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Biodiversity Offset Strategy

Eurobodalla Southern Storage

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SMEC Company Details

Approved by:	Larissa Abbott		
Address:	Level 5, 20 Berry Street, North Sydney NSW 2060		
Signature:	LARISSA ABBOTT		
Tel:	02 9925 5470	Fax:	-

Approved by:	Larissa Abbott		
Email:	Larissa.Abbott@smec.com	Website:	www.smec.com

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ABBREVIATIONS AND ACRONYMS

Abbreviation	Explanation
BAM	Biodiversity Assessment Method
BAR	Biodiversity Assessment Report
BBCC	BioBanking Credit Calculator
BC Act	*Biodiversity Conservation Act 2016*
BCT	Biodiversity Conservation Trust
BOS	Biodiversity Offset Strategy/Scheme
BSA	Biodiversity Stewardship Agreement
CEEC	Critically Endangered Ecological Community
DPIE	NSW Department of Planning, Industry and Environment
EEC	Endangered Ecological Community
EL	Elevation
EIS	Environmental Impact Statement
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ESS	Eurobodalla Southern Storage
FBA	Framework for Biodiversity Assessment
FM Act	NSW *Fisheries Management Act 1994*
FSL	Full Supply Level
GDE	Groundwater Dependent Ecosystem
LGA	Local Government Area
MNES	Matters of National Environmental Significance
OEH	NSW Office of Environment and Heritage
PCT	Plant Community Type
SEARs	Secretary's Environmental Assessment Requirements
SSD	State Significant Development
TSC Act	NSW *Threatened Species Conservation Act 1995*
WTP	Water Treatment Plant

1 Introduction

1.1 Background

Eurobodalla Shire Council (Council) has been given project approval for the Eurobodalla Southern Water Supply Storage (the Project). The approval was sought under Part 4, Division 4.7 (State significant development), (previously Division 4.1) of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

An Environmental Impact Statement (EIS) was prepared by SMEC Australia Pty Ltd (SMEC) in accordance with Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*.

A biodiversity assessment report (BAR) was prepared as part of the EIS. The BAR provides information on how direct impacts were avoided, as much as possible, and where avoidance was not possible, impacts were minimised. However, impacts to native vegetation and species and population that require offsetting were identified and these are discussed in Section 3.

1.2 Objectives of the Biodiversity Offset Strategy

The objective of this Biodiversity Offset Strategy (BOS) is to provide guidance for the delivery of biodiversity offsets for the impacts expected as a result of the proposed Eurobodalla Southern Storage (ESS) and to achieve a long-term conservation gain for the threatened species, populations and communities impacted by the Project. The following have been considered in establishing the objectives for the BOS (NSW Government 2014a):

- Securing the protection and management of areas containing impacted threatened species and vegetation communities in perpetuity
- Providing an area of offset that is greater than the impacts of the Project
- Providing habitat and vegetation communities that is of equal to or better condition than that impacted by the Project.

1.3 Project description

1.3.1 Overview

The proposed ESS is required to provide drought security to the water supply system, ensuring the long-term water supply for the Eurobodalla regional area while complying with the water sharing plans that regulate extraction from the Tuross River to minimise stress on the river system and protect environmental flows. Raw water would be extracted from the Tuross River from a new river intake pump station, as well as the existing bore field, for transfer to the new storage.

There are three stages to the project. Stage 1, which has been approved and detailed below, relates to the establishment of the water storage and ancillary infrastructure. Stage 2 is scheduled for construction by 2030 and involves new water treatment plant, pipelines, and pump stations. Stage 3 works involve upgrading the ESS to increase the capacity of the storage and would likely occur 50 years after construction of Stage 1.

This BOS pertains to works associated with the Stage 1 approval.

1.3.2 Location

The proposal location is approximately 30 kilometres south of Moruya, within the Eurobodalla Local Government Area (LGA). The subject site is located around a north-facing valley within the Bodalla State Forest on an unnamed third order ephemeral stream about 950 metres east of, and flowing into, the Tuross River. It is bound to the north by a private residence, to the west and south-west by Bullockys Hut Road, and to the south-east and east by Big Rock Road and Cpt3007/3 Road. Details of the location of the proposed ESS are provided in Figure 1-1, Figure 1-2 and Figure 1-3.

1.3.3 Key features of the Project

Key features of the operational stage of Stage 1 of the Project comprise two components: the off-stream storage itself; and ancillary infrastructure. Details of each component are provided below.

Off stream storage

Key features of the off-stream storage include:

- 3000 megalitre capacity at Full Supply Level (FSL)

- A 370 metre-long embankment that is 36 metres in height and 20 metres in crest width located on an unnamed tributary of the Tuross River
- Construction of a spillway to allow the storage to safely pass flood events to the Tuross River
- Erosion protection downstream of the spillway to reduce scour and erosion to the existing gully and creek bed
- Inlet works to convey and dissipate raw water transferred from the river intake pump station through a pipeline constructed along the left abutment to the storage
- Outlet works to allow transfer of water from the storage to the existing water treatment plant (WTP)
- Outlet tower and tower access bridge
- A new storage access road that is one kilometre in length and extends from Eurobodalla Road opposite the existing WTP to the proposed storage location
- Construction of a boat ramp at the storage for maintenance and water quality monitoring
- Construction of safety and perimeter fencing at the storage
- Instrumentation to monitor seepage, embankment pore water pressures, reservoir levels and water quality.

Ancillary infrastructure

Key features of the ancillary facilities include:

- A new river intake pump station with a total river extraction capacity of 26 megalitres per day. This can be made up of a combination of flows from the river intake (up to 26 megalitres) or the bore field (up to 6 megalitres).
- Installation of the following new pipelines:
  - A pipeline with a capacity of 26 megalitres per day to transfer raw water from the new river intake pump station to the storage inlet chute
  - A pipeline cross connection with a capacity of six megalitres per day allowing transfer of water from the storage to the balance tank at the existing WTP
  - A pipeline connection from the existing bore field pipeline to the river intake pump station
  - Relocation of a portion of the existing bore field pipeline out of the widened section of Eurobodalla Road
- Provisions for power supply including the construction of new sub-stations located near the storage and intake pump station and new powerline from the WTP to the Storage site.

