pollution</u> Noise generated during the construction phase of the project must be managed in a manner consistent with the principles stated in the NSW Industrial Noise Policy (NSW EPA, 2000). The amenity of residents adjacent to the site must be considered. <u>Air Pollution (including dust)</u> The management of dust around the construction sites and premises once operational is required to reduce the potential for the pollution of waters or impact on amenity of adjacent residents. <u>General Information – Construction Activities</u> The EPA emphasises that the proposal area is within the Batemans Marine Park. In this regard, all activities must be carried out with due diligence, duty of care and in accordance with best management practices. The proponent must be aware of the strict liability provisions of the POEO Act, particularly section 120 of the Act which prohibits the pollution of waters. In this regard, all personnel involved in the works for the proposal should be aware of the details of the works plans, legislation and associated pollution controls and the environmental sensitivity of the receiving waters before any works commence.	Section 5.8 Section 5.9 Section 5.3
Essential Energy	Essential Energy's records indicate there is electricity infrastructure located in close proximity to the proposal. Any activities must be undertaken in accordance with the latest industry guideline currently known as *ISSC 20 Guideline for the Management of Activities within Electricity Easements and Close to Infrastructure*.	Section 5.2 and 5.14

Agency	Summary of Comments	Addressed in REF
	Given there is electricity infrastructure in the area, it is the responsibility of the person/s completing any works around powerlines to understand their safety responsibilities. The *Code of Practice – Work near Overhead Power Lines/Underground Assets* provides guidance when working close to electricity infrastructure.	Section 2.3

3 Need for the Proposal

This section provides the need and justification for the Proposal.

The village of Nelligen is currently served by rainwater tanks for its potable water supply and on-site sewerage systems for its wastewater services. ESC is proposing to provide reticulated potable water supply and sewage collection and transfer systems to improve the quality, security and reliability of the water supply and wastewater management services for the Nelligen village.

The construction of the water supply and sewerage scheme infrastructure including the trunk mains and SPS, water supply reservoirs and village reticulation works all form part of the Nelligen Water Supply and Sewerage Scheme Project works. The trunk water and sewer mains, SPS and reservoir works are subject to a separate approval and are not assessed within this REF.

3.1 Option Assessment

The Nelligen Water and Sewerage Strategic Options Report (PWA, 2016) considered options for the implementation of reticulated water services for Nelligen.

The two potential options for provision of water supply to Nelligen included:

- Option 1 – Extract and treat water from the Clyde River.
- Option 2 – Connect to the Existing Bateman's Bay Water Supply System.

The two potential options for provision of a reticulated sewerage system to Nelligen included:

- Option 1 - Sewerage Collection System - Sub-options for the provision of a collection system included either a gravity based sewage collection system, a pressure-based system or a hybrid system including both pressure and gravity-based collection methods.
- Option 2 - Sewage Treatment and Effluent Management - The sub-options for treatment included a small STP at Nelligen or transfer back to the Batemans Bay system via a booster SPS. Effluent management options briefly considered included release to the Clyde River, onsite irrigation) or transfer to Batemans Bay.

3.1.1 Preferred Options

Water Supply System

Option 1 was discounted as water from the Clyde River at Nelligen has high salinity and would require the construction and operation of a reverse osmosis plant to treat the water to satisfy the Australian Drinking Water Guidelines (ADWG) water quality requirements. This option would involve a high capital cost and require the construction of significant power supply infrastructure, land acquisition, high operation and maintenance requirements, and ongoing management and disposal of a highly concentrated brine effluent stream.

Option 2, consisting of the construction of a new water supply reservoirs at Bay Ridge and Nelligen, was therefore identified as the preferred solution. This option also comprises a new pipeline between Batemans Bay and Nelligen along the Kings Highway and under the Clyde River for connection to a new water reticulation network in the village.

Sewerage Scheme

A hybrid of the two options was selected for the sewerage scheme. The preferred option included a pressure sewer collection system for the village, where each property would be provided with a pressure pump unit in its own small tank. Sewage would be transferred via a rising main for treatment at Council's existing Batemans Bay STP. This option involved pumping wastewater from Nelligen to an existing SPS at North Batemans Bay via a new booster SPS at Nelligen.

Due to a number of factors including a lack of available land downstream of the town and the high environmental sensitivity of the Clyde River, which has oyster leases downstream, local treatment and discharge to the river was not favoured.

Local treatment with onsite irrigation would have required ESC to purchase significant land to site an STP and irrigation system, as well as provide sufficient buffer to surrounding properties and there would still be the need to discharge into the Clyde estuary when it was not feasible to irrigate land. As transfer back to Batemans Bay was an available option, this option was not favoured.

4 Description of the Proposal

This section provides a description of the Proposal which is assessed in this REF.

4.1 Overview of the Proposed Works

The proposed works include the provision of reticulated water supply and sewerage systems for the village of Nelligen.

Potable water would be provided to Nelligen by connecting to the existing Eurobodalla water supply scheme via a new reticulation system in the village.

The provision of the new sewerage scheme to Nelligen would involve the installation of a pressure-based sewage collection system in Nelligen village and transfer back to the Batemans Bay sewerage system.

4.1.1 Water Supply System

The following infrastructure components would be constructed for the water supply scheme as part of the Proposal works:

- A reticulation pipe network in the Nelligen village;
- Associated scour pits, air valves, stop valves, hydrants, non-return valves etc; and
- On-property service connections (pipe).

4.1.2 Sewerage System

The proposed sewerage scheme infrastructure would include the following as part of the Proposal works:

- A sewage reticulation (collection) pipeline system in the Nelligen village; and
- Approximately 6 km of pressure mains incorporating on-property collection systems comprising pipe service connection, grinder pump and holding tank at residences/ commercial premises in the village.

The water and sewer transfer mains crossing of the Clyde River at Nelligen have been installed via directional drilling as part of the new Nelligen Bridge works undertaken by TfNSW contractors under a separate construction works project. The pipes were installed at the same time as other service connections for the town within the scope and footprint of the TfNSW construction works for the new Nelligen Bridge and is therefore, outside the scope of the proposed works for this Proposal.

4.2 Population and Design Loading

4.2.1 Population and Tenements to be Serviced

According to the 2016 ABS Census, Nelligen has the following:

- 141 occupied lots
- 56 vacant lots
- 197 total lots

- 332 normal population (non-holiday)

Nelligen also has a large caravan park, a hotel with convention facilities and a small motel located in Nelligen. Nelligen also has significant holiday loading with peaks at Christmas and Easter periods.

Tenements to be serviced are all within the current Nelligen village residential area The Proposal includes servicing all existing tenements including vacant lots.

4.2.2 Design Criteria

The following design criteria has been adopted for the water and sewerage scheme:

- Peak occupancy rate of 3.5 Equivalent Persons (EP) per tenement for residential tenements and 4 for non-residential tenements
- Peak Day Demand for water of 1200 Litres(L)/Equivalent Tenements(ET)/day(d) and Peak Instantaneous Demand of 0.10 L/second
- Minimum water pressure required at property connection is 20 m, and maximum static head is 80.
- Sewage load per EP of 180 L/d

4.2.3 Design Flows for Water Supply

The design flows for the water supply system are the Peak Day Demand (PDD) which is used for sizing of the transport system including the service reservoir and the Peak Instantaneous Demand (PID) which is used for the sizing of the village reticulation system. Design demands for the Proposal are shown in Table 4-1 below.

Table 4-1 Design Flows – Water Supply

Lot Type	ET	PDD (kL)	PID (L/s)
Current			
Residential	138	165.6	13.8
Non Residential - Hotel	12	14.4	1.2
Non Residential – Caravan Park	45	54	0.6*
Non Residential – Motel	8	9.6	0.8
Total	**203**	**243.6**	**16.4**
Ultimate			
Residential	175	210	17.5
Non Residential - Hotel	12	14.4	1.2
Non Residential – Caravan Park	45	54	4.5
Non Residential – Motel	8	9.6	0.8
Non Residential - Future	60	72	6
Total	**300**	**360**	**30**

4.2.4 Design Flows for Wastewater

Anticipated sewage flows as calculated for Nelligen for the Proposal are as shown in Table 4-2 for the village pressure sewer system (PSS) and gravity transfer sewer system.

Table 4-2 Design Flows – Wastewater

				PSS	Gravity System	
Lot Type	**ET**	**EP (peak)**	**ADWF (L/s)**	**PDWF (L/s)**	**SA**	**PWWF (L/s)**
Current						
Residential	138	483	1.01	3.02	6.07	9.09
Non Residential – Hotel	18	72	0.15	0.45	0.06	0.51
Non Residential – Caravan Park	68	272	0.57	1.40	2.03	3.73*
Non Residential – Motel	12	48	0.10	0.30	0.06	0.36
Total	**236**	**875**	**1.82**	**5.17**	**8.22**	**13.69**
Ultimate						
Residential	175	612.5	1.28	3.83	7.70	11.53
Non Residential – Hotel	18	72	0.15	0.45	0.06	0.51
Non Residential – Caravan Park	68	272	0.57	1.40	2.03	3.73*
Non Residential – Motel	12	48	0.10	0.30	0.06	0.36
Non Residential – Future	27	108	0.23	0.68	0.06	0.74
Total	**300**	**1113**	**2.32**	**6.66**	**9.90**	**16.87**

Note: ADWF – average dry weather flow, PDWF - peak dry weather flow, PWWF - peak wastewater flow, SA- storm allowance

4.3 Water Supply System

4.3.1 Village Water Supply Reticulation Network

The Nelligen service reservoir transfer main located along the Old Nelligen Road reserve would connect with the village reticulation system. The reticulation system would comprise approximately 7 km of 100, 150 or 200 mm PN16 PVC-O pipework. The majority of the reticulation pipelines would be constructed via horizontal directional drilling (HDD) method with some sections by open trench method within the road reserves of the village. A crossing of the Kings Highway would be required to connect the Nelligen Caravan Park site to the village reticulation system, the road crossing would be constructed via thrust boring method. The indicative alignment and plans of the Nelligen village reticulation network alignment are provided in Figure 4.1and Appendix E, respectively.

4.4 Sewerage Scheme

4.4.1 Village Sewer Reticulation and Collection System

The sewer transfer main would connect with the village via approximately 6 kms of sewer reticulation network pipelines of various sizes between 50 and 125 mm (PE100, PN16 PE pipes) located the Nelligen village. The sewer reticulation mains would be constructed via open trench method and HDD within the road reserves of the village and connect to pressure sewer systems installed at residential properties in the village. One crossing of the Kings Highway would be required to connect the Nelligen Caravan Park site to the village reticulation system, the road crossing would be constructed via thrust boring.

Survey plans of the Nelligen village sewer reticulation network alignment is shown in Figure 4.1 and provided in Appendix E.

Pressure Sewer System

Under this system, each property in Nelligen is provided with a pressure pump unit in its own small tank. The village would be served with a network of low pressure sewer mains connecting all pump units. The village mains alignment is shown in Figure 4.1. Council would own and operate the pump units but each property would be required to pay the power costs of running the pump (PWA, 2016).

Isolation valves would be installed at each major pressure sewer collection main tee and flushing facilities would be located at the upstream end of each pressure sewer street main 50mm or larger and every 500 meters interval along the street main. Flood prone areas will have special installation requirements to prevent uncontrolled stormwater discharge into the system (Pressure System Solutions (PSS), 2018).

Individual Pump Units

A pressure sewer system has a grinder pump located inside a holding tank (pump/tank unit) and a boundary box located at every property. The dwellings are connected to the tank inlets via conventional house drains. Each residence would have its own pump/tank unit. The pump unit would typically be located between the house and the existing septic tank and would intercept the existing household sewer line.

At a pre-set level in the tank the pump activates and any solids are ground and then pumped to the pressure sewerage reticulation system. The sewer pressure mains would be located in the street and a small diameter main pipeline would connect the pump/tank unit on each property to it (PWA,2016).

A typical pressure sewer installation for a single dwelling is shown in Figure 4.2 and Figure 4.3 shows a layout of a typical installed pressure unit. Each time the grinder pump is activated, the majority of the contents of the holding tank are removed. In a completely pressurised collection system, all the piping downstream from the grinder pump (including laterals and mains) will be under pressure (45m or less).

Each grinder pump station includes a control panel suitable for wall or pole mounting in an obvious location such as adjacent to a building switch board. The pump units are wired into household switchboard. An audio and/or visual alarm beacon is included to warn of failure.

The recommended pipe and fittings material for the pressure sewerage collection system is black with a cream stripe PE100, PN16 polyethylene complying with WSA PS-207S. Fittings shall be PN16 electrofusion complying with WSA PS-208S (PSS,2018).

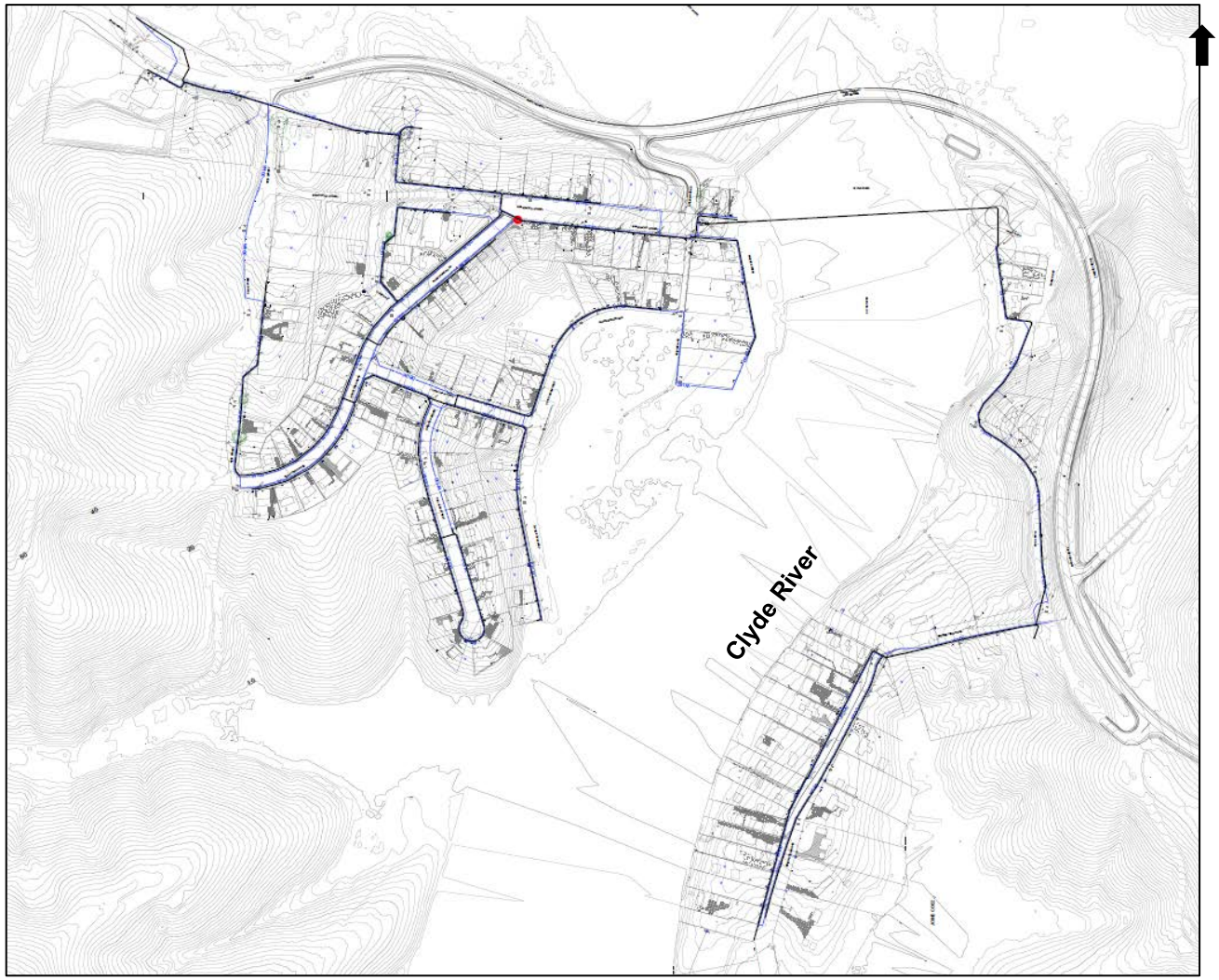


Figure 4.1 Water supply and sewer collection and reticulation mains alignment within the Nelligen village area.

