

**REVIEW OF ENVIRONMENTAL FACTORS (REF)
BUSHFIRE ASSET PROTECTION ZONE (APZ)
CALLALA BEACH FIRE BRIGADE BUILDING
Lot 320 DP 227922, GREENWAY ROAD, CALLALA BEACH**


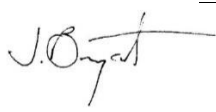
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Document control

Item	Details
Project	Review of Environmental Factors – Bushfire Asset Protection Zone (APZ) – Callala Beach Fire Brigade Building – Lot 320 DP 227922, Greenway Road, Callala Beach
Client	City Services, Shoalhaven City Council
Prepared By	Works and Services with City Services, Shoalhaven City Council

Document status

Version	Author / Reviewer*	Name	Signed	Date
V1.0	Author	Geoff Young		02/02/2023
	Reviewer	Jeff Bryant		13/02/2023

*Review and endorsement statement:

“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 clause 170 of the EP&A Regulation, and the information it contains is neither false nor misleading”.

Assessment and approvals overview

Item	Details
Assessment type	Division 5.1 (EP&A Act) - Review of Environmental Factors (REF)
Proponent	Shoalhaven City Council – City Services
Determining authority / authorities	Shoalhaven City Council – City Services
Required approvals (consents, licences and permits)	Nil
Required publication	Yes – Public Interest (impacts an endangered ecological community).

1. PROPOSAL AND LOCATION

1.1 Proposed activity

The proposed activity is the establishment of a 15 metre wide bushfire asset protection zone (APZ) around the Callala Beach Fire Brigade building. The proposed works would involve the hand removal of vegetation and fire fuels, and tree pruning to create a bushfire APZ to the standard described in NSW Rural Fire Services document *Standards for Asset Protection Zones* https://www.rfs.nsw.gov.au/_data/assets/pdf_file/0010/13321/Standards-for-Asset-Protection-Zones.pdf i.e.:

- Ground fuels such as fallen leaves, twigs (less than 6 mm in diameter) and bark to be removed on a regular basis.
- Grass to be cut and kept short.
- Prune or remove trees so that there is no continuous tree canopy leading from the hazard to the asset. Separate tree crowns by two to five metres.
- A tree canopy not to overhang within two metres of the building.
- Native trees and shrubs to be retained as clumps or islands and cover no more than 20% of the area.

The APZ is essentially established on the northern and western elevations but will require some canopy pruning. The APZ would need to be established on the southern and eastern side as there is no setback from the bushland on these elevations. The extent of the proposed activity is displayed in Figure 1 below with more detail Figure 3 p.15.

Works would also involve the implementation of prescribed environmental impact mitigation measures and safeguards listed in Section 7 of this Review of Environmental Factors (REF).

Shoalhaven City Council (SCC) is the proponent and the determining authority under Part 5 of the EP&A Act. The environmental assessment of the proposed activity and associated environmental impacts has been undertaken in the context of Clause 171 of the *Environmental Planning and Assessment Regulation 2021*. In doing so, this Review of Environmental Factors (REF) helps to fulfil the requirements of Section 5.5 of the Act that SCC examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