All of the features above are hereby referred to as the 'operational footprint'.

In addition, to facilitate construction of the features within the operational footprint, the following features will be required during the construction phase:

- Three construction compounds
- Temporary cofferdam within the Tuross River
- Two rockfill quarry areas at the storage site.

These construction features are hereby referred to as the 'construction footprint'. An indicative layout of the operational and construction footprints is shown in Figure 1-4.

1.3.4 Identification of development site footprint

The development site is defined as the boundary of the construction and operational footprints, including ancillary sites, and all the land within. The development site includes areas that will be impacted by the proposed ESS and areas retained following construction. The development site footprint has been identified in Figure 1-1, Figure 1-2, Figure 1-3 and Figure 1-4.

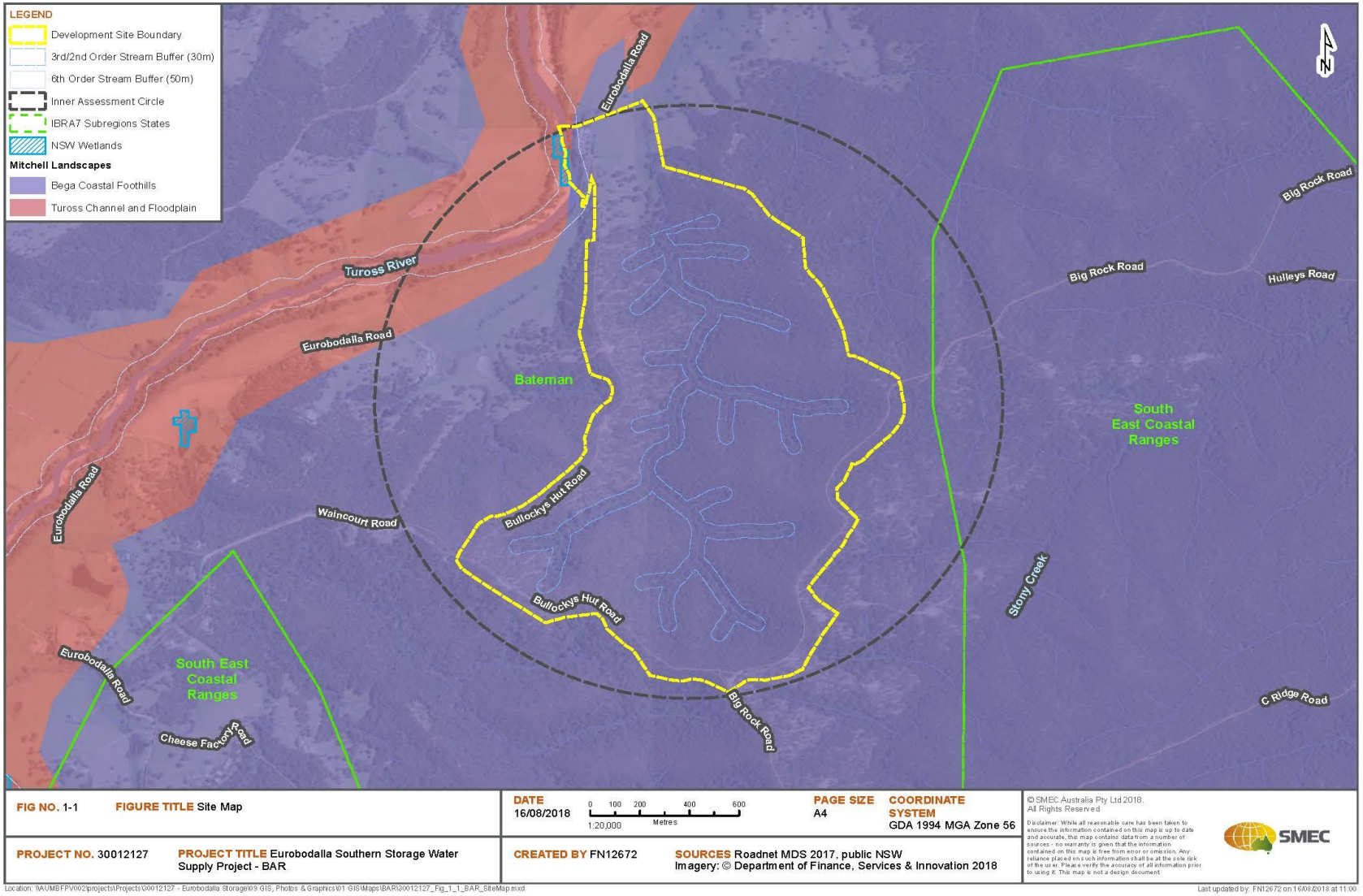

Figure 1-1 Site map

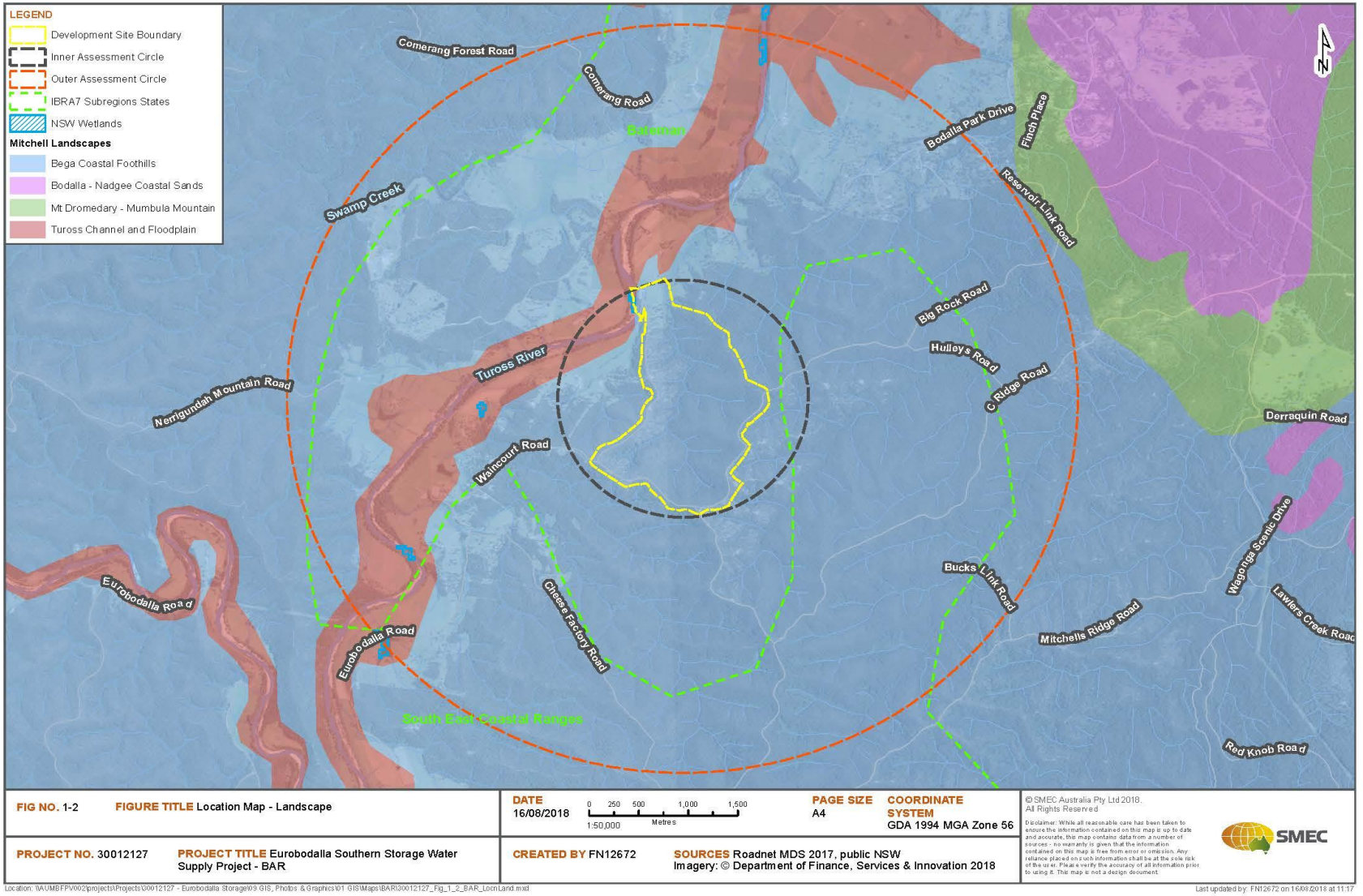

Figure 1-2 Location map – Land

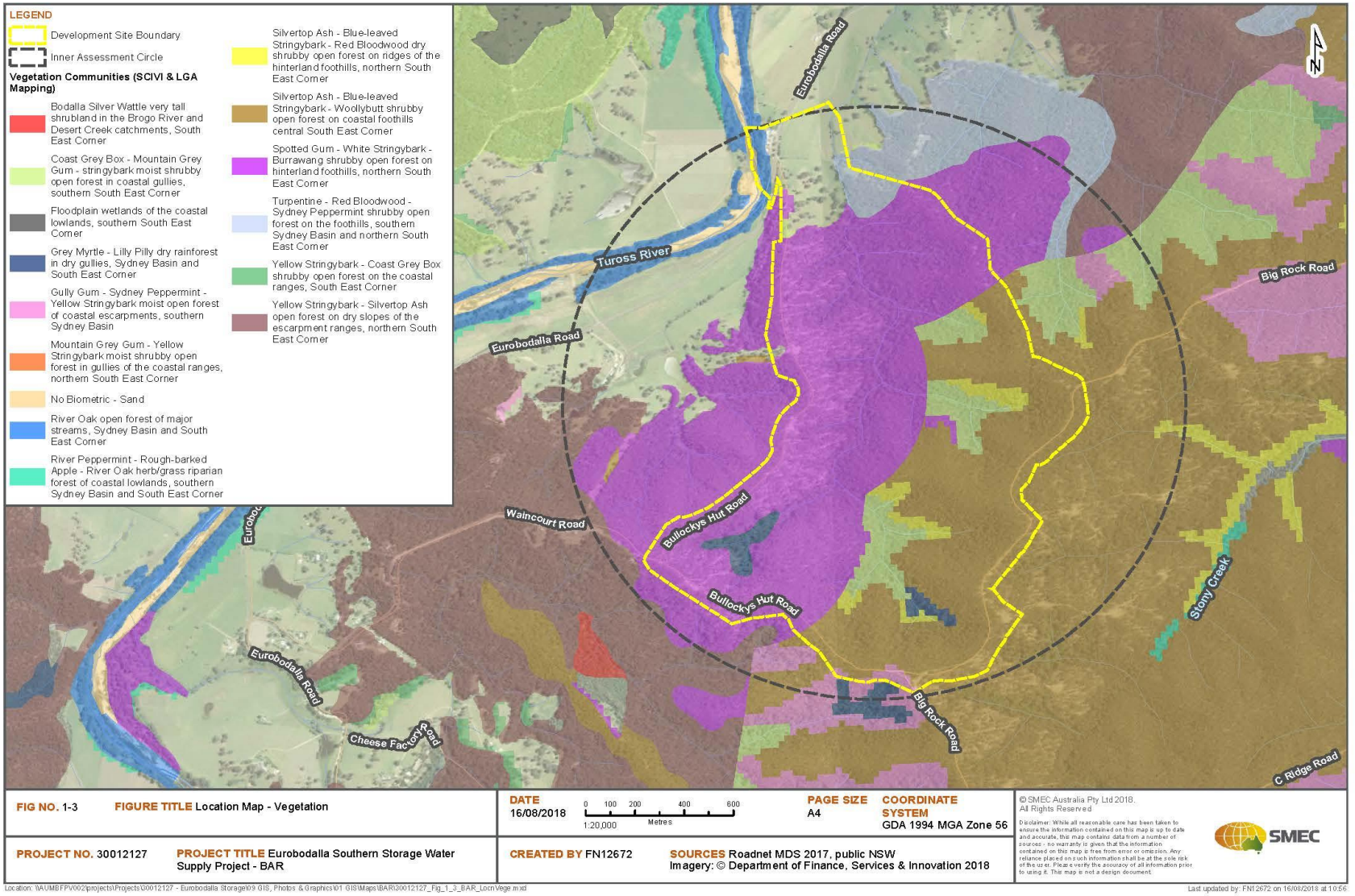

Figure 1-3 Location map – Vegetation

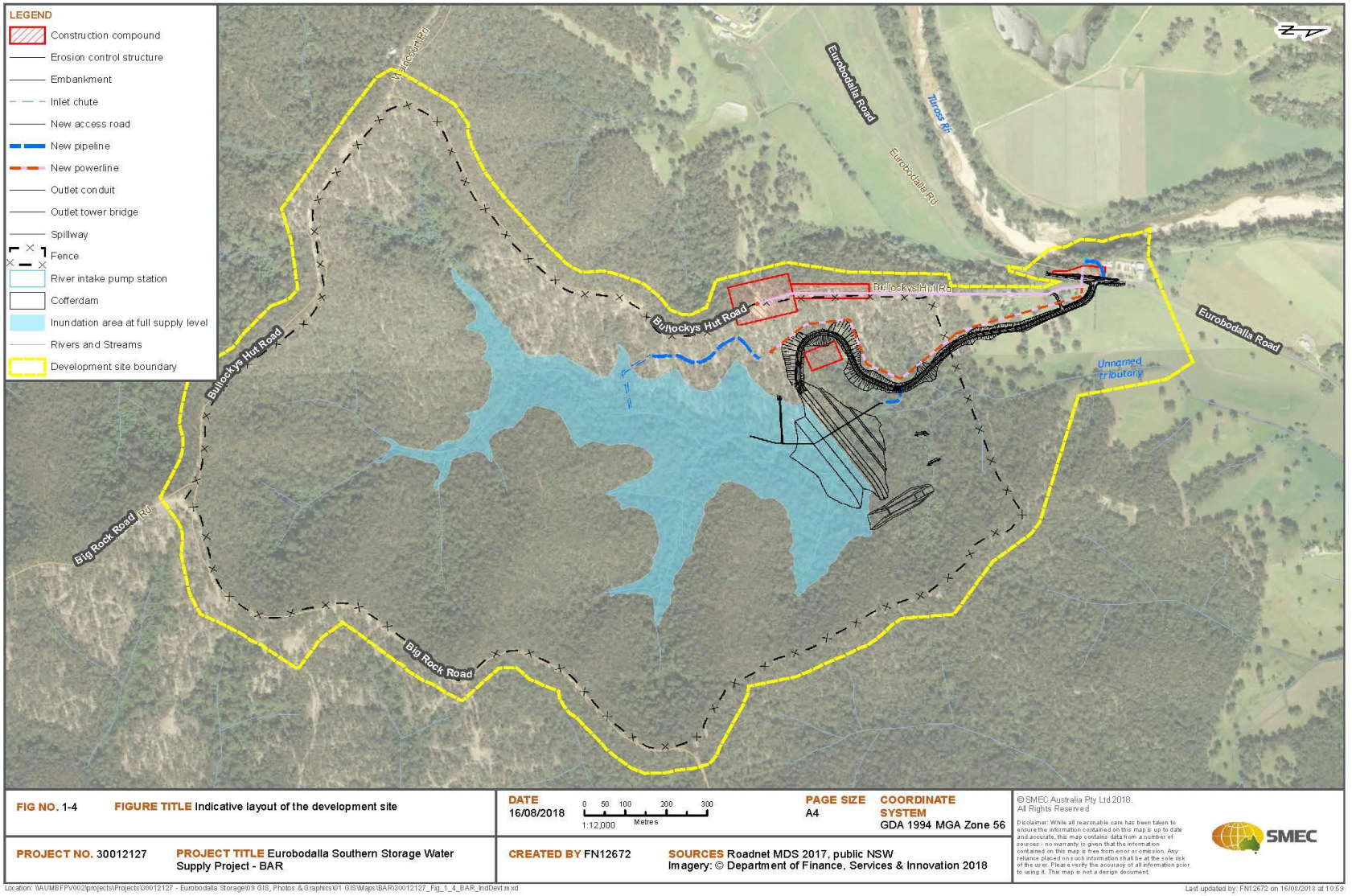

Figure 1-4 Indicative layout of the development site

2 Policy Framework for the Offset Strategy