Source: Pressure System Solutions, 2022

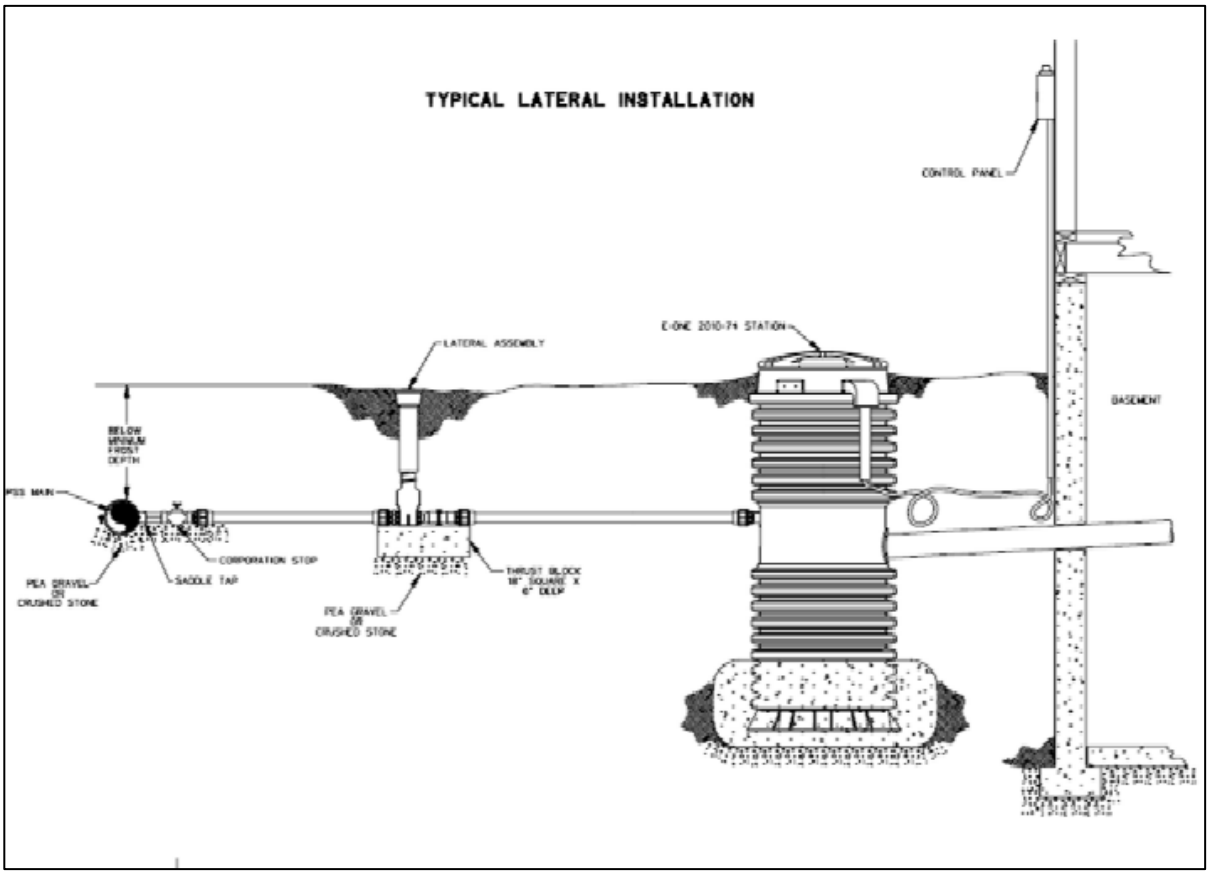


Figure 4.2 Domestic Installation for Pressure Sewer

Source: PWA, 2016

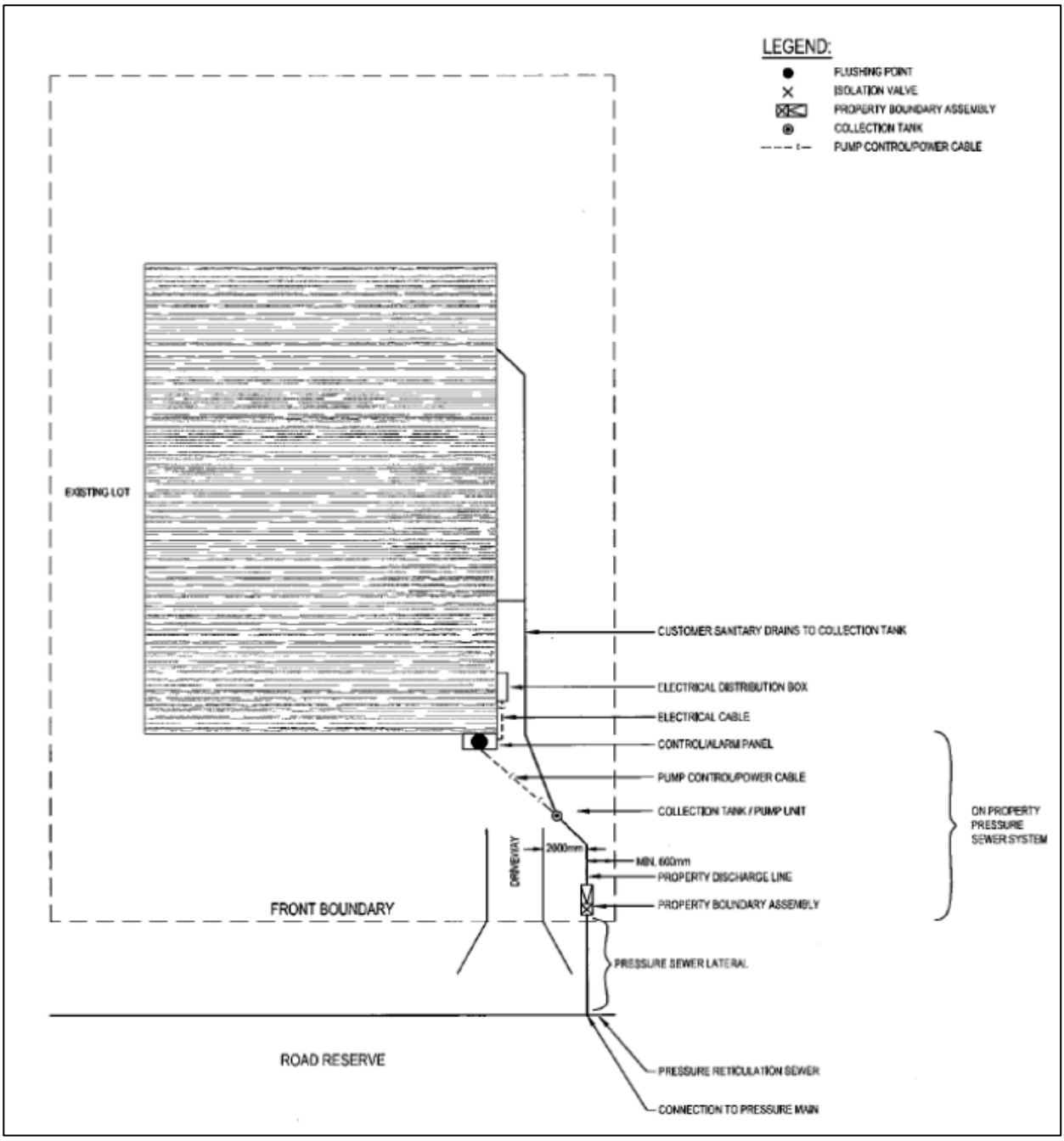


Figure 4.3 Typical Domestic Design Layout for Pressure Sewer
Source: PWA, 2016

4.5 Construction Methodology

The proposed construction methodology would be dependent on several factors including the contractor's chosen method, equipment, and program. A construction methodology has been predicted based on previously constructed similar sized projects.

Works are anticipated to commence in November 2023 with a construction period of approximately 14 months.

The general methodology for the Proposal works is likely to involve the following steps:

- Establish environmental and traffic controls
- Establish worker compound, storage and set down areas
- Clearing of groundcover/ vegetation (as required)
- Excavate trenches/wells
- Stockpile excavated topsoil separately
- Backfill using excavated soil and topsoil.
- Restore disturbed areas
- Remove environmental controls only once the site is stabilised

For the section of the pipeline which would be underbored, a general construction sequence would generally be as follows:

- Establish environmental controls
- Set up boring machine and ancillary equipment
- Bore
- Commence pipe pull back process
- Test pipeline
- Remove drilling rig and ancillary equipment
- Dispose any excess drilling fluids and spoil
- Restore site

Generally, pipeline excavations should be readily achievable using conventional equipment such as a backhoe or excavator. A large hydraulic excavator may achieve depths of up to 1.5m/2m with occasional assistance from a rock breaker.

Restoration of disturbed surfaces to pre-construction condition would be undertaken for all ground disturbing works. Across the classified roadway (Kings Highway), construction of the reticulation mains would be undertaken by directional drilling.

Construction Compound

One site in Nelligen has been identified by ESC as a potential location for a construction compound and/or laydown site. The site is within a private property located at 43 Reid Street, Nelligen within Lot 83 DP 755969, as shown in Figure 4.4. This site would be accessed via Runnyford Road.

The site would be fenced to prevent unauthorised access and adequate sediment and erosion controls would be installed at the site for the duration of works.

The contractor would have to negotiate with the property owner to request use of the site for a construction compound. Council has not consulted with this property owner.

Figure 4.4 View of the potential compound/laydown site located at 43 Reid Street, Nelligen

Source: ESC 2023

4.6 Construction Environmental Management

Construction of the Proposal would be undertaken in accordance with a Construction Environmental Management Plan (CEMP) that would be prepared by the construction contractor/s and approved by ESC prior to commencement. The CEMP would incorporate all of the mitigation measures identified in this REF as well as management of the full extent of the works including any site compounds to be established for the construction works, any conditions of approval and any other licence/approval conditions. The CEMP would also incorporate an emergency response plan in case of a pollution incident, a complaints handling procedure and a 24-hour telephone contact number. The complete list of the mitigation measures recommended in this REF is provided in Section 6.

5 Environmental Assessment

This section identifies and characterises the existing environment, the likely potential impacts associated with the construction and operational phases of the Proposal and any associated mitigation measures. Where considered necessary, feasible mitigation measures are identified for implementation as part of the proponent's environmental management.

5.1 Assessment Methodology

The key objectives of this assessment are to:

- Identify those facets of the environment likely to be affected by the Proposal during construction and operation;
- Identify the sensitivity of the site;
- Identify and characterise the associated impacts; and
- Identify and evaluate feasible mitigation measures for the identified impacts.

Environmental issues of potential relevance to the Proposal include:

- Land use
- Geology, soils and water
- Biodiversity
- Bushfire
- Heritage (Aboriginal and historic)
- Noise and vibration
- Air quality
- Traffic and access
- Waste management
- Hazards and risks
- Visual amenity
- Utilities and infrastructure

5.2 Land Use

The proposed Nelligen village reticulated water supply system and sewage collection system works would be located within both private property and along existing road reserves within the Nelligen village. The subsurface pump and tank collection units associated with the sewage collection system would be installed within the front yards of properties, generally between the existing septic tanks and the house. The village area is generally flat to moderately sloped land, ranging from 10 m to 30 m above sea level.

Adjoining land uses along the pipeline alignment include developed residential areas, recreational space (oval) and waterways (refer to Figure 1.1 and Figure 1.2). The majority of

the Proposal area is highly modified land that has been cleared of native vegetation and comprises a mix of exotic and hardy native groundcover.

A potential laydown and/or compound site has been identified for temporary use during the construction works. The site is located at 43 Reid Street on private land (within Lot 83 DP 755969). Both potential compound/laydown sites comprise previously disturbed land, cleared of native vegetation.

Overall, the Nelligen water supply and sewerage system Proposal area is generally disturbed due to previous residential and infrastructure development impacts, and has been highly modified and cleared of native vegetation. Previous ground disturbance in the Proposal area is likely to be variable, ranging from deep to shallow disturbance, with this area having experienced high levels of previous impact primarily in the form of road verge clearance, deep earthworks and trenching events, and residential construction within the Nelligen village area.

5.2.1 Impact Assessment

The area of the proposed Nelligen water and sewerage scheme works is subject to a number of land uses and ownership. Much of the village reticulation and sewer and water mains pipelines and ancillary works would be located within Council-owned road reserves. Works within the Kings Highway, Thule Road and Bridge View Road are under TfNSW control and therefore would require TfNSW concurrence prior to the commencement of works. In addition, two short sections of the reticulation mains would be located within Crown land. Works within Crown land is permissible under the provisions of the LG Act as ESC is the designated sewerage and water supplier for Nelligen. However, it is recommended that concurrence is sought from DPE- Crown lands the works within Lot 7013 DP 1052890 (Reserve No. 15646) and that Council apply for concurrence for the works or alternately apply for transfer of the unformed Crown road reserve off Braidwood Street (a section of Murray Street, adjacent to Lot 3 DP 1074847) to ESC control.

The construction contractor would seek an agreement with the private land owner to utilise 43 Reid Street (part Lot 83 DP 755968) as a temporary compound/laydown site prior to the commencement of activities at the property.

Installation of the sewerage scheme on-property collection system (grinder pump located inside a holding tank) would be required in each property that is to be connected to the sewerage scheme. These works may be undertaken within freehold land under the provisions of the *Local Government Act 1993* subject to prior notification, as ESC is the designated sewerage services utility for Nelligen.

Construction works associated with the Proposal would cause some temporary disruption to users/owners of private and adjoining public land, and to the residents and local road users. Due to the temporary nature of the works and the relocation of works as the pipeline construction and property connections progress along the alignment, these impacts are not anticipated to be significant, assuming implementation of the mitigation measures listed below.

Given the proper implementation of the mitigation measure provided in 5.2.2, the impact of the Proposal on land use is unlikely to be significant.

5.2.2 Mitigation Measures

- Prior to commencement of construction activities on private properties, all landowners would be notified under the provisions of the *Local Government Act 1993.* All other necessary notification, approvals, permits, licenses and agreements would be obtained from the relevant landowners/authorities (including DPE- Water, TfNSW, DPE – Crown lands, private property owners).
- Affected landowners and the community would be notified of the potential impact on land uses during construction and any safeguards or mitigation measures that would be implemented during the works.
- No construction activities (e.g. tree clearing, stockpiling etc.) would be undertaken on property adjoining the works areas without prior notification to or approval of the landowner.
- Appropriate security (including temporary fencing), supervision and access controls would be put in place and properly monitored to ensure no access by unauthorised personnel, either to the work area or via the work area to adjoining areas. This should include appropriate measures for the protection of the public where construction works would adjoin areas subject to regular use by the general public (e.g. in the Nelligen village area).
- The contractor would be required to ensure the necessary care and maintenance of property facilities and operations. However, if any damage does occur to property, it would be restored to a condition equivalent to the original condition.
- As operator of the water and sewage reticulation infrastructure, ESC could provide a 24-hour telephone number so that any issues relating to the operation of the new infrastructure can be clarified and complaints dealt with by those able to respond.

5.3 Geology, Soils and Water

The following description of the Proposal area is taken from the geotechnical assessment carried out by PWA for the Project.

Regional Geology

The Ulladulla 1:250,000 Geological Series Sheet SI 56-13 (First Edition, 1966) indicates that majority of the Proposal area is located within an undifferentiated sequence of sedimentary and meta-sedimentary rocks. The sequence is Ordovician in age and comprises siltstone, claystone, sandstone, quartzite and chert. The soil profile is generally thinly developed over the bedrock.

The exceptions to the above are the low lying areas alongside the Clyde River in Nelligen where some unconsolidated Quaternary Alluvial and Estuarine Plain Systems such as Holocene flood plain Holocene levee, Holocene backswamp and Holocene saline swamp occur. These Quaternary units comprise fluvial sand, silt, clay, organic mud and peat.

Acid Sulfate Soils

The Nelligen 1:25,000 Acid Sulfate Soil (ASS) Risk Map (Edition 2, December 1997) (See areas in green in Figure 5.1) shows some areas of ASS risk. The section of the Kings Highway west of Reid Street, fronting and within the Nelligen Caravan Park property, and a small section

of the Highway on the eastern side of the Kings Highway Bridge are classified as having a high probability of occurrence of ASS within 1 metre of the ground surface. A small SPS would be installed at the caravan park property which requires excavation to approximately 3 m depth. As a result, it is anticipated that ASS would be encountered at this location. On the eastern side of the Clyde river, the area of the southern extent and south of Sproxtons Lane is also classified as having a high probability of occurrence of ASS within 1 metre of the ground surface. The map shows these areas as having a severe environmental risk if ASS materials are disturbed by activities such as shallow drainage, excavation or clearing.

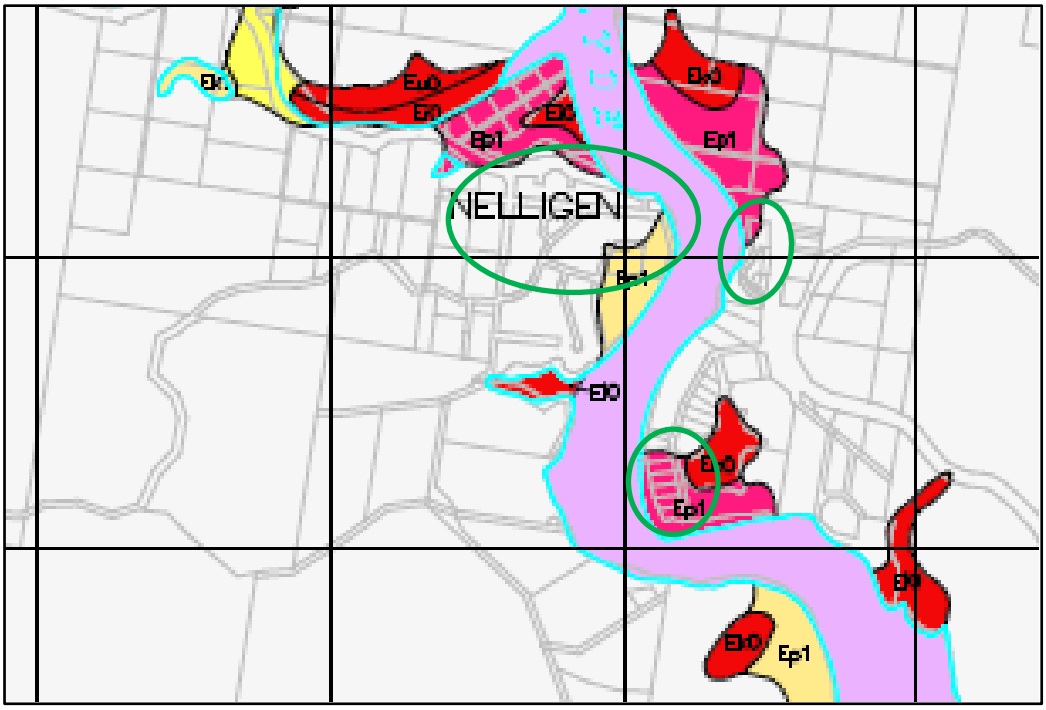
On the western side of the Clyde River at Nelligen and east of Clyde Boulevarde, on Wharf Street and Maisies Lane is a low-lying area that has a low probability of occurrence of ASS within 1 metre of the ground surface. The map shows that ASS are not expected to occur in these areas; however, highly localised occurrences may be found.