1.2 Location

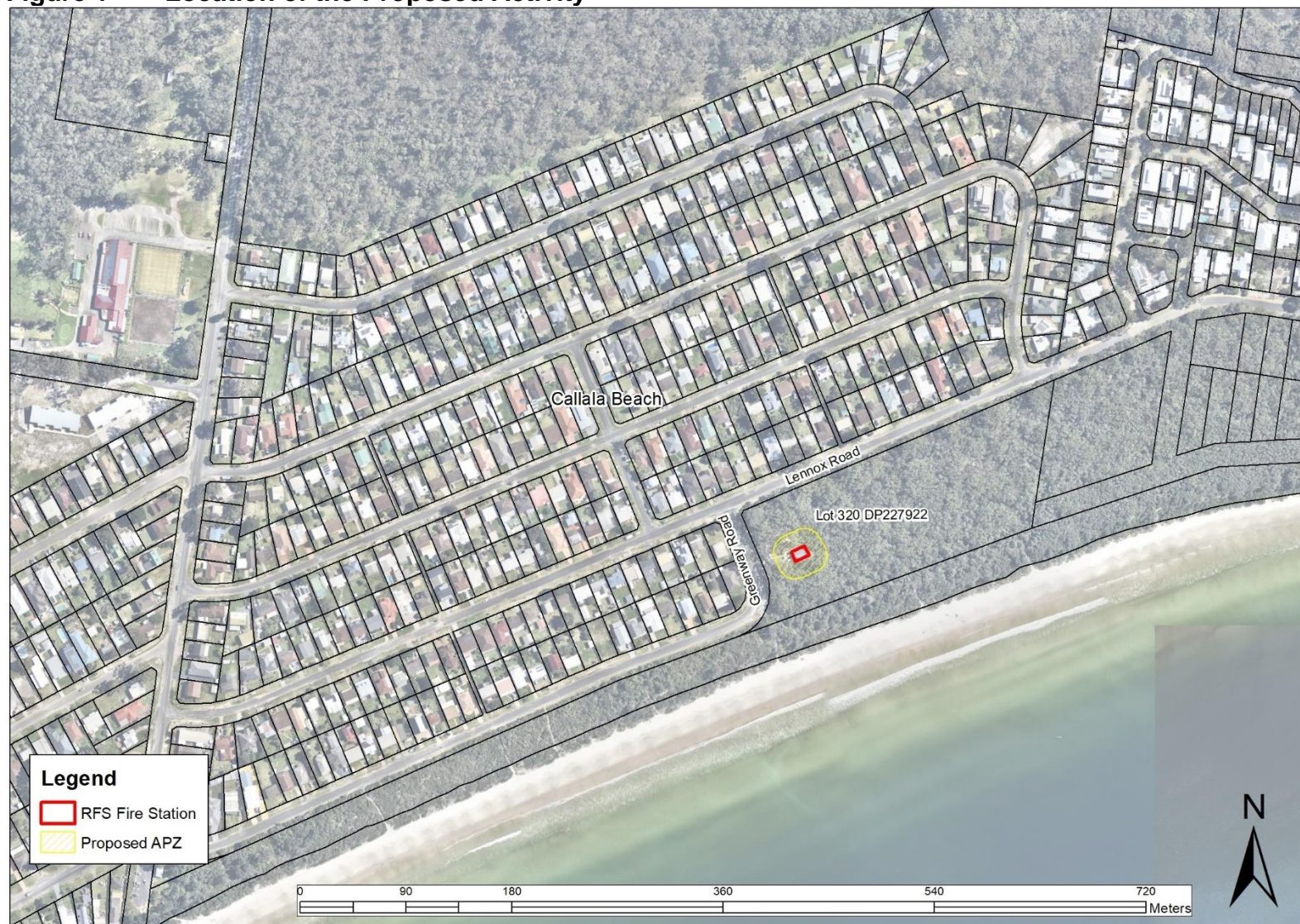
The bushfire APZ would be constructed around the Fire Brigade building situated on Greenway Road, Callala Beach (Lot 320 DP 227922). Refer to Figure 1 below.

The property is owned by SCC in freehold title. Under the NSW *Local Government Act 1993* the land is community land with category of Natural Area (Bushland). It has a common name of "Callala Creek Bushland Reserve".

The site is subject to the Rural Fire District Service Agreement (LD4433) which provides occupancy and use of the building to NSW Rural Fire Service (RFS). Under Clause 6.8 the

Agreement, NSW RFS would be responsible for the maintenance of the grounds (including the bushfire APZ) surrounding the premises.

Figure 1 Location of the Proposed Activity



2. EXISTING ENVIRONMENT

The proposed activity would be undertaken entirely within Lot 320 DP 227922 immediately surrounding the Callala Beach Bushfire Brigade building accessed from Greenway Street.

Photographs of the site are provided in Section 2.4 below.

2.1 Habitat and vegetation assessment

Vegetation to the north and west of the building is currently managed to 20 to 25 metres. In this area the grass has been kept short, shrubs have been removed and trees are few and scattered. This area needs only minor works to establish and formalise the bushfire APZ. However, forest vegetation encroaches within two metres of the building on the southern and eastern elevations. This area will require substantial vegetation management / removal to establish the APZ.