2.1 NSW Biodiversity Offsets Policy for Major Projects

The *NSW Biodiversity Offsets Policy for Major Projects* (NSW Government 2014a) was adopted in September 2014 and applies to state significant development (SSD) and state significant infrastructure (SSI) designated under the *Environmental Planning & Assessment Act 1979* (EP&A Act). The policy provides a standard method for assessing impacts of major projects on biodiversity and determining offsetting requirements (NSW Government 2014a). The policy is underpinned by six principles which must be considered when assessing offsets for major projects. The Framework for Biodiversity Assessment (FBA) (NSW Government 2014b) has been developed in conjunction with the policy to provide a method for determining the impacts resulting from development. The FBA provides rules and software for calculating the number and type of credits that a development site will require in order to offset its impacts and thus improve or maintain biodiversity values. "Credits" are the currency used within FBA and they are not specifically area measurements; rather, they are a measure of the biodiversity value generated by the BioBanking Credit Calculator (BBCC). The FBA requires the preparation of the following documents:

- A Biodiversity Assessment Report to describe the biodiversity values present within the development site and the impact of the project on these values
- A Biodiversity Offset Strategy to outline how the proponent intends to offset the impacts of the project.

These reports are required to be submitted as part of the EIS.

The FBA does not provide guidance for assessing impacts that are not associated with the clearing of native vegetation, which includes downstream impacts on hydrology and environmental flows on surface vegetation and groundwater dependent ecosystems. Consequently, additional assessment requirements for the downstream impacts associated with the ESS operation were outlined within the Secretary's Environmental Assessment Requirements (SEARs).

As the FBA applies predominantly to terrestrial biodiversity, the NSW Offsets Policy for Major Projects and the FBA refer to the NSW Department of Primary Industries (DPI) Policy and Guidelines for Fish Habitat Conservation and Management Update 2013 (Fairfull 2013) for guidance on assessing and offsetting aquatic impacts.

The NSW Department of Industry (DoI) Fisheries have advised in their response to EIS exhibition that "as no specific vegetated aquatic habitat will be impacted from the proposed intake structure works within the Tuross River, there is no specific requirement for any offsets under the *Fisheries Management (FM) Act 1994*."