These areas of both high and low probability of ASS risk are all estuarine plain landforms with an elevation of between 1 m and 2 m AHD.

The Eurobodalla Shire Council ASS Map (Sheet ASS_010B) also indicates that sections of the proposed reticulation mains alignment lie within Class 2 land (see Figure 2.2). In the Class 2 land, the works below the natural ground surface or the works by which the water table is likely to be lowered, if undertaken, are likely to present an environmental risk.

The remaining parts of the Proposal area is shown as having no known occurrence of ASS under the map class description.

Test results for the laboratory analysis of sediment samples form borehole investigations (PWA, 2021) confirm the presence of Potentially Acid Sulfate Soils (PASS) within sections of the proposed reticulation mains alignments. Therefore, an ASSMP must be prepared for the proposed works.



Map Class Description	Depth to Acid Sulfate Soil Materials	
HIGH PROBABILITY High probability of occurrence of acid sulfate soil materials within the soil profile. The environment of deposition has been suitable for the formation of acid sulfate soil materials. Acid sulfate soil materials are widespread or sporadic and may be buried by alluvium or windblown sediments.	Below water level	Bottom sediments.
		At or near the ground surface.
		Within 1 metre of the ground surface.
		Between 1 and 3 metres below the ground surface.
		Greater than 3 metres below the ground surface.*
LOW PROBABILITY Low probability of occurrence of acid sulfate soil materials within the soil profile. The environment of deposition has generally not been suitable for the formation of acid sulfate soil materials. Soil materials are often Pleistocene in age. Acid sulfate soil materials, if present, are sporadic and may be buried by alluvium or windblown sediments.	Below water level	Bottom sediments.
		At or near the ground surface.
		Within 1 metre of the ground surface.
		Between 1 and 3 metres below the ground surface.
		Greater than 3 metres below the ground surface.*
NO KNOWN OCCURRENCE Acid sulphate soils are not known or expected to occur in these environments		No known occurrences of acid sulfate soil materials.

Figure 5.1 Extract of Nelligen Acid Sulfate Soils Risk Map

Source: Department of Land and Water Conservation, 1997

Water and Flooding

Some sections of the Proposal area are located in the vicinity of the Clyde River, which forms part of the Batemans Marine Park. The proposed works are also located in a proximity zone of several small areas of coastal wetland in Nelligen village (see Figure 2.4).

The Proposal area has not been identified as being located within a flood planning area based on ESC flood planning mapping. Therefore, impacts associated with flooding during construction of operation of the Proposal are not anticipated.

Groundwater

The geotechnical investigations (Public Works Advisory, 2021) found that for the majority of the reticulation alignment within Nelligen village, groundwater was not encountered within the depths of investigation and construction difficulties associated with permanent groundwater are not envisaged over major part of the alignment within the proposed depth of excavation.

Groundwater was intersected in boreholes PS1 (Nelligen Caravan Park), PS16 and PS17 (Maisies Lane) at depths of 1m, 1.8m and 1.4m, respectively. Furthermore, very moist to wet condition were reported within boreholes PS15 (southern extend of Clyde Boulevarde), PS19 (Wharf Street), PS20 (intersection of Braidwood and Murray Streets) and PS22 (Thule Road) from depths ranging between 1.4m and 1.8m.

Groundwater or very moist to wet conditions were encountered within alluvial/estuarine sands and in close proximity of the Clyde River which are expected to be affected by tidal fluctuations.

5.3.1 Impact Assessment

The Proposal would require excavation to facilitate the new reticulation mains and property connections as well as the Kings Highway thrust boring. The majority of pipeline installation in the village would be by HDD requiring a cleared area to set up the drilling equipment at interval approximately 600 m along the pipeline alignments. However, where open trench construction works are required, the trench dimensions for the mains would be approximately 1.25 m deep and 0.5 m wide and within a corridor approximately 5 m wide. It is noted that this is a conservative assumption based on open trench construction methodology.

The excavation and ground disturbing activities proposed to be undertaken during construction have the potential to cause erosion and sedimentation if excavated materials are transported off-site. Therefore, construction erosion and sediment controls and stabilisation following the works would be required for activities in these areas to prevent any impacts off-site, including sedimentation of drainage lines and waterbodies. It should be noted that although a number of mitigation measures to protect water quality have been listed in this REF, further site specific plans and construction details would be included in the CEMP (including an Erosion and Sediment Control Plan (ESCP)) for the works. Although a substantial volume of earthworks are proposed, it is assessed that the impacts can be adequately managed through the implementation of appropriate mitigation measures and therefore the overall impact is assessed to be low.

In addition to HDD, the Proposal involves thrust boring (underboring) of the Kings Highway and potentially some small additional sections of the reticulation mains. Bentonite, used to transport the cuttings, cool the drill bit and to seal and support the drilled hole is likely to be

used which will generate a slurry. Bentonite is a naturally occurring clay which is self-sealing and therefore used as a lining material to seal any cracks which may result from the drilling process. The use of drilling fluid could potentially result in soil erosion and waterway contamination if it is not contained onsite. Drilling fluid would be recirculated and any loss of fluid would adversely affect drilling operations; therefore any loss in pressure and fluid ceasing to be pumped to the drill head would be immediately apparent to the drilling rig and operations would cease. Appropriate management measures would be implemented to ensure drill waters are appropriately recycled and contained onsite such as through the use of holding tanks.

The proposed HDD construction of the reticulation mains and thrust boring drilling of the Kings Highway has been designed such that the entry and exit points of the drilling would either be beyond the limits of the mapped coastal wetlands, or within highly disturbed areas, such as road reserve that does not support wetland vegetation. Therefore, disturbance to wetlands or the bed or banks of the Clyde River is highly unlikely.

Some water runoff is necessary during the drilling process; however, by-product sludge will be removed from the site with the use of a vacuum sucker truck. There is potential for the drilling to encounter acid sulphate soils (ASS) in some areas of Nelligen village, most likely in west Nelligen at the Kings Highway crossing, Wharf Street, Maisies Lane and Lot 1 DP 134253 and Sproxtons Lane in the east Nelligen area. Any ASS or PASS that are encountered would be removed via a vacuum sucker truck. The site where the sludge is disposed of would require bunding and appropriate treatment until the sludge is considered to be safe for disposal or re-use. The proponent or the drilling contractor should be required to prepare sediment control and acid sulphate soil management plans. It is anticipated that ESC has designated disposal areas for drilling sludge at their sewage treatment plants, which could be utilised for appropriate disposal of drilling waste. This would be confirmed by ESC.

In addition, as part of the construction process, the potable water supply reticulation pipelines would be disinfected with chlorinated water. To manage the wastewater from this procedure, the Contractor would prepare a management plan for the disposal of the chlorinated water from reservoirs and water mains to avoid any potential impact on nearby waterways.

Mitigation measures listed in Section 5.3.2 of this REF for protection of aquatic habitat would assist to minimise any adverse impacts to water quality, including water courses, wetlands and the Batemans Marine Park, as a result of these works. Appropriate mitigation measures would also be implemented in the event of accidental spills of fuel and other materials from vehicles and machinery.

Groundwater

The groundwater depth in the proposed works area has been established as part of geotechnical investigations undertaken by PWA (2021), with groundwater management required as follows. In general, the geotechnical investigation indicates that groundwater is not expected to be encountered in areas where meta-sedimentary bedrock was encountered at shallow depth. In lower-lying areas in Nelligen where deeper Holocene sediments were encountered, groundwater is expected at depths ranging from 1 m to 2 m below existing surface levels, based on the program of borehole drilling.

Depending on groundwater depth, some dewatering may be required during construction works, particularly if the construction is preceded or carried out during prolonged wet weather periods.

Where groundwater is encountered during the construction works, it would need to be managed so that it does not result in pollution, including sedimentation. Groundwater devoid of sediment or contaminants would be disposed of in a way that does not cause erosion.

Assuming appropriate safeguards and mitigation measures are implemented, the development is not anticipated to cumulatively contribute to an adverse impact on groundwater. If dewatering is required, groundwater devoid of sediment or contaminants (including ASS) would be disposed of in a way that does not cause erosion. Groundwater may need to be suitably settled (i.e. using baffle tanks or similar) or filtered prior to being dispersed of over vegetated ground surfaces. Therefore, no adverse impacts to water quality are anticipated due to these works.

Acid Sulfate Soils

The Nelligen Acid Sulfate Soils Risk Map and the geotechnical investigations soil sample laboratory analysis (PWA, 2021) indicates that ASS may potentially be encountered in Nelligen at the Kings Highway west of Reid Street, within and fronting the Nelligen Caravan Park property and east of Clyde Boulevarde and Maisies Lane on the western side of the Clyde River and along southern Sproxtons Lane and within Lot 1 DP 134253 on the eastern side of the Clyde River. Therefore, an Acid Sulfate Soils Management Plan (ASSMP) would be required, including screening and testing during construction for these areas.

Any water encountered in areas potentially containing ASS would be managed in accordance with the contractor's ASSMP prepared as part of the CEMP.

Operation

Operation and maintenance of the new water supply reticulation mains may occasionally involve scouring (de-silting) as necessary, for example after a main break. In the event that scouring is required, pollution of the environment would be prevented by collecting and disposing of silt and sediment laden water appropriately. It should be noted that the potable water supply will be provided from a water treatment plant and therefore will be filtered water. Furthermore, the sewer main scour operation involves use of a pump out pit; as such, there is no potential for discharge to the environment. Therefore, the operation of the pipelines are unlikely to result in adverse impacts to water quality.

Flooding

The village reticulation pipelines would be installed below ground via HDD, with some areas of open trench installation and thrust bored across TfNSW and main roadways. All pipeline excavations would be designed to minimise impacts and to minimise erosion and siltation, in accordance with survey and geotechnical investigations for appropriate depths of excavation. Therefore, it is considered that no operational flooding impacts would occur.

5.3.2 Mitigation Measures

- All personnel involved in construction works should be aware of the details of the works plans, legislation and associated pollution controls and the environmental sensitivity of the

surrounding receiving waters before any works. All activities must be carried out with due diligence, duty of care and in accordance with best management practices.

- A detailed Erosion and Sediment Control Plan (ESCP) shall be prepared as part of the CEMP. The SWMP would describe the site specific measures to be implemented for all works areas, in accordance with the guidelines outlined in the 2004 Landcom publication *Managing Urban Stormwater: Soils and Construction*, 4th edition ("The Blue Book") and *Volume 2a Installation of Services*. The ESCP would need to be site specific and would need to address the following issues to prevent erosion, sediment loss and water quality impacts:
    - Minimisation of disturbance to soil and water adjacent to, and within, all watercourses in the works area.
    - Identification of site specific sediment and erosion control measures wherever erosion is likely to occur, including around the drilling entry and exit points.
    - Identification of any environmentally sensitive areas on or near construction sites to ensure runoff is diverted away from sensitive areas.
    - Requirements for vegetation clearing to be kept to a minimum.
    - Retention of all surface runoff on-site and where possible stormwater from off site would be diverted around the construction site.
    - Backfilling and stabilising of trenches once pipelines are installed.
    - Location of construction compounds (at least 50m from any drainage lines).
    - Location and management of stockpiles, such as locating stockpiles away from any drainage lines near the works areas.
    - Regular inspection of all erosion and sediment controls, especially when rain is expected and directly after any rain events.
- An Acid Sulfate Soil Management Plan (ASSMP) would be required for those areas in Nelligen identified as containing Potential Acid Sulfate Soils (PASS) and which would be disturbed during construction. This should include screening testing during construction and should be consistent with Acid Sulphate Soils Assessment and Management Guidelines. Appropriate procedures would also be required for groundwater dewatering in those areas affected by PASS / ASS.
- The CEMP would incorporate a pollution incident response management plan that defines appropriate procedures for notification of pollution incidents to the required authorities in accordance with s. 147 to 153 of the POEO Act and requires response actions to be implemented in order to address any risks such as incidents posed to the environment, property or surrounding communities.
- The Contractor will prepare a management plan for the disposal of the chlorinated water from water pipelines during the commissioning process to avoid any potential impact on waterways.

- Workers are to be made aware of the provisions of Section 120 of the POEO Act with regards to water pollution.
- Adequate procedures would be established and detailed in the CEMP, including notification requirements to the EPA, for incidents that cause material harm to the environment.
- A drilling management plan / procedures would be developed as part of the CEMP to detail the appropriate management and disposal of drilling slurry to avoid off site impacts. This would include requirements that:
    - All sludge and drilling medium extracted is to be removed from the site.
    - The site where the sludge would be disposed of would require bunding and appropriate treatment until the sludge is considered to be safe for disposal or re-use.
- A site-specific spill management plan would be prepared and include the following requirements:
    - Emergency spill kits are to be kept at the site (vehicle kits).
    - Refueling of machinery to be undertaken in a dedicated area within the construction compound appropriately protected as outlined in the spill management plan.
    - Any chemicals and fuels are to be stored in a bunded area at least 50 metres from any waterway or drainage line.
    - Any hazardous materials stored on site would be stored in compounds and within impervious and bunded enclosures capable of storing 120% of the volume of material stored there.
    - Workers would be trained in the spill management plan and the use of the spill kits.
- The drill operator must be appropriately experienced and licensed.
- Works should not be scheduled when heavy rainfall is forecast and works involving soil disturbance should not take place during heavy rainfall periods, other than work necessary to stabilise the site.
- Any excess spoil would be removed off site for disposal in accordance with EPA requirements.
- All stockpiles of materials would be protected from scour and erosion.
- Access tracks would be designed so as to provide adequate drainage and stormwater control.
- Any water discharged to the environment should comply with the water quality benchmarks for estuaries of the catchments within the Batemans Marine Park (Clyde River) as expressed in the NSW Water Quality Objectives (WQOs) developed in accordance with the ANZECC 2000 Guidelines on Water Quality.

- Works are considered likely to encounter groundwater in low laying areas of Nelligen village and therefore mitigation measures to manage groundwater would be incorporated into the CEMP, including:
    - Dewatering techniques during excavation;
    - Measures to ensure groundwater quality is not impacted during construction;
    - Techniques to settle, treat or filter groundwater encountered during excavation works i.e. diverting groundwater through baffle tanks or filter membranes; and
    - Appropriate treatment and monitoring regimes in the event that groundwater flows come to the surface, including disposal of groundwater in such a way as to prevent adverse impacts (such as erosion and water pollution). Groundwater should not be discharged to a waterway during construction.
- Where less than 3 ML of groundwater is extracted during the works. The volume of water extracted during should be recorded daily and an aquifer interference activity exemption should be lodged through DPE - Water (NRAR) by the construction contractor on behalf of the proponent on the completion of works (Further information is available at https://www.dpie.nsw.gov.au/nrar/how-to-apply/water-licences/Groundwater). If more than 3 ML of groundwater is anticipated to extracted during the works, an aquifer interference approval would be required from DPE- Water prior to the commencement of works.
- All areas where ground disturbance has occurred would be stabilised following completion of works to ensure there is no erosion hazard and restored to their pre-construction condition. This would involve, where required, reshaping the ground surface, covering it with topsoil excavated from the site and re-establishing an appropriate vegetation cover (this may include respreading dead accumulated or cleared vegetation where possible).
- During operation of the pipelines, any water containing silt and sediment generated as a result of scouring pipelines would be treated (if required) and disposed of as appropriate. Depending on the resultant water quality, this may involve discharge to a waterway or land application. Any water discharged to a waterway or recycled must be consistent with the requirements of the *Protection of the Environment Operations Act 1997*.

5.4 Biodiversity

A Flora and Fauna Assessment for the entire Project including the Proposal area was undertaken by Lesryk Environmental (2022). The following is a summary of the assessment, which is provided in full in Appendix B.

It is noted that the Nelligen village water supply and sewage reticulation network would connect to existing water and sewer transfer mains which have previously been installed by TfNSW under the Clyde River as part of the Nelligen Bridge and Kings Highway realignment construction works. As such, assessment of works involving the subsurface directional drilling of the Nelligen water and sewer transfer mains and other utilities under the Clyde River at Nelligen previously carried out by TfNSW at the location of the Nelligen bridge crossing are outside the scope of the specialist biodiversity assessment carried out for this Project.

Vegetation Communities

The Proposal study area consists of:

- streetscape vegetation
- Rough-barked Apple Woodland

The location of each identified vegetation community in relation to the Proposal works areas and its conservation significance has been provided below. A description of each vegetation community is provided in full in Appendix B.

Streetscape vegetation

This area consists of the cleared and regularly maintained (slashed/mown) road reserves/verges, grasslands, street plantings and landscaped gardens that occur in association with the Nelligen township. This area is of no conservation significance and generally consists of introduced grasses, herbs, forbs, shrubs and trees, though some native plants do occur.

Rough-barked Apple Woodland

Rough-barked Apple Woodland occurs around the Cowper Street area of the Nelligen township. This vegetation community is of no conservation significance.