Vegetation communities mapped as occurring within or immediately around the proposed activity site are (Figure 2 below):

- Biometric SR649: Swamp Oak - Prickly Tea-tree - Swamp Paperbark swamp forest on coastal floodplains, Sydney Basin and South East Corner
- Biometric SR512: Bangalay - Old-man Banksia open forest on coastal sands, Sydney Basin and South East Corner

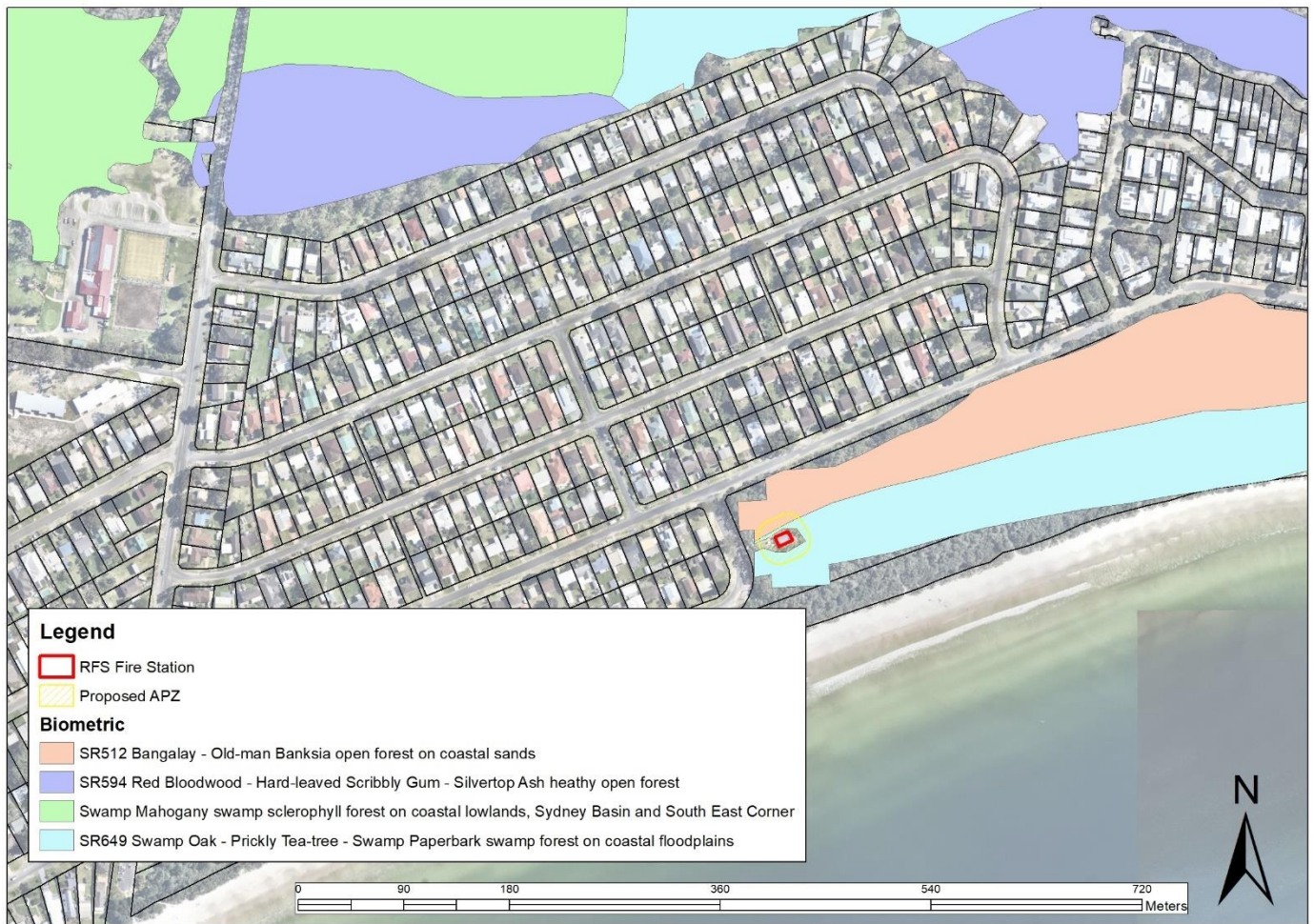
The site was assessed by a Council Environmental Officer on 16 December 2022. The site of the proposed activity was assessed to be more aligned with Biometric SR512. Sweet Pittosporum *Pittosporum undulatum* dominates the mid-storey and canopy with Bangalay *Eucalyptus botryoides* and Old Man Banksia *Banksia serrata* and Lilly Pilly *Acmena smithii* also comprising the upper canopy of the forest. Coast Teatree *Leptospermum laevigatum*, Coffee Bush *Breynia oblongifolia*, Coast Beard-heath *Leucopogon parviflorus*, Coastal Wattle *Acacia sopharae*, Sweet Pittosporum *Pittosporum undulatum*, Scurvey Weed *Commelina cyanea*, Spiney-head Mat-rush *Lomandra longifolia*, Blue Flax Lily *Dianella caerulea*, Bracken *Pteridium esculentum*, Snake Vine *Stephania japonica*, Blady Grass *Imperata cylindrica*, Guinea Flower *Hibbertia scandens* and Hyacinth Orchid *Dipodium roseum* are also present. This vegetation is associated with the endangered ecological community *Bangalay Sand Forest of the Sydney Basin and South East Corner Bioregions*.