2.2 Sectary's Environmental Assessment Requirements

The key objective of this BOS is to meet the requirements of the FBA (NSW Government 2014b) and to address the biodiversity matters raised in the Secretary's Environmental Assessment Requirements (SEARs) (see Table 2-1). The Office of Environment and Heritage (OEH) has been consulted during the assessment process, through direct meetings, written communications and teleconferences. This report aims to conform to the requirements of OEH and relevant guidance documents.

Table 2-1 SEARs relevant to biodiversity assessment

DESIRED PERFORMANCE OUTCOME	SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS	WHERE ADDRESSED
6. Biodiversity – including but not limited to: An assessment of impacts to any threatened species (including fish), populations, ecological communities, critical habitat, riparian, instream ecology,	1. Demonstrate a design philosophy of impact avoidance on ecological values, and in particular, ecological values of high significance; and include a management framework consistent with the 'avoid, minimise or offset' principle during construction and operation, including but not necessarily limited to progressive rehabilitation works; and	Biodiversity Assessment Report

DESIRED PERFORMANCE OUTCOME	SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS	WHERE ADDRESSED
water dependent ecosystems (including RAMSAR wetlands) and ground water dependent communities taking into consideration the NSW Groundwater Dependent Ecosystems Policy and/ or relevant recovery plans; and any impacts to local or regional biodiversity corridors. The assessment must:	2. Be undertaken in accordance with the Framework for Biodiversity Assessment (Office of Environment and Heritage (OEH) 2014) and the NSW Biodiversity Offsets Policy for Major Projects (OEH 2014), and by a person accredited in accordance with section 142B(1) of the *Threatened Species Conservation Act 1995*.	Biodiversity Assessment Report
	3. Include an assessment of impacts on aquatic ecology downstream of the water offtake and outlet, the pumping station on Tuross River and the confluence of Stony Creek and Tuross River (*note that this is the wording used in the SEARs - Stony Creek never enters the Tuross River. The confluence is of the third order ephemeral stream*), particularly through changes in the quality and quantity of water within the creek and Tuross River and changes to habitat. In assessing impacts on aquatic ecology, consideration should be given to both aquatic and riparian species that may be directly or indirectly affected by project construction, ongoing operation, water extraction and release and the potential for introduction of pest and exotic species. The EIS should clearly detail measures to be applied to address impacts of barriers to fish migration, breeding cycles and fish passage and sudden or unnatural changes in flow regimes and habitat on aquatic ecology.	Chapter 8 of the EIS, and Aquatic Ecology Technical Note

2.3 Principles of Biodiversity Offsets for Major Projects

The *NSW Biodiversity Offsets Policy for Major Projects* (NSW Government 2014a) provides a standard method for assessing impacts of major projects on biodiversity and determining offsetting requirements. The policy is underpinned by six principles which must be considered when assessing offsets for major projects. Details of the six principles are discussed below.

Principle 1: Before offsets are considered, impacts must first be avoided, and unavoidable impacts minimised through mitigation measures. only then should offsets be considered for the remaining impacts

The biodiversity offsets policy is built around the hierarchy of 'avoid-minimise-offset'. The premise of this hierarchy means that the first priority of a project is to avoid any unnecessary impacts to biodiversity. Where avoidance is not possible, reasonable steps to minimise impacts to biodiversity must be undertaken. Once all feasible measures have been undertaken to avoid and minimise impacts, offsets should be used to compensate for the residual impacts.

Principle 2: Offset requirements should be based on a reliable and transparent assessment of losses and gains

The major projects are assessed following a transparent assessment methodology, the FBA. The FBA uses clear and repeatable methods to assess impacts to biodiversity on development sites and likely gains on offset sites.

Principle 3: Offsets must be targeted to the biodiversity values being lost or to higher conservation priorities

Offsets must have a clear relationship to the biodiversity values being lost. The default position of the policy is that offsets must be 'like-for-like', which is defined as:

- Species being offset with the same species
- Plant Community Types (PCTs) being offset with closely related PCTs.

Where a proponent is unable to source 'like-for-like' offsets after taking reasonable steps, as defined within Appendix A of the *Biodiversity Offsets* Policy (NSW Government 2014a), variation rules may be applied to locate an appropriate offset. The variation rules allow PCTs to be offset with a broader range of PCTs, and species to be offset with similar species that use the same habitat and are under a similar or greater level of threat.

Principle 4: Offsets must be additional to other legal requirements

Offsets must provide an actual addition to biodiversity, not an action that was to occur irrespective of the offset requirement. This principle is applied through the requirement that any management actions must be additional to other legal obligations for conservation that are attached to the land.

Principle 5: Offsets must be enduring, enforceable and auditable

Offsets must ensure that there is adequate funding available for current and future conservation management. Offsets must also have clear monitoring and reporting requirements.

Principle 6: Supplementary measures can be used in lieu of offsets

Where reasonable steps have been undertaken and suitable like-for-like offsets cannot be found, proponents have the option of funding supplementary measures. Supplementary measures are actions, other than protection and management of land as an offset site, that are known to improve biodiversity values. Examples of supplementary measures include:

- Actions outlined in threatened species recovery programs
- Actions that contribute to threat abatement programs
- Biodiversity research and survey programs.

The money put aside to fund supplementary measures must be equivalent to the cost of sourcing an offset. By ensuring the cost of funding supplementary measures is commensurate with finding land-based offsets, the policy aims to ensure that the supplementary measures are improving biodiversity values.

2.4 *Environment Protection and Biodiversity Conservation Act 1999* Environmental Offsets Policy

The *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy* (SEWPaC 2012) outlines the Australian Government's approach to biodiversity offsets under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The policy defined offsets as measures that compensate for the residual adverse impacts resulting from an action on the environment. The policy ensures that the process around determining the suitability of an offset is transparent. The suitability of a proposed offset is considered as part of the decision as to whether or not to approve a proposed action under the EPBC Act.

Three matters of national environmental significance (MNES) were recorded within the current surveys:

- *Monarcha melanopsis* Black-faced Monarch
- *Rhipidura rufifrons* Rufous Fantail
- *Hirundapus caudacutus* White-throated Needletail.