Threatened Flora Species

Databases searches (NSW and Commonwealth) identified 10 threatened plants listed under the EPBC Act and/or the schedules of the BC Act that have been previously recorded, or are considered to have habitat, in the Project study region (Appendix 2). Based on the consultation of standard texts and vegetation mapping, there is the possibility that the Project area may provide potential habitat for some of these species. Therefore, during the course of the field investigation, efforts were made to target these plants and populations, or occurrences of their necessary vegetation associations.

No threatened flora species, or flora of conservation significance, were detected within the Project study area during the flora and fauna survey. However, based on the presence of suitable habitat, it is considered that the East Lynne Midge Orchid has the potential to occur in areas outside of Nelligen village. Targeted orchid searches were undertaken at five locations (in areas outside of the Nelligen village reticulation works during a period when the orchid was confirmed to be in bloom at nearby reference sites. The orchid was not identified at any of the targeted search locations. To further consider the impact of the Proposal on the East Lynne Midge Orchid assessments that refer to the EPBC Act's Significant Impact Guidelines and Section 7.3 of the BC Act were undertaken as part of the Project assessment.

Threatened Fauna Species

Consultation of the Commonwealth, NSW databases and applicable background data, identified 54 threatened animals listed under the schedules of the EPBC, BC and/or FM Acts that have been previously recorded, or are considered to have habitat, in the Project study region. Based on a consideration of the habitat needs of those threatened species, combined

with the identification of those habitats present within the study area, it was considered there is the potential for some of these animals to occur within, or in the vicinity of, the study area. As such, during the course of the field investigation, targeted surveys for these species, or their necessary habitats, were undertaken.

By the completion of the field investigation two native mammals, 58 native birds, one reptile and three amphibians had been recorded within, or in the vicinity of the Project study area. In addition, several introduced animals were detected.

Of the fauna species detected, two are listed under the Schedules to the BC and/or EPBC Acts, these being the:

- Glossy Black-Cockatoo (*Calyptorhynchus lathami*) – listed as vulnerable under the BC Act.
- Australian Reed-Warbler (*Acrocephalus australis*) – listed as a marine species under the EPBC Act

Theses fauna species were not detected within the Nelligen village reticulation works area.

The remaining native species recorded during the field investigation are protected, as defined by the NPW Act, but considered to be common to abundant throughout the surrounding region. The species recorded would not be solely reliant upon those habitats present within, or in close proximity to, the subject site.

Threatened Aquatic Fauna

As none of the drainage lines present in the Proposal area will be directly disturbed, no habitats for fish species including the Australian Grayling (*Prototroctes maraena*) would be affected by the scope of work proposed.

Fauna Habitats

Three habitat types available to native fauna were recorded within the Proposal area, these being:

- modified environment
- eucalypt woodland

No rocks, rock outcropping, caves, ledges or crevices are present within the study area.

Modified Environment

The modified environment incorporates the majority of the subject site and includes the:

- road reserve areas

This environment dominates the area that would be affected by the scope of work proposed and has been affected by past and present land use practices, including the installation of infrastructure, the maintenance of road verges and the clearing of areas to permit the construction of roads, a bridge, urban and semi-rural developments.

Within this habitat type a mixture of gravel, cleared and regularly maintained (slashed/mown) road reserves/verges are present; consisting of native and exotic grasses with weeds, with the occasional isolated tree to 10 m in height being present; though none were observed to be

hollow-bearing. Cleared and level areas are also present; in addition, regenerating saplings and native shrubs, up to 0.5 m and 1.5 m respectively, are also present at various locations.

A network of two lane suburban roads are present within the area investigated, these being up to about 6 m wide.

Eucalypt woodland

The Proposal area consists predominantly of native woodland, generally with a continuous and relatively uniform canopy, with several stands occurring in proximity to the proposed works at Nelligen township (i.e. Big4 Nelligen Holiday Park).

Adjacent to Kings Highway, within the vicinity of the Big4 Nelligen Holiday Park, a stand of Casuarinas and eucalypts are present; the eucalypts being to about 15 m in height with the occasional hollow being present (hollow diameter 100 mm). The middle-storey layer consists of tall native shrubs and/or small native trees to 10 m, while the understory of native shrubs is to 4 m; both being of a medium to high density. The ground cover consists of saplings, grasses and weeds to 0.5 m.

The woodland on the eastern side of the Clyde River at Nelligen supports trees that are up to 20 m in height, with the occasional hollow-bearing tree observed in the area off Thule Road. The middle-storey is to 15 m, while the understorey is to 4 m in height. The ground cover is open and consists of grasses, ferns, cycads and seedlings. Leaf litter and ground debris is common.

Leaf litter, ground debris and small 100 mm surface rocks are present in several locations.

No hollow-bearing trees were recorded within, or close to, the village reticulation works area.

Aquatic environment

The main water body present within the subject site is the Clyde River; traversing through the north of the subject site at Nelligen. The water and sewer transfer mains cross under the Clyde River at Nelligen (not undertaken as part of the Proposal works).

With reference to DPI mapping of Key Fish Habitat within NSW, the Eurobodalla map indicates that the Clyde River is mapped as Key Fish Habitat. However, the reticulation works would not impact the Clyde River.

Koala Habitat

Within the Project study area, four eucalypt species were recorded, one of which is listed under Schedule 3 of the SEPP Biodiversity and Conservations as a Koala Use Tree, this being Forest Red Gum (*Eucalyptus tereticornis*). Forest Red Gum is considered to comprise less than 15% of the tree canopy in the vicinity of the Project site.

Weeds

Of the introduced plant species recorded during the field survey for the Project, one is listed under Schedule 3 of the NSW *Biosecurity Regulation 2017* (Blackberry *Rubus fruticosus agg. spp*.). With reference to the DPI NSW Weedwise database, this weed, and three further weed species (Bridal Creeper *Asparagus asparagoides*, Asparagus Fern *Asparagus aethiopicus* and

African Lovegrass *Eragrostis curvula*) are also listed as 'priority weeds' in the South East NSW region.

Blackberry, Bridal Creeper and Asparagus Fern are also included on the list of Weeds of National Significance, which is part of a combined State and Commonwealth initiative to combat invasive species.

5.4.1 Impact Assessment

Vegetation Communities

The Proposal has been designed to avoid impacts to undisturbed and remnant native vegetation within the Project study area, and as such, it is not anticipated that the Proposal would significantly impact directly or indirectly on any of the native vegetation communities within the study area. Impacts would be limited to the streetscape vegetation and Rough-barked Apple Woodland vegetation communities which are of negligible conservation significance and are not listed Endangered Ecological Communities under either the BC Act or EPBC Act.

Threatened Flora

The Proposal would not disturb, remove, modify or fragment any habitats critical to the life cycle requirements of the East Lynne Midge Orchid. Therefore, it is not considered that the Proposal would have a significant impact on this threatened species, its population or habitat.

Threatened Fauna

The Glossy Black-Cockatoo is a thinly distributed species in central and south eastern Australia, living in eucalypt woodland and feeding almost exclusively on casuarina fruit. Within its range it is tied to groves of its food trees, *Casuarina* spp. and *Allocasuarina* spp.

During the investigation, no Glossy Black-Cockatoos were observed within the village reticulation works area. However, a number of Glossy Black-Cockatoo feed trees were identified both within, and adjacent to, the general Project study area (as evidenced in the form of crushed Black She-Oak cones).

The Proposal is not considered to have a significant impact on the local status of the Glossy Black-Cockatoo. The work would not remove any significant portions of this species' roosting or breeding sites and no major foraging areas would be significantly affected. The work would not present a barrier to the dispersal or movement patterns of the Glossy Black-Cockatoo. Therefore, it is not considered that the Proposal would have a significant impact on this species or its habitat.

The scope of work proposed would not affect any of the Australian Reed-Warbler's habitat requirements, such that the potential presence of the Australian Reed-Warbler would be adversely affected. As its habitat will not be removed, the undertaking of the Proposal will not affect the short or long term presence of this species.

Threatened Aquatic Fauna

Based on an assessment of those habitats observed in association with the Clyde River, there is the potential (if present in the drainage line) for the Australian Grayling to migrate along the waterway. While this is the case, no habitat for this species will be directly or indirectly

disturbed for the Proposal works. Beyond existing impacts, the scope of work will not fragment or isolate any aquatic habitats or present a barrier to the movement of this, or any other fish, species.

Therefore, the proposed works are not considered to result in any fish species, aquatic-associated animals or their populations becoming extinct in the locality.

Fauna Habitats

The proposed works would predominantly be carried out in modified environment areas which have been affected by past and present land use practices, including the installation of infrastructure, the maintenance of road verges and the clearing of areas to permit the construction of roads, a bridge, urban and semi-rural developments.

The assessment concluded that the Proposal would not have a significant effect on threatened species recorded or potentially occurring, or any areas of their habitats due to the low level of vegetation removal required for the Proposal.

As discussed, numerous hollow-bearing trees were observed at various locations within, and beyond the limits of, the Proposal study area. Whilst this is the case, given the location of these trees, none will be directly or indirectly disturbed for the Proposal.

Aquatic Environment

With reference to the mapping of Key Fish Habitat, beyond existing levels of disturbance and usage, the proposed works would not have a significant impact on the Clyde River or any unnamed creek lines. No areas of aquatic habitat are to be removed, fragmented, isolated, significantly modified or disturbed. Of the Key Threatening Processes (KTP) listed under Schedule 6 of the FM Act, 'Degradation of native riparian vegetation along NSW water courses' is relevant to the Proposal.

Koala Habitat

The Koala use tree species Forest Red Gum is considered to comprise less than 15% of the tree canopy in the vicinity of the entire Project subject site. As such; the Proposal study area does not qualify as Potential or Core Koala Habitat, pursuant to SEPP (Biodiversity and Conservation). No further provisions of the SEPP apply, and the Proposal does not require the preparation of a Plan of Management for the conservation and management of areas of Koala habitat.

Weeds

Where the four priority weed species occur on site, they must be controlled to result in their suppression. This should be done at the commencement of work to avoid the further spread of these species.

Assessments of Significance

An assessment of significance on the criteria provided under Section 7.3 of the BC Act was undertaken for threatened fauna species observed during the survey period or with potential to occur within the Project study area or immediate surrounds. The assessments concluded

that the Proposal would not have a significant effect on the EEC or threatened species recorded or potentially occurring, or any areas of their habitats.

Assessments referring to the EPBC Act's Significant Impact Guidelines that are relevant to EECs, vulnerable and migratory species have been carried out on the threatened species likely to occur on the within the Project study area or immediate surrounds or with potential to be indirectly affected by the Proposal. The assessment concluded that the proposed work would not have a significant effect on the East Lynne Midge Orchid, Greater Glider, Grey-headed Flying-fox, Eastern Osprey or Satin Flycatcher. Therefore, it is considered that these matters do not require referral to the Federal Minister for the Environment for further consideration or approval, nor is the preparation of an SIS/BDAR required.

As the proposed work is not located within the Commonwealth marine area, this being from 3 to 200 nautical miles from the coast, no assessment using the EPBC Significant Impact Guidelines that are relevant to the Commonwealth marine environment has been carried out with regard to the Australian Reed-Warbler, Eastern Osprey and Satin Flycatcher.

With reference to the assessment criteria provided under Part 7A, Division 12, Subdivision 221ZV of the FM Act, it is considered that the Proposal would not have a significant impact on any threatened aquatic species, their populations, ecological communities or habitats. As such, the preparation of a SIS that further considers the impacts of the Proposal on fish is not required.

It is considered that with adherence to the recommendations provided in Section 5.4.2, no ecological constraints to the Proposal proceeding as planned were identified or considered likely to occur. The adoption of the mitigation measures provided below would ensure that the development is undertaken in an ecologically sustainable manner.

5.4.2 Mitigation Measures

- Vegetation clearing should be limited to the minimum required to successfully complete the Proposal.
- Underboring sites should be located within areas previously disturbed and cleared of middle and over storey plants.
- Preference should be given to traversing and driving over ground cover and understorey vegetation, as opposed to clearing it. Traversing this vegetation will permit it to regenerate post-disturbance.
- The works should be planned and staged to ensure that long sections of trench are not left open. If left open overnight:
  - the pipeline trench should be inspected for entrapped animals (such as ground traversing native species – reptiles, frogs, mammals).
  - options to permit entrapped animals to escape (e.g. hessian bags, long branches, 'ladders') should be placed within the trench.
- Vehicles and machinery should be stored and parked in cleared areas away from trees.

- The storage of materials and stockpiling of equipment should occur within sites/areas that have been previously disturbed and cleared.
- Any animals injured during the clearing work should be collected and taken to a local veterinarian or wildlife carer.
- In accordance with the *Biosecurity Act 2015*, listed weeds identified on site must be controlled to result in their suppression.
- Post-development, the pipeline alignments should be regularly monitored to manage any occurrences of weeds and other non-native species.

5.5 Bushfire

The proposed works would traverse areas of land which is identified as bushfire prone, including vegetation category 1, 2,3 and vegetation buffer (refer to Figure 5.2).

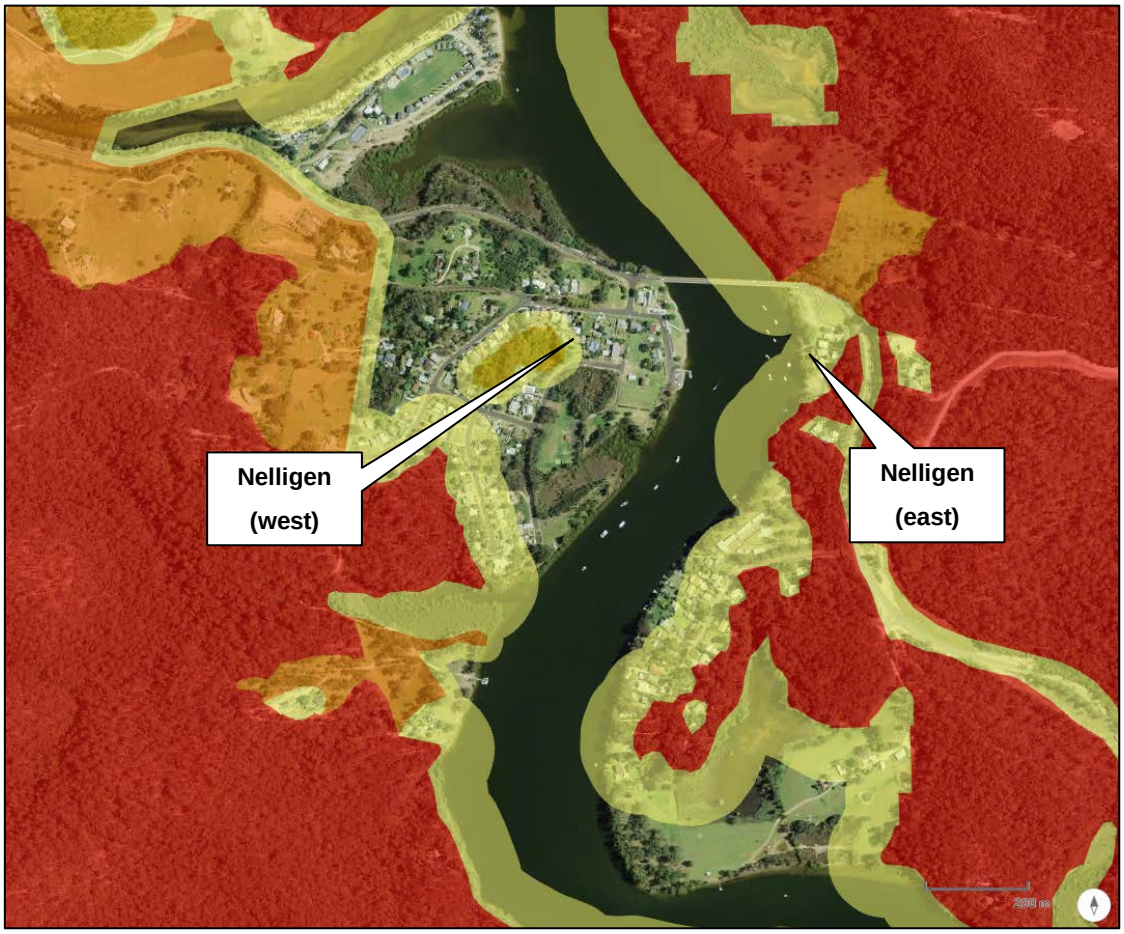


Figure 5.2 Bushfire Prone Land Map for region of the Nelligen water supply and sewerage scheme village reticulation works.
Source: Department of Planning and Environment Planning Portal, accessed April 2022

5.5.1 Impact Assessment

Design of aboveground infrastructure for the water and sewer reticulation networks should take into consideration the potential bushfire risk at the site, in accordance with the relevant principles of the RFS publication *Planning for Bushfire Protection 2019*.

Although the construction activities are not anticipated to pose a significant bushfire risk, mitigation measures listed below would be implemented to ensure that the works do not start a bushfire in grassland and surrounding vegetated areas.

The proposed reticulation pipelines would be installed underground and are therefore unlikely to be affected by bushfire during operation.

5.5.2 Mitigation Measures

- Construction staff to be made aware of the location of the proposed works in bushfire prone land and the potential for bushfire risk.
- During catastrophic to high bush fire danger rating days, no construction activities would be undertaken that pose a risk of starting a bushfire (e.g. welding).
- Design of above ground infrastructure should take into consideration the potential bushfire risk at the site, in accordance with the relevant principles of the RFS publication *Planning for Bushfire Protection 2019*.
- No operational maintenance activities should be undertaken which pose a risk of starting a bushfire during high risk bush fire danger rating days.