Assessments of Significance (Appendix F of the EIS) for these species found that the proposed ESS would not result in a significant impact. Consequently, biodiversity offsets are not required for these species.

3 Project Impacts that Require Offsetting

3.1 Impacts that require offsetting

The biodiversity assessment for the proposed ESS has completed been using the FBA, subject to DPE approval of the requested transitionary arrangements. However, as FBA credits are no longer available for purchase, the credits required would need to be converted into Biodiversity Assessment Method (BAM) credits for the offsetting of the project to be realised. Eurobodalla Shire Council will need to seek a 'credit equivalence' statement from the Office of Environment and Heritage (OEH) before seeking to fulfil the offset requirements.

3.1.1 Native Vegetation

Impacts of the Project that fall into the threshold of impacts that require offsetting include:

- The removal of 37.56 hectares of SR643: Spotted Gum - White Stringybark - Burrawang shrubby open forest on hinterland foothills, northern South East Corner Bioregion
- The removal of 9.57 hectares of SR551: Grey Myrtle - Lilly Pilly dry rainforest in dry gullies of the Sydney Basin Bioregion and South East Corner Bioregion
- The removal of 7.19 hectares of SR609: River Peppermint - Rough-barked Apple moist open forest on sheltered sites, southern South East Corner Bioregion
- The removal of 0.22 hectares of SR608: River Peppermint - Rough-barked Apple - River Oak herb/grass forest of coastal lowlands, southern Sydney Basin Bioregion and South East Corner Bioregion
- The removal of 0.07 hectares of SR533: Coast Grey Box - Mountain Grey Gum - stringybark moist shrubby open forest in coastal gullies, southern South East Corner.

The offset requirement for the above PCTs were calculated using the BBCC. A summary of the vegetation zone impacted, threatened species associated with that vegetation zone, loss landscape value, loss in site value, and the number of ecosystem credits required for the impacts is detailed in Table 3-1.

Table 3-1 Credit requirements of the proposed construction works

VEGETATION ZONE	PCT	CONDITION	AREA IMPACTED (HA)	CURRENT SITE VALUE	FUTURE SITE VALUE	CREDIT REQUIREMENT
1	SR643	Moderate/Good - Medium	16.01	61.28	0.00	835
2	SR643	Moderate/Good - High	21.55	61.81	0.00	1,132
3	SR551	Moderate/Good	9.57	71.35	0.00	571
4	SR609	Moderate/Good	6.38	71.88	0.00	383
5	SR608	Moderate/Good	0.22	76.00	0.00	14
6	SR533	Moderate/Good	0.07	73.44	0.00	4
7	SR609	Moderate/Good – Low	0.81	10.94	0.00	0

3.1.2 Species and populations

No species credit species or populations were recorded within the development site. However, nine candidate species credit species are assumed to be present and their habitat offset. As such, impacts of the Project that fall into the threshold of impacts that require offsetting include:

- Impacts to 0.07 hectares of *Correa baeuerlenii* habitat within SR533
- Impacts to 37.56 hectares of *Genoplesium vernale* habitat within SR643
- Impacts to 0.07 hectares of *Persicaria elatior* habitat within SR533
- Impacts to 0.22 hectares of *Galium astralale* habitat within SR608
- Impacts to 0.22 hectares of Southern Myotis habitat within SR608
- Impacts to 54.39 hectares of Giant Burrowing Frog habitat within SR643, SR551, SR609, and SR533
- Impacts to 54.39 hectares of Eastern Pygmy-possum habitat within SR643, SR551, SR609, and SR533
- Impacts to 0.22 hectares of Koala habitat within SR608
- Impacts to 0.07 hectares of Southern Brown bandicoot habitat within SR533.

The offset requirement for the above PCTs were calculated using the BBCC. A summary of the vegetation zone impacted, threatened species associated with that vegetation zone, loss landscape value, loss in site value, and the number of ecosystem credits required for the impacts is detailed in Table 3-2.

Table 3-2 Credit requirement of the project for species credits.

SPECIES NAME	COMMON NAME	BC ACT STATUS	EPBC ACT STATUS	AREA (HA) TO BE REMOVED	CREDIT REQUIREMENT
FLORA					
Correa baeuerlenii	Chef's-hat Correa	V	V	0.07*	16
Genoplesium vernale	East Lynne Midge-orchid	V	V	37.56*	2,926
Persicaria elatior	Tall Knotweed	V	V	0.07*	13
Galium australe	*Tangled Bedstraw*	V	-	0.22*	15
FAUNA					
Myotis macropus	Southern Myotis	V	-	0.22	5
Heleioporus australiacus	Giant Burrowing Frog	V	V	54.39	707
Cercartetus nanus	Eastern Pygmy-possum	V	-	54.39	1,088
Phascolarctos cinereus	Koala	V	V	0.22	6
Isoodon obesulus obsesulus	Southern Brown Bandicoot (eastern)	E	E	0.07	2

**Rounded to nearest whole number for entry into BBCC*

4 Avoid, Minimise and Mitigate

Principle 1 of the *NSW Biodiversity Offsets Policy for Major Projects* (NSW Government 2014a) requires that project proposals consider all reasonable measures to avoid and minimise impacts on biodiversity. The following chapter outlines how the Project has avoided and minimised impacts to biodiversity in line with the policy.

4.1 Avoidance of direct impacts

Under the FBA, a proponent must seek to avoid the direct impacts of a major project on all biodiversity values at the development site, including impacts on:

- Endangered ecological communities (EECs) and critically endangered ecological communities (CEECs)
- PCTs that contain threatened species habitat
- Areas that contain habitat for vulnerable, endangered or critically endangered threatened species or populations
- An area of land that the Minister for Environment has declared as critical habitat in accordance with section 47 of the *Threatened Species Conservation Act 1995* (TSC Act)
- The riparian areas of 4th order or higher streams and rivers, important wetlands and estuaries
- State significant biodiversity links.

The scale and nature of the development type means that options to avoid impacts to biodiversity within the development site are very limited. However, biodiversity values were given early consideration during the site selection plan, along with social impacts, economic considerations, and construction feasibility. Where feasible, storage ancillaries have been designed to minimise impacts on biodiversity.