5.6 Aboriginal Heritage

An Aboriginal Due Diligence Assessment (2017) and Aboriginal Cultural Heritage Assessment (ACHA) reports (2022), including field surveys, were undertaken by NSW Archaeology for the entire Nelligen Water Supply and Sewerage Scheme Project, including the Nelligen village reticulation area. The findings of the assessments are summarised below and provided in full in Appendix C.

Searches of the Aboriginal Heritage Information Management System (AHIMS) were undertaken on 30 September 2017 and 30 January 2022 in respect of the entire Project study area (AHIMS #304613 and #655053). The searches covered an area of 64 square kilometres, encompassed by Eastings: 239000 - 247000, Northings: 6045000 - 6053000, with a buffer of 50 metres.

The results indicated that there are 92 previously recorded Aboriginal sites located in or near the Project works area. Some of the sites are associated with adjoining areas of predicted moderate to high archaeological potential. The location of the previously recorded AHIMS sites in the vicinity of the Proposal are shown in Figure 5.3 below.

The AHIMS database searches carried out as part of the Due Diligence assessment identified that seven previously recorded sites are in or very near to the entire Project works area. During the field survey, new Aboriginal object sites were found in the Project activity area. However, none of the previously recorded sites were located within or in the vicinity of the Proposal works

area being assessed in this REF and no new Aboriginal object sites were identified within the Nelligen village area during the field survey.

Accordingly, the Due Diligence assessment concluded that an Aboriginal Cultural Heritage Assessment (ACHA) and an Aboriginal Heritage Impact Permit (AHIP) would be required for the Project where Aboriginal sites or objects would be impacted. The AHIP for the Project was granted by Heritage NSW on 10 March 2023. However, none of the Aboriginal sites or objects for which the AHIP relates to are located in the area which would be directly or indirectly impacted by the Nelligen village reticulation works.

A further AHIMS search was carried out on 03 May 2023 by NSW PW to determine whether any new AHIMS sites have been registered within the Proposal works area since completion of the ACHA for the Project. The search confirmed that no new AHIMS sites have been registered with the Proposal area. A copy of this AHIMS search is provided in Appendix C.

Figure 5.3 Location of AHIMS sites in respect of the proposed works in Nelligen village area (red area).

Source: NSW Archaeology, 2022

An ACHA, including field survey, was prepared by NSW Archaeology (2022) and is provided in Appendix C. This was undertaken in accordance with the relevant requirements of the following:

- *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW, 2010)*
- *Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010)*
- *Guide to investigation, assessing and reporting on Aboriginal Cultural heritage in NSW (OEH, April 2011)*

In order to identify, notify and register Aboriginal people who may hold cultural knowledge relevant to determining the cultural significant of Aboriginal objects and/or places in the area of the proposed Project, correspondence dated 10 January 2022 was sent to seven stakeholder agencies and an advertisement appeared in the 12 January 2022 edition of the local newspaper (Batemans Bay Post). The NTSCORP provided a report via email on 14 January 2022 listing the South Coast People as Native Title applicants with a registered interest. In accordance with the Heritage NSW list of known Aboriginal parties for the Eurobodalla Local area (received 24 January 2022), further correspondence dated 31 January 2022 was sent to these parties.

Information about the Project, proposed consultation and assessment methods was forwarded to nine Registered Aboriginal Parties (RAPs) and Batemans Bay LALC on 26 February 2022. One response was received from Thoorga Nura regarding the consultation process and methods documents, who indicated that they had no comments.

The ACHA field surveys were undertaken by NSW Archaeology on 28 October 2017. A further survey was conducted by NSW Archaeology and a Batemans Bay LALC representative on 6 April 2018. A final survey to inform the updated assessment was completed by NSW Archaeology and a Batemans Bay LALC representative on 25 March 2022. The Project area was divided into six Survey Units, the Proposal area comprised Survey Unit 1 (encompassing the village area on the west side of the Clyde River at Nelligen) and Survey Unit 2 (encompasses the village area on the east side of the Clyde River at Nelligen).

The field survey found that the entire Project area has been highly disturbed by previous impacts. Frequently, the landforms have been fundamentally altered by either removal, such as in deep road cuttings, or significant changes due to clearance and erosion or mechanical levelling. These prior impacts have acted to either remove and potential artefact bearing soil profiles or otherwise to disturb them in such a manner as to render their archaeological integrity totally compromised.

No previously identified AHIMS sites are known at the proposed location of the Nelligen Village reticulation works and no Aboriginal objects were found during the field inspection. Ground exposures and archaeological visibility was reasonable so that it is concluded that the absence of artefact recordings is an accurate reflection of the archaeological potential of the Proposal area.

5.6.1 Impact Assessment

Most of the Survey Units in the Proposal area are assessed to be of relatively low archaeological heritage value primarily because of their low density and high degree of previous impacts and disturbance. The exception is the Survey Unit 6 area, which comprised the North Batemans bay area, outside of the Proposal works area. This landform contains highly midden area and human burials.

The Nelligen village survey units were found to be significantly modified by road and drainage works. The installation of the pipework would occur within road verges and adjacent land. Archaeological potential is generally very low to negligible due to the high levels of previous disturbance. Much of the original land surface is excavated, cut and benched or otherwise highly eroded. The Kings Highway area has been modified for the construction works associated with the Clyde River bridge replacement works.

No sections of the Proposal area were identified which warranted further archaeological investigation. The predictions relating to the archaeological nature and potential of the proposed impact areas are made with a high level of confidence.

The ACHA assessment found that an AHIP would be required for works associated with other works components of the Nelligen Water Supply and Sewerage Scheme Project as five Aboriginal object or sites are located within the construction works footprint in areas and would be impacted by other stages of the Project works. An Aboriginal Heritage Impact Permit (AHIP) would not be required for the proposed Nelligen Village reticulation construction works, as no Aboriginal sites or objects would be impacted by the Proposal.

The mitigation measures provided in Section 5.6.2 should be implemented to provide guidance in regard to managing and mitigating potential Aboriginal cultural heritage impacts during construction works.

No Aboriginal cultural heritage impacts are anticipated during operation of the Proposal.

5.6.2 Mitigation Measures

- In the event that potential Aboriginal objects are encountered (including skeletal material), the following Unanticipated Finds Protocol should be followed:

  Unanticipated Finds Protocol:

  - All ground surface disturbance in the area of the finds should cease immediately once the finds are uncovered.
  - The discoverer of the find(s) would notify machinery operators in the immediate vicinity of the find(s) so that work can be halted; and the Principal's Authorised Person would be informed of the find(s).
  - If there is substantial doubt regarding an Aboriginal origin for the finds, then gain a qualified opinion from an archaeologist as soon as possible. This can circumvent proceeding further along the protocol for items which turn out not to be archaeological. If a quick opinion cannot be gained, or the identification is positive, then proceed to the next step.

- Immediately notify the following authorities or personnel of the discovery:
    - Heritage NSW; and
    - Relevant Aboriginal Community Representatives.
- Facilitate, in co-operation with the appropriate authorities and relevant Aboriginal community representatives:
    - The recording and assessment of the finds;
    - Fulfilling any legal constraints arising from the find(s). This would include complying with Heritage NSW directions; and
    - The development and conduct of appropriate management strategies. Strategies would depend on consultation with stakeholders and the assessment of the significance of the find(s).
- Where the find(s) are determined to be Aboriginal Objects, any re-commencement of construction related ground surface disturbance may only resume in the area of the find(s) following compliance with any consequential legal requirements and gaining written approval from Heritage NSW (as required).

5.7 Historic Heritage

The Australian Heritage Database, State Heritage Register and Inventory and Eurobodalla LEP 2012 were reviewed and searched for historical heritage items in the vicinity of the proposed village reticulation pipeline alignments.

Nelligen was developed as a port and river crossing in the mid-19th century and a number of significant historic buildings including a schoolhouse, Court House, Police Station, Post Office, Soldier's Memorial and Hotel have survived in the 'Main Street' area, along Braidwood and Wharf Streets (ESC, 2012). Picket and paling fencing were used historically in the villages' domestic front fences as well as fences in public areas such as around the foreshore park (Giovanelli, 2011) and therefore adds to the distinctive character of the village.

The foreshore area along Wharf Street, which includes the 'Bushrangers Tree' heritage item, is also considered to be of historic significance; however, because of its altered form, the heritage integrity of the foreshore has been lost (Giovanelli, 2011).

A row of mature tree plantings is present along the centre median strip near 11 Braidwood Street comprising exotic pines (see Figure 5.4). These trees were planted in front of the school circa 1940. The trees are a distinctive feature of the village and are reconsidered to be a heritage feature (Giovanelli, 2011).

Thirteen historic heritage items listed under on the Eurobodalla LEP are in the vicinity of the proposed water and sewer reticulation mains and household connections works in the Nelligen village area.

No heritage items listed on the State Heritage Register are located in the vicinity of the proposed works in Nelligen village. A list of the heritage items is provided in Table 5-1 and their locations are shown in Figure 5.4.

Table 5-1 Historic Heritage Listings in Nelligen

Type of Heritage Listing/ Register	Name of Heritage Listing	Item Number	Heritage Significance on Listing	Location
Eurobodalla LEP 2012	Nelligen (Former) Courthouse	I202	Local	15 Braidwood Street, Nelligen Lot 2 Section 4 DP 758762
Eurobodalla LEP 2012	Former Police Station	I201	Local	13 Braidwood Street, Nelligen Lot 5 Section 4 DP 758762
Eurobodalla LEP 2012	Former Schoolhouse	I200	Local	11 Braidwood Street, Nelligen Lot 6 Section 4 DP 758762
Eurobodalla LEP 2012	Soldiers Memorial	I197	Local	Braidwood Street, Nelligen Lot 4 Section 4 DP 758762
Eurobodalla LEP 2012	Former Post Office	I199	Local	Braidwood Street, Nelligen Lot 1 DP519317
Eurobodalla LEP 2012	Mechanics Institute	I198	Local	3 Braidwood Street, Nelligen Lot 5 Section 5 DP 758762
Eurobodalla LEP 2012	Bushranger's Tree	I300	Local	Braidwood Street, Nelligen Lot 7011 DP1055178
Eurobodalla LEP 2012	Old Steam Packet Hotel	I273	Local	5 - 7 Wharf Street, Nelligen Lots 12 and 13 Section 6 DP758762
Eurobodalla LEP 2012	Church of England Cemetery (Former)	I269	Local	28 Braidwood Street, Nelligen Lot 11 DP734504
Eurobodalla LEP 2012	St Joseph's Roman Catholic Church	I204	Local	1 Runnyford Road, Nelligen Lot 100 DP736716
Eurobodalla LEP 2012	Nelligen General Cemetery	I203	Local	Runnyford Road, Nelligen Lot 84 DP1140911
Eurobodalla LEP 2012	Punt Loading Site	I276	Local	Wharf St and Thule Street, Nelligen (Lot 7013 DP1052890)
Eurobodalla LEP 2012	Ferry Masters Residence	I315	Local	23 Thule Road, Nelligen Lot 1 DP 1236685

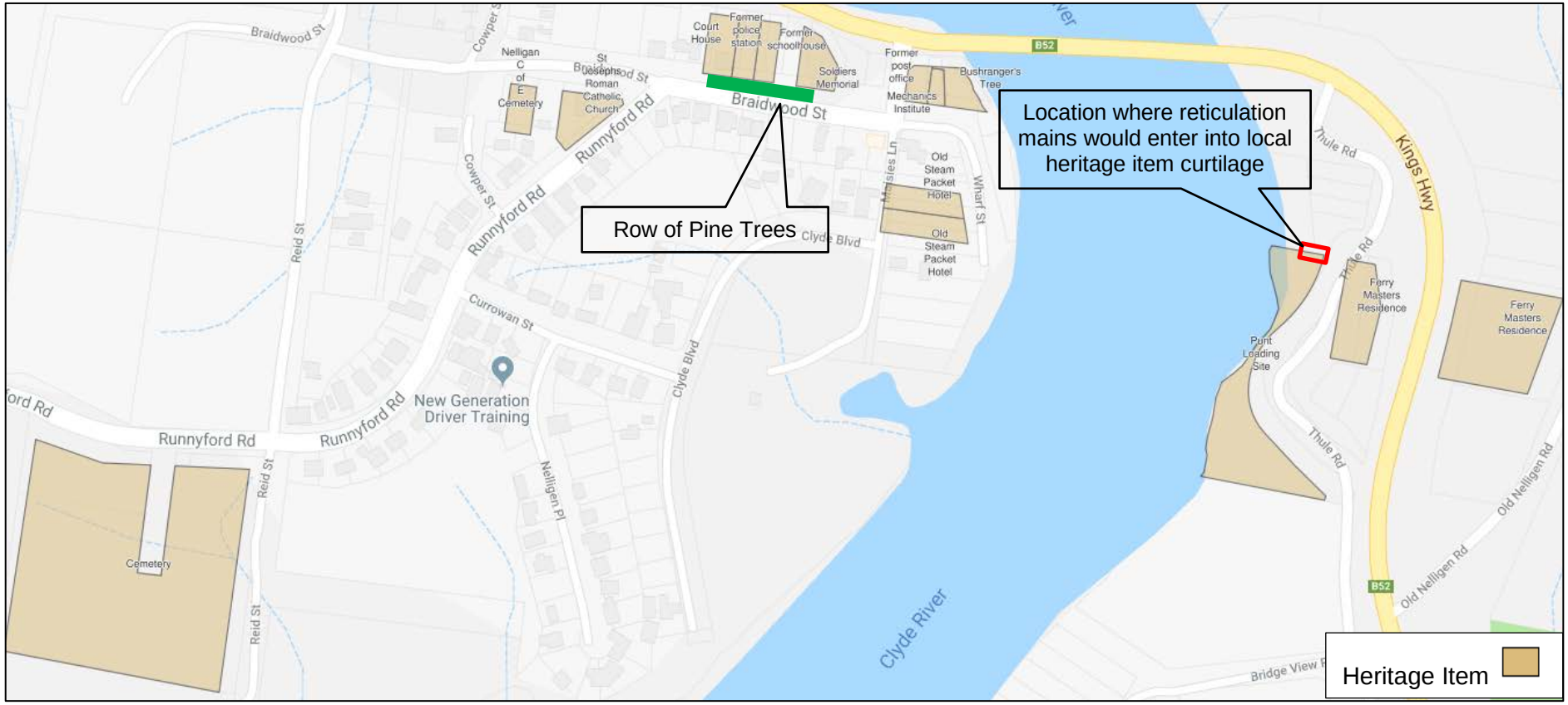


Figure 5.4 Location of listed heritage items under the Eurobodalla LEP 2012 in the Nelligen village area

Source: SEED Portal NSW Government, reviewed August 2022

5.7.1 Impact Assessment

The proposed transfer mains and reticulation pipeline alignments in the Nelligen village area are located in close proximity to 12 listed local heritage items, as summarised in Table 5-1 above. The reticulation mains would traverse the edge of the Punt Loading Site (Item I276) local heritage item curtilage for a distance of approximately 15 m (refer to Figure 5.4). The pipeline alignment would not be located in close proximity to the former punt loading site, comprising a c*oncrete ramp leading down to the water's edge* on the bank of the Clyde River, and as such it would not be impacted by the proposed works. Furthermore, the Heritage NSW database listing for the Punt Loading Site local heritage item suggests that the site has retained limited built heritage value as the ramp is currently used as a boat launching ramp and *the ramp and its context have probably been re-worked since the car ferry service was discontinued, however this occurred several times during the ferry's operational period as well* (Heritage NSW, 2023).

No impacts are anticipated to occur to the listed heritage items within the Nelligen village, as the proposed works for the Nelligen village water and sewer reticulation connections would be subsurface and located in the road reserve adjacent to these properties. Pressure sewer household connections would be located in cleared areas at the front of properties using existing pipeline connections to buildings and the control panel will be placed so that it is not visible to the street where practical. However, vibration should be monitored and minimised during construction works adjacent to listed heritage items in the Nelligen village to avoid inadvertent indirect impacts to the heritage items.

Care should be taken to avoid impacts to the row of mature pine trees located along the median strip in Braidwood Street (see Figure 5.4) and when working adjacent to fences, street furniture and signage in the Nelligen village area, as these items are “of the place” and considered to reinforce Nelligen’s distinctive character (Giovanelli, 2011).

No historic archaeological items are considered likely to be found, as the village area is a mixture of disturbed land and road reserve. However, should any suspected historic heritage items be identified during the works. Works should cease and Heritage NSW

5.7.2 Mitigation Measures

- The CEMP should include a map of all Heritage Items that are located within the proposed pipeline route alignment and within 30 m of the proposed route alignment in the Nelligen village area, as outlined in the REF. As part of an induction, and all workers and sub-contractors should be aware of their responsibilities under the *Heritage Act 1977* and impacts to these mapped heritage items should be avoided.
- On-property collection system control panels should be placed so that they are not visible to the street where practical.
- The contractor shall undertake vibration monitoring during construction works adjacent to identified heritage items which may be susceptible to indirect vibration impacts. If damage risk to the heritage item is identified, vibratory activities should cease and alternative work methods should be implemented so that vibration impacts are reduced to acceptable levels.

- Construction staff would be made aware that archaeological relics are protected under the *Heritage Act 1977*. In the event that any relics are discovered during the course of the works, work would cease in the affected area and a suitably qualified archaeologist consultant and Heritage NSW would be contacted.
- Listed heritage items in the Nelligen village area as shown in Figure 5.4 of the REF, including the row of mature pine trees located along the Braidwood Street median strip, must be fenced off to prevent inadvertent impacts during construction works.
- The remediation of vegetation, trees or landscaping in line with the heritage context of the Nelligen village area will be undertaken in consultation with Council / landowner in accordance with the *Nelligen Village Development Control Plan 2012*.
- Care should be taken when working adjacent to fences, street furniture and signage in the Nelligen village area and impacts to or removal of these structures should be avoided. Any new or replacement permanent public fences required for the works in the Nelligen village area should be built from timber and modelled on historic examples, in accordance with the *Nelligen Village Development Control Plan 2012*.