4.2 Measures to minimise and mitigate impacts

The measures proposed to minimise and mitigate impacts to biodiversity during construction of the raised dam wall are outlined in the Project's BAR and EIS.

5 Offsetting strategy

5.1 Offset options in accordance with *NSW Biodiversity Offsets Policy for Major Projects*

Offset strategies can include both on-site and off-site or local area schemes that contribute to the long-term conservation of threatened species and communities. Biodiversity offsets are required to compensate for the residual biodiversity impacts associated with the Project.

The *NSW Biodiversity Offsets Policy for Major Projects* (NSW Government 2014a) prescribes three types of strategies that can be used to fulfil the offset requirements:

- Offsetting through a site secured stewardship (formerly known as biobanking) agreement, either through establishing a BSA or purchasing credits on the market
- Contributing money to supplementary measures following the rules prescribed in Appendix B of the policy
- Monetary contribution into the Biodiversity Conservation Fund.

5.1.1 Offsetting through a site secured stewardship agreement

Offset sites will generally be secured using a conservation covenant, and an appropriate biodiversity management framework would then be implemented. The NSW Biodiversity Offset Scheme (BOS) and Biodiversity Assessment Method (BAM) (formerly known as BioBanking) provide a mechanism for biodiversity offset sites to be securely titled under a legally binding conservation covenant known as a Biodiversity Stewardship Agreement (BSA) (formerly known as a BioBanking agreement). This system expresses the conservation gain delivered through conservation and management of the offset site in terms of biodiversity credits and provides rules for the like-for-like trading of credits to offset the impacts of a development.

If the offset sites are secured under a BSA then the number and type of biodiversity credits that are linked to the offset areas for the affected threatened biota would be purchased and retired. This outcome will be achieved either through identification of suitable offset areas and completion of a BSA assessment to secure a new offset site, or purchase of biodiversity credits from existing BSA sites that contain habitat for the affected threatened biota. The biodiversity credits must be retired to offset the impact of a development on biodiversity values.

Council does not intend to establish a BSA on a new offset site to generate the biodiversity credits required for offsetting the project. Council will retire credits they own from a BioBank Agreement to offset some of their offset obligations for the project.

5.1.2 Purchase credits

The Office of Environment and Heritage (OEH) maintains a number of BioBanking public registers, including:

- The biobanking agreement register, which provides the location of each biobank site, the number and type of credits generated and a copy of the biobanking agreement
- The biodiversity credits register, which provides ownership information in relation to each credit and their status
- The biobank site expressions of interest (EOI) register, which lists landowners who are interested in establishing biobank sites but have not entered into a biobanking agreement.

There is an opportunity for purchasing credits from landowners selling appropriate credits on the market, should they be available. Once purchased, the biodiversity credits must be retired to offset the impact of a development on biodiversity values.

Council intends to purchase credits in order to satisfy the offset credit requirements of the project.

5.1.3 Supplementary measures

Where biodiversity credits are not available, or where better conservation outcomes would be achieved through measures directly related to species over the variation rules (see Section 5.2), supplementary measures may be considered as an appropriate offset. Before supplementary measures can be considered as an offset, the proponent must demonstrate that all reasonable steps have been taken to secure an offset site or biodiversity credits. The use of supplementary measures is not proposed for this Project.

Council does not intent to carry out supplementary measures.

5.1.4 Biodiversity Conservation Fund

Proponents may deposit into the Biodiversity Conservation Fund as an alternative to retiring biodiversity credits. By doing this, the responsibility of finding an offset is transferred to the Biodiversity Conservation Trust (BCT). The financial contribution required for a proponent to meet their offset obligation is calculated by the Biodiversity Offset Payment Calculator which uses three modules to calculate the costs of paying into the fund based on previous credit trades made, market fluctuation risk, and administrative costs.

Should Council be unable to purchase credits on the market, Council will consider paying into the Biodiversity Conservation Fund to satisfy the Project's offset credit requirements.

5.2 Variation rules

Where it can be demonstrated that offsets have been unable to be sourced after reasonable steps, proponents may vary the offset requirement as follows:

- Impacts to vegetation are to be offset with vegetation that is in the same locality as the impact:
  - A PCT in the same vegetation formation that has undergone the same or greater amount of clearing since European inhabitation
- Impacts to threatened species can be offset with species:
  - For fauna species, in the same order that uses similar habitat to the species impacted
  - For flora, in the same family and with the same life form as the species impacted
  - That are under the same or greater level of threat.

An EOI for the Project was lodged on the "credits wanted" public register on 1 December 2017 (Credits Wanted ID: 141), and again on 30 June 2019. As of June 2019, there have been two parties who have enquired regarding the EOI, however, beyond this enquiry no further firm interest has been forthcoming.

Council may seek to purchase credits under the variation rules, should 'like-for-like' credits be unavailable on the market.

6 Offset Strategy Implementation

6.1 Assessment of BSA site options

SMEC has investigated two options for establishing a BSA to fulfil the credit requirement generated by the Project on behalf of Eurobodalla Shire Council. Sites for BSAs include around the catchment of the ESS, and within forestry land. Following these initial investigations and consultation with Forestry Corporation, Eurobodalla Shire Council has decided not to proceed with the BSA around the ESS catchment. Council has decided not to establish a BSA to offset the projects biodiversity credit obligations.

6.2 Conversion to BAM credits

Under the transitional arrangements from Biobanking to BAM Clause 22 of the Biodiversity Conservation (Savings and Transitional) Regulation 2017 provides that obligations to retire credits under the TSC Act become obligations to retire credits under the BC Act (where those TSC Act credits have not been retired by 25 August 2017). Therefore, conversion to PCT credit equivalences by DPIE is first required prior to arranging offsetting either through BCT payment or the current credit market. The exception to conversion is the retirement of Biobanking credits with other Biobanking credits if the event that they can be obtained. An assessment of reasonable equivalence will need to be sought from DPIE for prior to the preparation of the Biodiversity Offset Package documents.

6.3 Retirement of credits owned by Eurobodalla Shire Council

Eurobodalla Shire Council owns credits under BioBanking Agreement 153, which would be suitable for use as an offset for the proposed ESS. As the council owned credits are the same credit type under the TSC Act, they can be used without requiring conversion to the newer credit type. There are two Plant Community Codes from that once converted to the equivalent PCT under the newer BOS and can be traded interchangeably as 'like-for-like' credits under the current BOS. Like for like trading under the Biobanking scheme can logically be assumed.

The credits owned by ESC are:

- SR643 (31 credits), equivalent to PCT 1206 (15 BAM credits)
- SR641 (41 credits), equivalent to PCT 1220 (20 BAM credits).

These equivalency rates were specified in a Credit Ownership Report issued by BCT 28th May 2020. Both these PCTs are within the same formation and class (Southern Lowland Wet Sclerophyll Forest) and adjacent subregion and hence are eligible for "Like -for-Like" offsetting rules.

6.4 Purchase of credits from the market

The potential for purchasing credits from landowners selling appropriate credits on the market will be investigated as part of the offset strategy implementation. This investigation will involve searches of the Biodiversity credits register and following up responses from potential landowners/credit brokers to the ESS 'credits wanted' expression of interest. Should suitable biodiversity credits be identified, Eurobodalla Shire Council would commence negotiations to purchase available credits. Purchased credits would be retired into the fund to meet offset requirements.

As of July 2019, there have been three parties who have enquired regarding the EOI. Of these enquiries, two have not resulted in any further interest. The third enquiry occurred in early July 2017 as a result of an update made to the EOI. Having taken these steps to procure 'like-for-like' credits, Eurobodalla Shire Council is eligible seek to purchase credits under the variation rules as per section 6.4 (4) of the Biodiversity Conservation Regulations (2017), should insufficient 'like-for-like' credits become available on the market.

6.5 Biodiversity Conservation Fund

In the instance where biodiversity credits cannot be sourced from the credit market, Eurobodalla Shire Council will deposit the balance of credits into the Biodiversity Conservation Fund to meet their offset obligations.

7 Evaluation of Proposed Strategy Against Offset Criteria

7.1 Principles of Biodiversity Offsets for Major Projects

As outlined in Section 2.3, the NSW Biodiversity Offsets Policy for Major Projects is underpinned by six principles which must be considered when assessing offsets for major projects. Details of how the Project's offsets have been applied to the principles are discussed in Table 7-1.

Table 7-1 Application of NSW biodiversity offset policy principles

Principle	Application in the Project
Principle 1: Before offsets are considered, impacts must first be avoided, and unavoidable impacts minimised through mitigation measures; only then should offsets be considered for the remaining impacts	The Project has applied the hierarchy of 'avoid-minimise-offset': • Avoid: The scale and nature of the development type means that options to avoid impacts to biodiversity within the development site are very limited. However, biodiversity values were given early consideration during the site selection plan, along with social impacts, economic considerations, and construction feasibility. Where feasible, storage ancillaries have been designed to minimise impacts on biodiversity. • Minimise: Mitigation measures to be employed as part of the construction and operational phases are outlined in the Project's EIS and BAR.
Principle 2: Offset requirements should be based on a reliable and transparent assessment of losses and gains	The impacts of the Project have been assessed following a transparent assessment methodology, the Framework for Biodiversity Assessment (FBA). There are three key stages involved with the framework: • Stage 1 – Biodiversity assessment • Stage 2 – Impact assessment of biodiversity values • Stage 3 – Biodiversity offset strategy. The Biodiversity Assessment Report (SMEC 2019) is consistent with the methods outlined in the FBA to assess biodiversity in relation to the Project's impacts. Stages 1 and 2 are addressed in the Project's BAR (SMEC 2019). This document addresses the requirements of Stage 3 of the FBA.
Principle 3: Offsets must be targeted to the biodiversity values being lost or to higher conservation priorities	The offset strategy proposed as part of this BOS would be finding like-for-like offsets through purchasing similar of higher conservation value offsets through market credits and payment into the Biodiversity Conservation Fund as a secondary measure.
Principle 4: Offsets must be additional to other legal requirements	Offsetting of the construction impacts would be undertaken through retirement of BioBanking credits, purchasing credits on the market or costs deposited to the Biodiversity Conservation Fund. All proposed measures would be additional to other legal requirements.
Principle 5: Offsets must be enduring, enforceable and auditable	Offsets will be delivered through enduring, enforceable and auditable agreements. The agreements will be made through purchase of market credits, retirement of biobanking areas or agreement on costs to the biodiversity conservation fund. The purchase of market credits or deposit of costs to the biodiversity conservation fund to ensure all offsets for the Project satisfy Principle 5 of the *NSW Biodiversity Offsets Policy for Major Projects* (NSW Government 2014a).

Principle	Application in the Project
Principle 6: Supplementary measures can be used in lieu of offsets	The offset strategy proposed as part of this BOS would be finding like-for-like offsets through purchasing similar of higher conservation value offsets through market credits and payment into the Biodiversity Conservation Fund as a secondary measure. It is expected that these measures would fulfil the offset requirement of the ESS. As such, the use of supplementary measures to meet offset obligations is not proposed.

8 Finalisation of Offset Program and Next Steps

8.1 Biodiversity Offset Package

Eurobodalla Shire Council is seeking to have a Biodiversity Offset Package that specifies the exact mechanisms by which they will satisfy their credit obligations within two years of approval, mandated as part of the Conditions of Approval. This extension of time from the standard credit requirement procedure (i.e., settle prior to clearing) would provide Council with the necessary contingency time to retire credits it owns and purchase credits off the market (or purchase credits under the variation rules, should 'like-for-like' credits be unavailable on the market) or pay into the BCT fund.

8.2 Offset program actions

Table 8-1 outlines the actions that will be carried out, the timing of the actions, and responsibility of the actions in order to ensure the delivery of the ESS offset program.

Table 8-1 Proposed actions for finalising offset program

Offset option	Action	Timing	Responsibility
Retirement of credits owned by Eurobodalla Shire Council	Retire credits	As required within two years of approval.	Eurobodalla Shire Council
Purchase of credits from the market	Follow up on enquiries from EOI	July 2017 ongoing as required up to two years from approval.	BAM accredited contractor/Eurobodalla Shire Council
Payment into Biodiversity Conservation Trust Fund	Payment into fund for remaining credits	As required within two years of approval.	Eurobodalla Shire Council

**Timing is depending on outcomes of land purchase and settlement of ESS land*

9 References

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