5.8 Noise and Vibration

The area immediately surrounding the water and sewer reticulation mains alignment comprises low density development in the Nelligen village area.

Noise monitoring was not undertaken as part of the REF, however daytime background noise levels in the Proposal area are likely to be up to 55 dB(A) in residential areas.

5.8.1 Impact Assessment

Construction

The typical A-weighted sound power levels for equipment which may be required to undertake the construction works are listed in Table 5-2 below (it is noted that this list is not definitive and these levels are taken from the *Australian Standard AS2436-2010 Guide to Noise Control on Construction, Demolition and Maintenance Sites*).

Table 5-2 Construction Equipment Sound Power Level

Equipment	Typical Sound Power Levels (dB)	Sound Pressure Level at 30m distance (dB(A))	Sound Pressure Level at 100m distance (dB(A))
Excavator	118	80	70
Truck	117	79	69
Light vehicles	106	68	58
Jackhammer	121	83	73
Rock breaker	118	80	70
Machine mounted drill	116	78	68
Compressor (silenced)	101	63	53
Concrete agitator truck	109	71	61
Hand Tools	102	64	54
Crane (mobile)	104	66	56

Notes: The method specified in AS2436 suggests that errors are introduced for distances greater than 100m from the sound source.

The total duration of construction works is anticipated to be approximately 12 months. However, construction of the village reticulation would progress relatively steadily along the alignment and thereby minimise the duration of any noise and vibration impacts at any one location.

Under the *Interim Construction Noise Guideline* (DECCW, 2009) construction noise criteria for residences where the construction duration is greater than three weeks is the rating background noise plus 10 dB(A). The resultant noise management level for the residential areas would be 65 dB(A) (internal). Based on the typical sound power levels in Table 5-2 and using the methodology in the *Australian Standard Guide to Noise Control on Construction, Demolition and Maintenance Sites* and the *Interim Noise Construction Guideline*, the maximum predicted noise levels at the closest residences during construction may exceed the recommended noise affected level as well as the highly affected noise level (75 dB(A)) above which there may be strong community reaction to noise (DECCW, 2009).

Noise levels would vary depending on the nature of the activities being undertaken. The use of several items of construction equipment simultaneously is only expected to occur

intermittently, if at all. In addition, construction hours would be restricted to the normal daytime construction hours as specified by the EPA and the nature of the works would be temporary. Works would progress rapidly along the alignments and therefore there would not be impacts in the same area for the entire construction duration.

The use of the construction equipment listed in Table 5-2 also has the potential to cause some vibration impacts, although it should be noted that no blasting would be undertaken during the works.

The vibration generated from construction works would vary depending on the level and type of activity carried out at each site during each activity. Potential vibration generated to receivers for the works would be dependent on separation distances, the intervening soil and rock strata, dominant frequencies of vibration and the receiver structure.

Dominant vibration generating plant include:

- Drilling
- Bulldozer
- Excavator
- Compactor
- Truck movements along unsealed roads
- Rock Breaker (heavy)

In some areas along the reticulation pipeline alignments and during sewerage scheme collection unit installation at residences, there is the potential for the nearest affected receivers to be affected by the above listed construction plant.

It is recommended that any required site-specific buffer distances for vibration significant plant items (e.g. vibratory rollers, compactors) be determined on site where works are within 10 -15 m from a building or structure depending on the blow energy used as, unlike noise, vibration cannot be readily predicted.

For any residences located in close proximity to any such works, particularly listed heritage buildings in the Nelligen village area, more accurate buffer distances should be determined on site by measuring vibration emission levels from each plant item prior to its operation or alternative construction methods and equipment are to be used. Control measures to minimise noise and vibration impacts would be implemented during construction for all components of the Proposal as part of the contractor's Construction Environmental Management Plan (CEMP).

Control measures to minimise noise and vibration impacts would be implemented during construction as part of the contractor's CEMP.

The sewerage scheme collection units installed belowground at each property are not anticipated to produce significant noise during operation. Some low-level operational noise would occur during maintenance works. However, maintenance works are not anticipated to significantly impact on nearby residential or other land users.

5.8.2 Mitigation Measures

- Community notification would be undertaken where appropriate and where work is likely to cause vibration or offensive noise and impact the public and nearby residents.
- The contractor is to undertake a risk assessment to identify buildings and structures, particularly in the Nelligan village area with heritage significance, that have the potential to be affected by vibration and then undertake pre-dilapidation survey/report for the heritage structures. These surveys are used to address potential community concerns that perceived vibration may have caused damage to property.
- Works would be undertaken during normal work hours i.e. 7am to 6pm Monday to Friday; 8am to 1pm Saturdays; and no work would be undertaken on Sundays, Public Holidays or outside these work hours without notification to the affected community, Council and EPA. Notification would provide the following details:
    - The locations and types of surrounding receivers likely to be affected;
    - The nature of the proposed works;
    - The noise characteristics of any powered equipment likely to be used;
    - Measures to be taken to reduce noise emissions; and
    - Any other information Council/ EPA may request.
    - All reasonable practical steps shall be undertaken to reduce noise and vibration from the site.
- No construction works would be permitted in the Nelligen village area between Christmas Day and New Year's Day.
- Control measures to minimise noise and vibration impacts on adjoining land would be implemented during construction as part of the contractor's CEMP, which would require review by ESC prior to commencement of works. The CEMP would address site specific issues, including limited work hours and noise and vibration reduction practices, taking into consideration DECCW's Interim Construction Noise Guideline (in particular Tables 4 – 10) and Assessing Vibration: A Technical Guideline (in particular mitigation measures in Section 3). Mitigation measures to minimise noise and vibration impacts may include the following:
    - Optimum siting of work areas, vehicle and plant parking areas, materials stockpiles and equipment storage areas in locations where potential acoustic and vibration impacts would be minimised;
    - Regular maintenance of all plant and machinery used for the project;
    - Identify locations where construction noise and vibration is most intrusive and develop strategies to reduce impacts for these areas.
- All construction machinery is to be turned off when not in use.
- Work generating high noise levels should be scheduled during less sensitive time periods if practicable.

- Noise generating activities with impulsive, tonal or low frequency characteristics (such as rock breaking, etc) should only be carried out:
    - in continuous blocks, up to but not exceeding 3 hours each; and
    - with a minimum respite period of one hour between each block.
- Use quieter and less noise emitting construction methods where feasible and reasonable.
- All plant and equipment to be appropriately maintained to ensure optimum running conditions, with periodic monitoring.
- Simultaneous operation of noisy plant within discernible range of a sensitive receiver is to be limited/ avoided where possible.
- The offset distance between noisy plant and adjacent sensitive receivers is to be maximised where practicable.
- Noise-emitting plant to be directed away from sensitive receivers where possible.
- Plan traffic flow, parking and loading/unloading areas to minimise reversing movements within the site.
- Non-tonal reversing beepers (or an equivalent mechanism) should be fitted and used on all construction vehicles and mobile plant regularly used on site for periods of over two months where practicable.
- Where reasonable and feasible, use structures to shield residential receivers from noise such as:
    - site shed placement;
    - earth bunds;
    - temporary or mobile noise screens (where practicable)
    - enclosures to shield fixed noise sources such as pumps, compressors, fans etc (where practicable); and
    - consideration of site topography when situating plant.
- High noise generating plant and equipment, such as rock hammers, should be used only when required (if hard rock is encountered).
- A management procedure should be implemented to deal with vibration complaints. Each complaint should be investigated and if considered appropriate, amelioration measures should be put in place to mitigate future occurrences. This may include modification of construction methods such as using smaller equipment, establishment of safe buffer zones, and if necessary, time restrictions for the most excessive vibration activities. Time restrictions are to be negotiated with affected receivers.
- Where construction activity occurs in close proximity to sensitive receivers, vibration testing of equipment on site would be carried out prior to their commencement of site operation to determine acceptable buffer distances to the nearest affected receiver locations.

5.9 Air Quality

Air quality within the Nelligen village and surrounds is expected to be good, with the main influence on air quality in the area being vehicle emissions associated with moderate and low traffic volumes along the Kings Highway and local roads. There are no point sources of air pollution in the vicinity of the Proposal site. However, in high wind events, dust can be a major source of air particulates.

5.9.1 Impact Assessment

The main impact to air quality during construction would be expected to arise from the generation of airborne localised dust associated with earthworks and from trucks transporting materials to and around the construction sites. This is not anticipated to cause notable adverse environmental impacts unless the weather is particularly windy. Dust suppression methods, including the use of water carts, would be applied on windy days to prevent dust being transported off site.

Local air quality may be affected by emissions from construction traffic. These emissions would, however, occur only intermittently, and are expected to be minor and temporary. It would be unlikely that they would contribute to a permanent detectable reduction in local air quality.

Construction vehicles and machinery would generate greenhouse gas emissions during the works. The Proposal involves the pumping of water and sewage that would require energy derived from fossil fuel use and therefore result in the generation of greenhouse gases. The greenhouse gas emissions generated from the construction and operation of the Proposal would not be expected to be significant.

Air quality impacts are not anticipated during the operation of the sewerage scheme reticulation mains or property collection units. The grinder pump and tank to be located within the yard of properties would be installed below ground and are not anticipated to result in odour emissions.

With implementation of the recommended mitigation measures, potential air quality impacts during construction and operation are considered minor and unlikely to be significant.

5.9.2 Mitigation Measures

- Construction vehicles and equipment would be suitably serviced within the six-month period prior to commencement of construction activities and all necessary maintenance undertaken during the construction period to meet EPA air quality requirements.
- The excessive use of vehicles and powered construction equipment would be avoided.
- All construction machinery would be turned off when not in use to minimise emissions.
- Construction contractors would monitor dust generation potential.
- Dust suppression methods including the use of water carts would be applied where required (i.e. on windy days when earthworks and vehicle movements are generating dust).
- Any stockpiled spoil/fill would be protected to minimise dust generation to avoid sediment moving offsite.

- Vehicles transporting spoil from the sites would be covered.

5.10 Traffic and Access

The village reticulation pipelines would primarily be located within the road reserve of local roads under the control of ESC, with two local roads on the eastern side of the Clyde River at Nelligen and the Kings Highway under the control of TfNSW. The Kings Highway, which is the main road used to access the village, experiences moderate to high levels of traffic, with local roads generally experiencing low levels of traffic with moderate traffic levels during holiday periods.

5.10.1 Impact Assessment

The majority of the village reticulation works areas would be accessed via existing sealed roads and potentially unsealed access tracks. No access would be required from waterways, with all construction areas suitably accessible by land. The construction compound/layout site would be accessible via sealed a local road (Runnyford Road) within the village.

Impacts to vehicle and pedestrian traffic and access would occur during the construction works as a result of reduced speed limits, partial road closures and detours. However, such impacts would be minimised as the works would progress rapidly and any impacts would be short term only.

Existing access roads may potentially require upgrades to be made suitable for heavy vehicles and machinery. The anticipated increased traffic movements due to construction vehicles would be short term and relatively infrequent in any given area along the village reticulation alignments, and therefore are not expected to result in a significant impact on the local road network. Works would be carried out so as to minimise interruption to access for adjoining landowners.

5.10.2 Mitigation Measures

- Obtain all necessary approvals under the *Roads* Act *1993* for works proposed within TfNSW road reserves.
- The contractor would prepare a Traffic Management Plan (TMP) as part of the CEMP, to be reviewed by ESC prior to commencement of works. The TMP would include measures to minimise traffic impacts ensure public safety and would be prepared in accordance with:
    - *TfNSW's Traffic Control at Work Sites Manual, (February 2022), and*
    - *Australian Standard 1742.3 - 2009 Traffic Control for Works on Roads.*
- Prior to the commencement of works, existing roads that would be used by heavy vehicles would be assessed for adequacy and upgraded where necessary. Appropriate drainage would be provided for any unsealed tracks utilised during the works to ensure that vehicle movements do not cause erosion and sedimentation of nearby waterways.
- All landowners will be notified in writing of works on their property, or that may affect access to their property, at least 5 days prior of such works.
- Any temporary access tracks required for the works would be located so as to minimise disturbance to the existing environment. Following completion of the works the temporary

tracks would be removed, topsoil provided and re-grassed. Damage to existing tracks would be restored after completion of works.

- Trucks would not access the sites in weather conditions that would cause damage to ground surface or properties.
- All traffic would comply with all applicable traffic laws and regulations including speed limits. All construction vehicles would comply with the speed limits set for the roads accessing the site.

5.11 Waste Management

5.11.1 Impact Assessment

The construction of the Proposal would result in waste in the form of excess spoil, cleared vegetation and general building wastes such as packaging, off cuts, excess materials and workers wastes such as drinks containers, food scraps, etc. Portable toilets would be provided for workers at the construction compound and public toilet facilities are available within the Nelligen village. Excavated material would generally be used to backfill pipe trenches and minimal excess spoil is predicted.

Directional drilling (underboring) for the Kings Highway crossing to the caravan park would require drilling fluid / slurry. Slurry will be stored at construction compounds in an appropriately bunded area or disposed of at the completion of the works at an appropriately licensed waste facility. Drilling works and associated waste can be managed to avoid any adverse environmental impacts (See Section 5.3 above).

The potential for acid sulfate soils associated with low laying areas of Nelligen may mean spoil from these areas are treated and disposed of offsite. An Acid Sulfate Soils Management Plan (ASSMP) would be prepared as part of the Contractor's CEMP including addressing any dewatering in Acid Sulfate Soil areas. Dewatering of trenches may be required due to infiltration of rain water. A Dewatering Plan would be prepared as part of the Contractor's CEMP. Liquid waste may be generated due to dewatering and any such waste will be suitably treated prior to disposal at a waste facility.

To ensure that environmental harm does not occur as a result of uncontrolled or inappropriate collection, transport and disposal, the relevant provisions of the following Acts would be implemented:

- *Waste Avoidance and Resource Recovery Act 2001*
- *Protection of the Environment Operations Act 1997*
- *Protection of the Environment Operations (Waste) Regulation 2014*

The waste management and contamination control procedures and/or measures listed below would be implemented for the proposed works.

Operational wastes are predicted to be minimal. Wastewater and sediment generated from pipeline maintenance (scouring) activities is discussed in Section 5.3.1. All wastewater and sediment resulting from pipe scouring and pigging would be captured and allowed to infiltrate/

evaporate with the remaining silt and sediment to be removed off site for disposal in accordance with the appropriate waste classification.

5.11.2 Mitigation Measures

- The contractor undertaking the works would detail waste management procedures in a Waste Management Plan to be incorporated into the CEMP. The contractor is to assume responsibility for the appropriate disposal of any waste generated. Adequate procedures should be established and detailed in the CEMP, including notification requirements to EPA for incidents that cause material harm to the environment. The WMP would also follow the resource management hierarchy principles embodied in the *Waste Avoidance and Resource Recovery Act 2001*. Namely, to:
    - avoid unnecessary resource consumption;
    - recover resources (including reuse, reprocessing, recycling and energy recovery); and
    - dispose (as a last resort).
- Any required concrete would be mixed off-site and transported to the construction areas. Excess concrete would be removed off-site for recycling.
- All waste removed from the site, including waste from drilling operations, would be classified and disposed of appropriately, and all non-recyclable waste would be disposed of at an appropriate licensed waste disposal facility.
- If any contaminated material is encountered during earthworks, work shall cease, the site secured, and a safe work method statement(s) and appropriate practices shall be implemented. Any contaminated material would be classified first and then stored, transported and disposed of in accordance with EPA requirements at an EPA licensed waste facility.
- Cleared vegetation (devoid of weeds) would be removed off site and disposed of in accordance with EPA requirements.
- All equipment should be cleaned of soil and vegetation before being brought to the site to minimise the risk of spreading weeds.
- Any noxious or controlled weeds should be controlled and or disposed of at a landfill site in accordance with EPA requirements and not mixed with soil to be reused on site or elsewhere.
- If practicable, surplus excavated materials/fill would be reused onsite as part of rehabilitation and restoration works. Any surplus spoil disposed of in this manner would be seeded to minimise the likelihood of it being transported offsite through wind or water action.

5.12 Hazards and Risks

5.12.1 Impact Assessment

The pipeline routes where they cross roadways presents a potential safety risk to workers and road users. However, traffic related hazards can be adequately managed through appropriate management controls to be developed as part of the contractors TMP.

Other general risks resulting from the Proposal include the risk of pollution of the environment, particularly during the construction phase of the works. The sewerage scheme collection systems units located at each property would be pressurised, sealed, water tight units and leakage would not occur during general operation. It is considered that implementation of the mitigation measures summarised in Section 6 would minimise this risk.

5.12.2 Mitigation Measures

- The CEMP would incorporate a pollution incident response management plan that defines appropriate procedures for notification of pollution incidents to the required authorities in accordance with s. 147 to 153 of the POEO Act and requires response actions to be implemented in order to address any risks such as incidents posed to the environment, property or surrounding communities.
- Fuel and lubricants for machinery maintenance are to be stored and managed appropriately.
- Notification to the EPA in accordance with Part 5.7 of the POEO Act is to be undertaken where a pollution incident occurs in the course of an activity so that material harm to the environment is caused or threatened.
- Standard occupational health and safety practices would be adhered to.
- The community would be notified of any incident with the potential to result in public health impacts.

5.13 Visual Amenity

5.13.1 Impact Assessment

There would be some minor visual impacts during construction of the Proposal due to the presence of construction equipment. However, this would generally only occur for short periods at any one location as construction of the water and sewer village reticulation installation progresses along the alignment. This impact is not anticipated to be significant due to the temporary nature of the construction works.

There would be a minor visual impact associated with minor vegetation removal for the village reticulation mains within road reserves and sewerage scheme collection unit works within the yard of properties in the Nelligen village. These visual impacts are unlikely to be significant as the pipelines and associated sewerage collection unit property connections would be installed in previously cleared areas. Furthermore, over time the vegetation clearing impacts associated with the Proposal would decrease as vegetation regenerates and any ongoing / maintained clearing would be restricted to that required for pipeline maintenance purposes. These visual impacts are unlikely to be significant.

As the majority of the water and sewerage scheme infrastructure in Nelligen village would be located underground, operational visual impacts are anticipated to be negligible, as they would be limited to vegetation clearing for maintenance works

5.13.2 Mitigation Measures

- The clearing of vegetation would be kept to the minimum required for the works
- Construction compounds and areas for the parking of vehicles and storing of equipment would be located in cleared areas wherever possible.

5.14 Utilities and Infrastructure

5.14.1 Impact Assessment

Relevant utilities and infrastructure providers (including Essential Energy) have and would be consulted further regarding the design and construction requirements for the water and sewerage scheme infrastructure in the Nelligen village area, where the new water and sewer infrastructure is located in close proximity to, or has the potential to impact on, existing power supply and telecommunications infrastructure. Those requirements would be incorporated into the design and construction of the proposed new water supply and sewerage scheme infrastructure.

5.14.2 Mitigation Measures

- Utilities and services which may be impacted by the Proposal would be accurately located prior to commencement of works using Dial Before You Dig (DBYD) and confirmed by physical location and marking prior to construction.
- Utility and telecommunications infrastructure service providers would be consulted prior to the commencement of and during construction works.

6 Environmental Management

6.1 Construction Environmental Management Plan

Preparation of a Construction Environmental Management Plan (CEMP) is mandatory for all projects undertaken by or on behalf of government agencies or where funding is being provided by the government.

The CEMP would be developed to ensure that appropriate environmental management practices are followed during a project's construction and/or operation. ESC would review the CEMP for this Proposal, which should include the following elements, as described in the Guideline for the Preparation of Environmental Management Plans (DIPNR, 2004):

Table 6-1 Construction Environmental Management Plan Structure

Background	Introduction to the document Description of the proposal and project details The context for the CEMP with regard to the overall project The CEMP objectives The contractor's environmental policy
Environmental Management	Environmental management structure of the organisation and specific team responsibilities with respect to the CEMP and its implementation Approval and licensing requirements relevant to the project Reporting requirements Environmental training Emergency contacts and response
Implementation	A project specific risk assessment A detailed list of environmental management safeguards and controls CEMP sub plans for specific environmental controls A detailed schedule assigning responsibility to each environmental management activity and control
Monitor and Review	Environmental monitoring Environmental auditing Corrective action CEMP review and document control procedures

The CEMP would include a risk assessment which ensures that the safeguards identified in this REF, as well as any others that are considered relevant, are effectively translated into

actual construction techniques and environmental management activities, controls and monitoring/verification to prevent or minimise environmental impacts. The CEMP should also identify the requirements for compliance with relevant legislation and any other regulatory requirements to ensure environmental safeguards described throughout this REF are implemented. The environmental management objectives and supporting actions presented in this section are intended to assist in this process.

The following details the environmental objectives during construction and the proposed mitigation to be included in the CEMP. This list is not definitive, and additional measures detailed as part of the determination of the project and conditions of any other approvals must also be included. Operational safeguards are also included.

6.2 Environmental Management Measures

Implementation of the mitigation measures outlined below would be undertaken during a number of phases of the project. These phases comprise:

- Pre-construction – prior to the contractor arriving on site to carry out the works
- Construction – during construction phase
- Operation – post construction

6.2.1 Land Use

Objective

- Minimise impacts to surrounding land users during construction and operation

Actions

Action/Phase	Responsibility
Pre-construction	
Prior to commencement of construction activities on private properties, all landowners would be notified under the provisions of the *Local Government Act 1993.* All other necessary notification, approvals, permits, licenses and agreements would be obtained from the relevant landowners/authorities (including DPE- Water, TfNSW, DPE – Crown lands, private property owners).	ESC / Contractor
Affected landowners and the community would be notified of the potential impact on land uses during construction and any safeguards or mitigation measures that would be implemented during the works.	ESC / Contractor
Construction	
No construction activities (e.g. tree clearing, stockpiling etc.) would be undertaken on property adjoining the works areas without prior notification to or approval of the landowner.	Contractor
Appropriate security (including temporary fencing), supervision and access controls would be put in place and properly monitored to ensure no access by unauthorised personnel, either to the work area or via the work area to	Contractor

Action/Phase	Responsibility
Pre-construction	
adjoining areas. This should include appropriate measures for the protection of the public where construction works would adjoin areas subject to regular use by the general public (e.g. in the Nelligen village area).	
The contractor would be required to ensure the necessary care and maintenance of property facilities and operations. However, if any damage does occur to property, it would be restored to a condition equivalent to the original condition.	Contractor
Operation	
As operator of the water and sewage reticulation infrastructure, ESC could provide a 24-hour telephone number so that any issues relating to the operation of the new infrastructure can be clarified and complaints dealt with by those able to respond.	ESC

6.2.2 Water Quality, Erosion and Sediment Control and Flooding

Objective

- To effectively manage sediment and erosion control during the construction stage of the project.
- Prevention/minimisation of impacts to the waterways during the construction works.

Actions

Action/Phase	Responsibility
Pre-construction	
All personnel involved in construction works should be aware of the details of the works plans, legislation and associated pollution controls and the environmental sensitivity of the surrounding receiving waters before any works. All activities must be carried out with due diligence, duty of care and in accordance with best management practices.	Contractor
A detailed Erosion and Sediment Control Plan (ESCP) shall be prepared as part of the CEMP. The SWMP would describe the site specific measures to be implemented for all works areas, in accordance with the guidelines outlined in the 2004 Landcom publication Managing Urban Stormwater: Soils and Construction, 4th edition ("The Blue Book") and Volume 2a Installation of Services. The ESCP would need to be site specific and would need to address the following issues to prevent erosion, sediment loss and water quality impacts: • Minimisation of disturbance to soil and water adjacent to, and within, all watercourses in the works area.	Contractor

Action/Phase	Responsibility
• Identification of site specific sediment and erosion control measures wherever erosion is likely to occur. • Identification of any environmentally sensitive areas on or near construction sites to ensure runoff is diverted away from sensitive areas. • Requirements for vegetation clearing to be kept to a minimum. • Retention of all surface runoff on-site and where possible stormwater from off site would be diverted around the construction site. • Backfilling and stabilising of trenches once pipelines are installed. • Location of construction compounds (at least 50m from any drainage lines). • Location and management of stockpiles, such as locating stockpiles away from any drainage lines near the works areas. • Regular inspection of all erosion and sediment controls, especially when rain is expected and directly after any rain events.	
An Acid Sulfate Soil Management Plan (ASSMP) would be required for those areas in Nelligen identified as containing Potential Acid Sulfate Soils (PASS) and which would be disturbed during construction. This should include screening testing during construction and should be consistent with Acid Sulphate Soils Assessment and Management Guidelines. Appropriate procedures would also be required for groundwater dewatering in those areas affected by PASS / ASS.	Contractor
The CEMP would incorporate a pollution incident response management plan that defines appropriate procedures for notification of pollution incidents to the required authorities in accordance with s. 147 to 153 of the POEO Act and requires response actions to be implemented in order to address any risks such as incidents posed to the environment, property or surrounding communities.	Contractor
The Contractor will prepare a management plan for the disposal of the chlorinated water from water pipelines during the commissioning process to avoid any potential impact on waterways.	Contractor
Workers are to be made aware of the provisions of Section 120 of the POEO Act with regards to water pollution.	Contractor
Adequate procedures would be established and detailed in the CEMP, including notification requirements to the EPA, for incidents that cause material harm to the environment.	Contractor
A drilling management plan / procedures would be developed as part of the CEMP to detail the appropriate management and disposal of drilling slurry to avoid off site impacts. This would include requirements that: • All sludge and drilling medium extracted is to be removed from the site.	Contractor

Action/Phase	Responsibility
• The site where the sludge would be disposed of would require bunding and appropriate treatment until the sludge is considered to be safe for disposal or re-use.	
Construction	
A site-specific spill management plan would be prepared and include the following requirements: • Emergency spill kits are to be kept at the site (vehicle kits). • Refueling of machinery to be undertaken in a dedicated area within the construction compound appropriately protected as outlined in the spill management plan. • Any chemicals and fuels are to be stored in a bunded area at least 50 metres from any waterway or drainage line. • Any hazardous materials stored on site would be stored in compounds and within impervious and bunded enclosures capable of storing 120% of the volume of material stored there. Workers would be trained in the spill management plan and the use of the spill kits.	Contractor
The drill operator must be appropriately experienced and licensed.	Contractor
Works should not be scheduled when heavy rainfall is forecast and works involving soil disturbance should not take place during heavy rainfall periods, other than work necessary to stabilise the site.	Contractor
Any excess spoil would be removed off site for disposal in accordance with EPA requirements.	Contractor
All stockpiles of materials would be protected from scour and erosion.	Contractor
Access tracks would be designed so as to provide adequate drainage and stormwater control.	Contractor
Any water discharged to the environment should comply with the water quality benchmarks for estuaries of the catchments within the Batemans Marine Park (Clyde River) as expressed in the NSW Water Quality Objectives (WQOs) developed in accordance with the ANZECC 2000 Guidelines on Water Quality.	Contractor
Works are considered likely to encounter groundwater in low laying areas of Nelligen village and therefore mitigation measures to manage groundwater would be incorporated into the CEMP, including: • Dewatering techniques during excavation;	Contractor

Action/Phase	Responsibility
• Measures to ensure groundwater quality is not impacted during construction; • Techniques to settle, treat or filter groundwater encountered during excavation works i.e. diverting groundwater through baffle tanks or filter membranes; and Appropriate treatment and monitoring regimes in the event that groundwater flows come to the surface, including disposal of groundwater in such a way as to prevent adverse impacts (such as erosion and water pollution). Groundwater should not be discharged to a waterway during construction.	
Where less than 3 ML of groundwater is extracted during the works. The volume of water extracted during should be recorded daily and an aquifer interference activity exemption should be lodged through DPE - Water (NRAR) by the construction contractor on behalf of the proponent on the completion of works (Further information is available at https://www.dpie.nsw.gov.au/nrar/how-to-apply/water-licences/Groundwater). If more than 3 ML of groundwater is anticipated to extracted during the works, an aquifer interference approval would be required from DPE- Water prior to the commencement of works.	Contractor
All areas where ground disturbance has occurred would be stabilised following completion of works to ensure there is no erosion hazard and restored to their pre-construction condition. This would involve, where required, reshaping the ground surface, covering it with topsoil excavated from the site and re-establishing an appropriate vegetation cover (this may include respreading dead accumulated or cleared vegetation where possible).	Contractor
Operation	
During operation of the pipelines, any water containing silt and sediment generated as a result of scouring pipelines would be treated (if required) and disposed of as appropriate. Depending on the resultant water quality, this may involve discharge to a waterway or land application. Any water discharged to a waterway or recycled must be consistent with the requirements of the *Protection of the Environment Operations Act 1997*.	ESC

6.2.3 Biodiversity

Objective

- Avoidance/minimisation of impacts to flora and fauna
- Minimise clearing of vegetation
- Avoid weed invasion
- Prevention/minimisation of impacts to the drainage line

Actions

Action/Phase	Responsibility
Construction	
Vegetation clearing should be limited to the minimum required to successfully complete the proposal.	Contractor
Underboring sites should be located within areas previously disturbed and cleared of middle and over storey plants.	Contractor
Preference should be given to traversing and driving over ground cover and understorey vegetation, as opposed to clearing it. Traversing this vegetation will permit it to regenerate post-disturbance.	Contractor
The works should be planned and staged to ensure that long sections of trench are not left open. If left open overnight: • the pipeline trench should be inspected for entrapped animals (such as ground traversing native species – reptiles, frogs, mammals). • options to permit entrapped animals to escape (e.g. hessian bags, long branches, 'ladders') should be placed within the trench.	Contractor
Vehicles and machinery should be stored and parked in cleared areas away from trees.	Contractor
The storage of materials and stockpiling of equipment should occur within sites/areas that have been previously disturbed and cleared.	Contractor
Any animals injured during the clearing work should be collected and taken to a local veterinarian or wildlife carer.	Contractor
In accordance with the *Biosecurity Act 2015*, listed weeds identified on site must be controlled to result in their suppression.	Contractor
Operation	
Post-development the pipeline alignments should be regularly monitored to manage any occurrences of weeds and other non-native species.	Contractor

6.2.4 Bushfire

Objective

- Minimise potential bushfire risk impacts to due to the works.

Actions

Action/Phase	Responsibility
Pre-construction	
Design of above ground infrastructure should take into consideration the potential bushfire risk at the site, in accordance with the relevant principles of the RFS publication *Planning for Bushfire Protection 2019*	ESC
Construction	
Construction staff to be made aware of the location of the proposed works in bushfire prone land and the potential for bushfire risk.	Contractor
During catastrophic to high bush fire danger rating days no construction activities would be undertaken that pose a risk of starting a bushfire (e.g. welding).	Contractor
Operation	
No operational maintenance activities should be undertaken which pose a risk of starting a bushfire during high risk bush fire danger rating days.	ESC

6.2.5 Aboriginal Heritage

Objective

- Minimise potential impacts to items and places of Aboriginal cultural heritage due to the works

Actions

Action/Phase	Responsibility
Construction	
In the event that potential Aboriginal objects are encountered (including skeletal material), the following Unanticipated Finds Protocol should be followed: <u>Unanticipated Finds Protocol:</u> All ground surface disturbance in the area of the finds should cease immediately once the finds are uncovered. The discoverer of the find(s) would notify machinery operators in the immediate vicinity of the find(s) so that work can be halted; and the Principal's Authorised Person would be informed of the find(s). If there is substantial doubt regarding an Aboriginal origin for the finds, then gain a qualified opinion from an archaeologist as soon as possible. This can circumvent proceeding further along the protocol for items which turn out not	Contractor

Action/Phase	Responsibility
to be archaeological. If a quick opinion cannot be gained, or the identification is positive, then proceed to the next step. Immediately notify the following authorities or personnel of the discovery: • Heritage NSW; and • Relevant Aboriginal Community Representatives. Facilitate, in co-operation with the appropriate authorities and relevant Aboriginal community representatives: • The recording and assessment of the finds; • Fulfilling any legal constraints arising from the find(s). This would include complying with Heritage NSW directions; and • The development and conduct of appropriate management strategies. Strategies would depend on consultation with stakeholders and the assessment of the significance of the find(s). Where the find(s) are determined to be Aboriginal Objects, any re-commencement of construction related ground surface disturbance may only resume in the area of the find(s) following compliance with any consequential legal requirements and gaining written approval from Heritage NSW (as required).	

6.2.6 Historic Heritage

Objective

- Minimise potential impacts to items and places of historic heritage due to the works

Actions

Action/Phase	Responsibility
Pre-construction	
The CEMP should include a map of all Heritage Items that are located within the proposed pipeline route alignment and within 30 m of the proposed route alignment in the Nelligen village area, as outlined in the REF. As part of an induction, and all workers and sub-contractors should be aware of their responsibilities under the *Heritage Act 1977* and impacts to these mapped heritage items should be avoided.	Contractor
Construction	
On-property collection system control panels should be placed so that they are not visible to the street where practical.	Contractor
The contractor shall undertake vibration monitoring during construction works adjacent to identified heritage items which may be susceptible to indirect	Contractor

Action/Phase	Responsibility
vibration impacts. If damage risk to the heritage item is identified, vibratory activities should cease and alternative work methods should be implemented so that vibration impacts are reduced to acceptable levels.	
Construction staff would be made aware that archaeological relics are protected under the *Heritage Act 1977*. In the event that any relics are discovered during the course of the works, work would cease in the affected area and a suitably qualified archaeologist consultant and Heritage NSW would be contacted.	Contractor
Listed heritage items in the Nelligen village area as shown in Figure 5.4 of the REF, including the row of mature pine trees located along the Braidwood Street median strip, must be fenced off to prevent inadvertent impacts during construction works.	Contractor
The remediation of vegetation, trees or landscaping in line with the heritage context of the Nelligen village area will be undertaken in consultation with Council / landowner in accordance with the *Nelligen Village Development Control Plan 2012*.	Contractor
Care should be taken when working adjacent to fences, street furniture and signage in the Nelligen village area and impacts to or removal of these structures should be avoided. Any new or replacement permanent public fences required for the works in the Nelligen village area should be built from timber and modelled on historic examples, in accordance with the *Nelligen Village Development Control Plan 2012*.	Contractor

6.2.7 Noise and Vibration

Objective

- Compliance with relevant recommendations specified in the Interim Construction Noise Guideline (DECC, 2009).
- Avoidance/minimisation of noise impacts on nearby sensitive noise receivers.

Actions

Action/Phase	Responsibility
Pre-construction	
Community notification would be undertaken where appropriate and where work is likely to cause vibration or offensive noise and impact the public and nearby residents.	ESC /Contractor
The contractor is to undertake a risk assessment to identify buildings and structures, particularly in the Nelligan village area with heritage significance, that have the potential to be affected by vibration and then undertake pre-	Contractor

Action/Phase	Responsibility
dilapidation survey/report for the heritage structures. These surveys are used to address potential community concerns that perceived vibration may have caused damage to property.	
Construction	
Works would be undertaken during normal work hours i.e. 7am to 6pm Monday to Friday; 8am to 1pm Saturdays; and no work would be undertaken on Sundays, Public Holidays or outside these work hours without notification to affected community, Council and EPA. Notification would provide the following details: • The locations and types of surrounding receivers likely to be affected; • The nature of the proposed works; • The noise characteristics of any powered equipment likely to be used; • Measures to be taken to reduce noise emissions; and • Any other information Council/EPA may request. • All reasonable practical steps shall be undertaken to reduce noise and vibration from the site.	Contractor
No construction works would be permitted in the Nelligen village area between Christmas Day and New Year's Day.	Contractor
Control measures to minimise noise and vibration impacts on adjoining land would be implemented during construction as part of the contractor's CEMP, which would require review by ESC prior to commencement of works. The CEMP would address site specific issues, including limited work hours and noise and vibration reduction practices, taking into consideration EPA's *Interim Construction Noise Guideline* (in particular Tables 4 – 10) and *Assessing Vibration: A Technical Guideline* (in particular mitigation measures in Section 3). Mitigation measures to minimise noise and vibration impacts would include: • Optimum siting of work areas, vehicle and plant parking areas, materials stockpiles and equipment storage areas in locations where potential acoustic and vibration impacts would be minimised; • Regular maintenance of all plant and machinery used for the project; • Identify locations where construction noise and vibration is most intrusive and develop strategies to reduce impacts for these areas.	Contractor
All construction machinery is to be turned off when not in use.	Contractor
Work generating high noise levels should be scheduled during less sensitive time periods if practicable.	Contractor

Action/Phase	Responsibility
Noise generating activities with impulsive, tonal or low frequency characteristics (such as rock breaking, etc) should only be carried out: • in continuous blocks, up to but not exceeding 3 hours each; and • with a minimum respite period of one hour between each block.	Contractor
Use quieter and less noise emitting construction methods where feasible and reasonable.	Contractor
All plant and equipment to be appropriately maintained to ensure optimum running conditions, with periodic monitoring.	Contractor
Simultaneous operation of noisy plant within discernible range of a sensitive receiver is to be limited/ avoided where possible.	Contractor
The offset distance between noisy plant and adjacent sensitive receivers is to be maximised where practicable.	Contractor
Noise-emitting plant to be directed away from sensitive receivers where possible.	Contractor
Plan traffic flow, parking and loading/unloading areas to minimise reversing movements within the site.	Contractor
Non-tonal reversing beepers (or an equivalent mechanism) should be fitted and used on all construction vehicles and mobile plant regularly used on site for periods of over two months where practicable.	Contractor
Where reasonable and feasible, use structures to shield residential receivers from noise such as: • site shed placement; • earth bunds; • temporary or mobile noise screens (where practicable) • enclosures to shield fixed noise sources such as pumps, compressors, fans etc (where practicable); and • consideration of site topography when situating plant.	Contractor
High noise generating plant and equipment, such as rock hammers, should be used only when required (if hard rock is encountered).	Contractor
A management procedure should be implemented to deal with vibration complaints. Each complaint should be investigated and if considered appropriate, amelioration measures should be put in place to mitigate future occurrences. This may include modification of construction methods such as using smaller equipment, establishment of safe buffer zones, and if necessary, time restrictions for the most excessive vibration activities. Time restrictions are to be negotiated with affected receivers.	Contractor

Action/Phase	Responsibility
Where construction activity occurs in close proximity to sensitive receivers, vibration testing of actual equipment on site would be carried out prior to their commencement of site operation to determine acceptable buffer distances to the nearest affected receiver locations.	Contractor

6.2.8 Air Quality

Objective

- Avoidance/minimisation of off-site dust nuisance to neighbouring residences and the community.
- Minimisation of air quality impacts resulting from machinery and vehicle emissions.

Actions

Action/Phase	Responsibility
Pre-construction	
Construction vehicles and equipment would be suitably serviced within the six-month period prior to commencement of construction activities and all necessary maintenance undertaken during the construction period to meet EPA air quality requirements.	Contractor
Construction	
The excessive use of vehicles and powered construction equipment would be avoided.	Contractor
All construction machinery would be turned off when not in use to minimise emissions.	Contractor
Construction contractors would monitor dust generation potential.	Contractor
Dust suppression methods including the use of water carts would be applied where required (i.e. on windy days when earthworks and vehicle movements are generating dust).	Contractor
Any stockpiled spoil/fill would be protected to minimise dust generation to avoid sediment moving offsite.	Contractor
Vehicles transporting spoil from the sites would be covered.	Contractor

6.2.9 Traffic and Access

Objective

- Ensure that construction vehicles do not cause excessive inconvenience to road and pedestrian users.

- Ensure the safety of road users and construction personnel for the duration of the works.
- Minimise the pollution impacts resulting from the use of vehicles during construction.

Actions

Action/Phase	Responsibility
Pre-construction	
Obtain all necessary approvals under the *Roads* Act *1993* for works proposed within TfNSW road reserves.	ESC/Contractor
The contractor would prepare a Traffic Management Plan (TMP) as part of the CEMP, to be reviewed by ESC prior to commencement of works. The TMP would include measures to minimise traffic impacts ensure public safety and would be prepared in accordance with: • TfNSW's *Traffic Control at Work Sites Manual, (Issued February 2022), and* • *Australian Standard 1742.3 - 2009 Traffic Control for Works on Roads.*	Contractor
Prior to the commencement of works, existing roads that would be used by heavy vehicles would be assessed for adequacy and upgraded where necessary. Appropriate drainage would be provided for any unsealed tracks utilised during the works to ensure that vehicle movements do not cause erosion and sedimentation of nearby waterways.	ESC /Contractor
Construction	
All landowners will be notified in writing of works on their property, or that may affect access to their property, at least 5 days prior of such works.	Contractor
Any temporary access tracks required for the works would be located so as to minimise disturbance to the existing environment. Following completion of the works the temporary tracks would be removed, topsoil provided and re-grassed. Damage to existing tracks would be restored after completion of works.	Contractor
Trucks would not access the sites in weather conditions that would cause damage to ground surface or properties.	Contractor
All traffic would comply with all applicable traffic laws and regulations including speed limits. All construction vehicles would comply with the speed limits set for the roads accessing the site.	Contractor

6.2.10 Waste Management

Objective

- Compliance the provisions of the *Protection of the Environment Operations (Waste) Regulation 2014*.

- Maximise reuse/recycling of waste material and minimise waste disposed of to landfill.

Actions

Action/Phase	Responsibility
Construction	
The contractor undertaking the works would detail waste management procedures in a Waste Management Plan to be incorporated into the CEMP. The contractor is to assume responsibility for the appropriate disposal of any waste generated. Adequate procedures should be established and detailed in the CEMP, including notification requirements to EPA, for incidents that cause material harm to the environment. The WMP would also follow the resource management hierarchy principles embodied in the *Waste Avoidance and Resource Recovery Act 2001.* Namely, to: • avoid unnecessary resource consumption; • recover resources (including reuse, reprocessing, recycling and energy recovery); and • dispose (as a last resort).	Contractor
No batched concrete mixing plants would be established in the works areas. Any required concrete would be mixed off-site and transported to the construction areas. Any required concrete would be mixed off-site and transported to the construction areas. Excess concrete would be removed off-site for recycling.	Contractor
All waste removed from the site, including waste from drilling operations, would be classified and disposed of appropriately, and all non-recyclable waste would be disposed of at an appropriate licensed waste disposal facility.	Contractor
If any contaminated material is encountered during earthworks, work shall cease, the site secured, and a safe work method statement(s) and appropriate practices shall be implemented. Any contaminated material would be classified first and then stored, transported and disposed of in accordance with EPA requirements at an EPA licensed waste facility.	Contractor
Cleared vegetation (devoid of weeds) would be removed off site and disposed of in accordance with EPA requirements.	Contractor
All equipment should be cleaned of soil and vegetation before being brought to the site to minimise the risk of spreading weeds.	Contractor
Any noxious or controlled weeds should be controlled and or disposed of at a landfill site in accordance with EPA requirements and not mixed with soil to be reused on site or elsewhere.	Contractor

Action/Phase	Responsibility
If practicable, surplus excavated materials/fill would be reused onsite as part of rehabilitation and restoration works. Any surplus spoil disposed of in this manner would be seeded to minimise the likelihood of it being transported offsite through wind or water action.	Contractor

6.2.11 Hazards and Risks

Objective

- Prevention/minimisation of hazards and risks during the operation of the Proposal.

Actions

Action/Phase	Responsibility
Pre-construction	
The CEMP would incorporate a pollution incident response management plan that defines appropriate procedures for notification of pollution incidents to the required authorities in accordance with s. 147 to 153 of the POEO Act and requires response actions to be implemented in order to address any risks such as incidents posed to the environment, property or surrounding communities.	Contractor
Construction and Operation	
Fuel and lubricants for machinery maintenance are to be stored and managed appropriately.	ESC
Notification to the EPA in accordance with Part 5.7 of the POEO Act is to be undertaken where a pollution incident occurs in the course of an activity so that material harm to the environment is caused or threatened.	ESC
Standard occupational health and safety practices would be adhered to.	ESC
The community would be notified of any incident with the potential to result in public health impacts.	ESC

6.2.12 Visual Amenity

Objective

- Protect the visual amenity of the locality for neighbouring land users and the local community.

Actions

Action/Phase	Responsibility
Construction	
The clearing of vegetation would be kept to the minimum required for the works	Contractor
Construction compounds and areas for the parking of vehicles and storing of equipment would be located in cleared areas wherever possible.	Contractor

6.2.13 Utilities and Infrastructure

Objective

- Prevention/minimisation of impacts to utilities and services infrastructure during the construction works.

Actions

Action/Phase	Responsibility
Pre-construction	
Construction	
Utilities and services which may be impacted by the Proposal would be accurately located prior to commencement of works using Dial Before You Dig (DBYD) and confirmed by physical location and marking prior to construction.	Contractor
Utility and telecommunications infrastructure service providers would be consulted prior to the commencement of and during construction works.	Contractor

7 Conclusion

Nelligen village currently has no municipal water supply or sewerage system and households rely on septic tanks to dispose of sewage waste and rainwater tanks for household water supply. Therefore, ESC plans to install reticulated water and sewerage schemes for the village for integration into the existing Batemans Bay water supply and wastewater management networks. Stage 3 of the Project, as assessed in this REF (the Proposal), comprises the construction of water and sewer reticulation mains and sewerage scheme collection units at individual properties in the Nelligen township.

The Proposal would result in short term impacts such as increased noise, dust and traffic and a reduction in community amenity for the residents and users of local streets during the construction phase. However, the works are temporary and are able to be managed to minimise impacts. It is anticipated that the Proposal would benefit the local community by removing their reliance on rainwater tanks and issues associated with the current on-site septic systems and would improve the quality and reliability of their drinking water.

Investigations into the Aboriginal cultural heritage impacts of the Proposal have been undertaken, including an Aboriginal Cultural Heritage Assessment (ACHA) (see Appendix C). The ACHA determined that no Aboriginal sites would be impacted as a result of the Proposal village reticulation works.

A biodiversity assessment prepared for the works found that the Proposal would be unlikely to impact any listed threatened species, fauna populations or ecological communities, provided appropriate mitigation measures are implemented.

Given that the works predominantly comprise underground water supply and sewer pipelines, sewerage scheme collection units and associated infrastructure in previously disturbed areas, adverse environmental impacts potentially associated with the operation phase of the Proposal are expected to be minimal.

This REF has been prepared in accordance with Sections 5.5 and 5.7 of the *Environmental Planning and Assessment Act 1979* and Section 171 of the *Environmental Planning and Assessment Regulation 2021.* It provides a true and fair assessment of the proposed activity in relation to its likely effects on the environment.

Based on the information in this REF, it is concluded that:

(1) the proposed activity is not likely to have a significant impact on the environment and therefore an Environmental Impact Statement is not required.

(2) the proposed activity is not likely to significantly affect threatened species, populations, ecological communities, or critical habitat. Therefore, a Species Impact Statement (SIS) /Biodiversity Development Assessment Report (BDAR) is not required

(3) the proposed activity is not likely to affect any Commonwealth land, is not being carried out on Commonwealth land, or significantly affect any Matters of National Environmental Significance.

The proposed activity is recommended to proceed subject to implementation of the measures to avoid, minimise or manage environmental impacts listed in this REF.

8 References

Australian Standard *AS2436-1981 Guide to Noise Control on Construction, Maintenance and Demolition Sites.*

DEC, 2006, *Assessing Vibration: A Technical Guide.*

DECCW, 2009, *Interim Construction Noise Guideline.*

DPINR, 2004, *Guideline for the Preparation of Environmental Management Plans.*

Eurobodalla Shire Council, 2012, *Nelligen Village Development Control Plan.*

GHD, 2016a, *Replacement of the Kings Highway bridge over the Clyde River at Nelligen Environmental Impact Statement*

GHD, 2016b, *Replacement of the Kings Highway bridge over the Clyde River at Nelligen Review of Environmental Factors*

Giovanelli (Heritage and Conservation), 2011*, Nelligen Main Street Study.*

Heritage NSW, 2023, *Punt Loading Site* (Heritage Item I276) - State Heritage Inventory Database Listing accessed at https://www.hms.heritage.nsw.gov.au/App/Item/ViewItem?itemId=1550312

Lesryk Australia, 2018, *Flora and Fauna Survey and Assessment, Water Supply and Sewerage Scheme project, Nelligen, NSW.*

New South Wales Archaeology, 2017, *Nelligen Water Supply and Sewerage Scheme Due Diligence Assessment.*

New South Wales Archaeology, 2018, *Nelligen Water Supply and Sewerage Scheme Aboriginal Cultural Heritage Assessment Report.*

Pressure Sewer Solutions, 2018, *Nelligen Pressure Sewerage System Design Report*

Public Works Advisory, 2016, *Nelligen Water Supply and Sewerage Strategic Options Report*

Appendix A – Consideration of Section 171

Section 171 of the EP&A Regulation 2021 indicates, for purposes of Part 5 of the Act, the factors that must be taken into account when consideration is being given to the likely impact of an activity on the environment.

A determining authority is only required to consider the following matters where an EIS has been prepared for a Part 5 activity under the EP&A Act. However, the following information is provided to assist determining authorities in making determinations consistent with those made for an activity requiring preparation of an EIS.

The various factors and findings following environmental assessment are presented below.

(a) the environmental impact on the* community*,

There is the potential for some minor and temporary noise, dust and traffic and access impacts during construction works for the water supply and sewerage scheme village reticulation.

(b) the transformation of the locality,

The infrastructure would predominantly be located below ground. Therefore, the new water supply and sewerage scheme village reticulation infrastructure would not result in a significant transformation of the locality.

(c) the environmental impact on the ecosystems of the locality,

Mitigation measures have been proposed to minimise impacts on the sensitive ecosystems of the locality. No significant impact to threatened species or ecosystems is anticipated.

(d) reduction of the aesthetic, recreational, scientific or other environmental quality or value of the locality,

None identified.

(e) the effects on any locality, place or building that has-

> ***(i) aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance, or***
>
> ***(ii) other special value for present or future generations,***

The Proposal works would not impact on any Aboriginal sites or impacts to historic heritage items.

(f) the impact on the habitat of protected animals within the meaning of the Biodiversity Conservation Act 2016,

Mitigation measures have been proposed to minimise impacts on the sensitive ecosystems of the locality. No significant impact to threatened species is anticipated.

(g) the endangering of a species of animal, plant or other form of life, whether living on land, in water or in the air,

Mitigation measures have been proposed to minimise impacts on the sensitive ecosystems of the locality. No significant impact to threatened species is anticipated.

(h) long-term effects on the environment,

None identified

(i) degradation of the quality of the environment,

Temporary and minor degradation of the quality of the environment during the construction phase which would involve shrubs, immature trees and groundcover vegetation clearing and excavation works. The works would result in some short-term impacts including construction noise and dust during the construction period. Control measures to minimise these impacts would be implemented during construction as part of the contractor's Construction Environmental Management Plan (CEMP).

(j) risk to the safety of the environment,

There are minor potential traffic safety risks to construction staff, residents and visitors in the vicinity of road reserves and village areas during construction of the Proposal. However, control measures to minimise this safety risk would be implemented during construction as part of the contractor's TMP.

(k) reduction in the range of beneficial uses of the environment,

None identified.

(l) pollution of the environment,

There is the potential for some minor and temporary noise and air pollution during the construction works. With the implementation of appropriate mitigation measures during construction there would be no long term or significant pollution of the environment.

(m) environmental problems associated with the disposal of waste,

None identified as minimal waste is predicted. All construction waste would be taken off site for disposal at a licensed landfill or reused on site. The Contractor would prepare a Waste Management Plan to ensure waste is managed appropriately during construction works, so as not to cause off-site impacts

(n) increased demands on natural or other resources that are, or are likely to become, in short supply,

None identified.

(o) the cumulative environmental effect with other existing or likely future activities,

None identified.

(p) the impact on coastal processes and coastal hazards, including those under projected climate change conditions.

No impacts anticipated.

(q) applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1.

The Proposal is compatible with Strategy 1 and 4 of *the One Community - Eurobodalla Community Strategic Plan 2017 and Planning Priority 8 of the Eurobodalla Local Strategic Planning Statement 2020 – 2040.*

(r) other relevant environmental factors.

None identified.