No threatened flora species were detected on-site during field surveys and no suitable habitat was considered to occur in any areas that would be impacted by the proposed activity.

No evidence of potential use of this site by threatened fauna species including Glossy Black Cockatoo (*Calyptorhynchus lathami*) (e.g. chewed *Allocasuarina littoralis* cones), Glider species (e.g. feeding scars on *Corymbia gummifera* or *Eucalyptus punctata*) or bandicoot diggings were recorded within the site.

No hollow-bearing trees would be impacted on by the proposal.

Figure 2 Vegetation Communities - Biometric



2.2 Geomorphological, subsurface and acid sulfate soils

The geology of the activity site consists of Holocene coastal sand deposits comprising fine to coarse-grained marine deposited sand, shell and shell fragments.

The geology and geomorphology of the site would indicate low risk for acid sulfate soils (ASS) and has been mapped as such (Class 4). No further consideration is required.

The entire lot is mapped for the purpose of Clause 7.4 – Coastal Risk Planning of the Shoalhaven Local Environmental Plan 2014 which is applicable to new developments. An assessment of coastal hazards associated with the proposed activity is provided in Section 3.6 of this REF.

2.3 Other

For the purposes of this REF, the site of the proposed activity:

- is not in flood liable land
- is not identified as being contaminated
- does not contain streams and riparian areas / corridors
- is outside the area covered by the *State Environmental Planning Policy (Resilience and Hazards) 2021*

2.4 Photos

Photo 1: Southern elevation looking east



Photo 2: Southern elevation looking west



Photo 3: Western elevation looking north



Photo 4: Western elevation looking south



Photo 5: Northern elevation looking north (APZ essentially in existence)



Photo 6: Northern elevation looking north-east (APZ essentially in existence)



Photo 7: Western elevation looking west



3. ASSESSMENT OF LIKELY IMPACTS ON THE ENVIRONMENT

3.1 Impacts associated with the proposal

The proposal would involve the following disturbance and direct impacts:

- Removal and continual APZ maintenance of approximately 765m² of native forest comprising an endangered ecological community.
- Continual suppression of bushfire fuels in approximately 535m² of previously cleared and maintained area.
- Once established the continued maintenance of the approximate 1300m² (in total) bushfire APZ around the building in accordance with RFS standards.

Other potential impacts on the environment, including indirect impacts have been considered, including:

- impact on threatened species
- indigenous heritage.

Each of these is discussed below.

3.2 Vegetation Removal

The proposed activity would result in the removal of approximately 765m² of native forest to the south and east of the building and mainly tree canopy pruning to the previously cleared and maintained area to the north and west (Figure 3 below).

Most of 765m² area to be established as an APZ comprises Sweet Pittosporum, however, the proposed activity would also result in the removal of approximately (Figure 3 below):

- one Bangalay of 400 mm dbh (diameter at breast height)
- two Old Man Banksias of 300 mm and 400 mm dbh
- nine Coast Beard Heath
- one Lilly Pilly
- five Coast Wattles
- four Coffee Bushes
- ground-cover species as previously listed.

The proposed activity would also require canopy pruning of these species through the proposed APZ area (Figure 3 below).

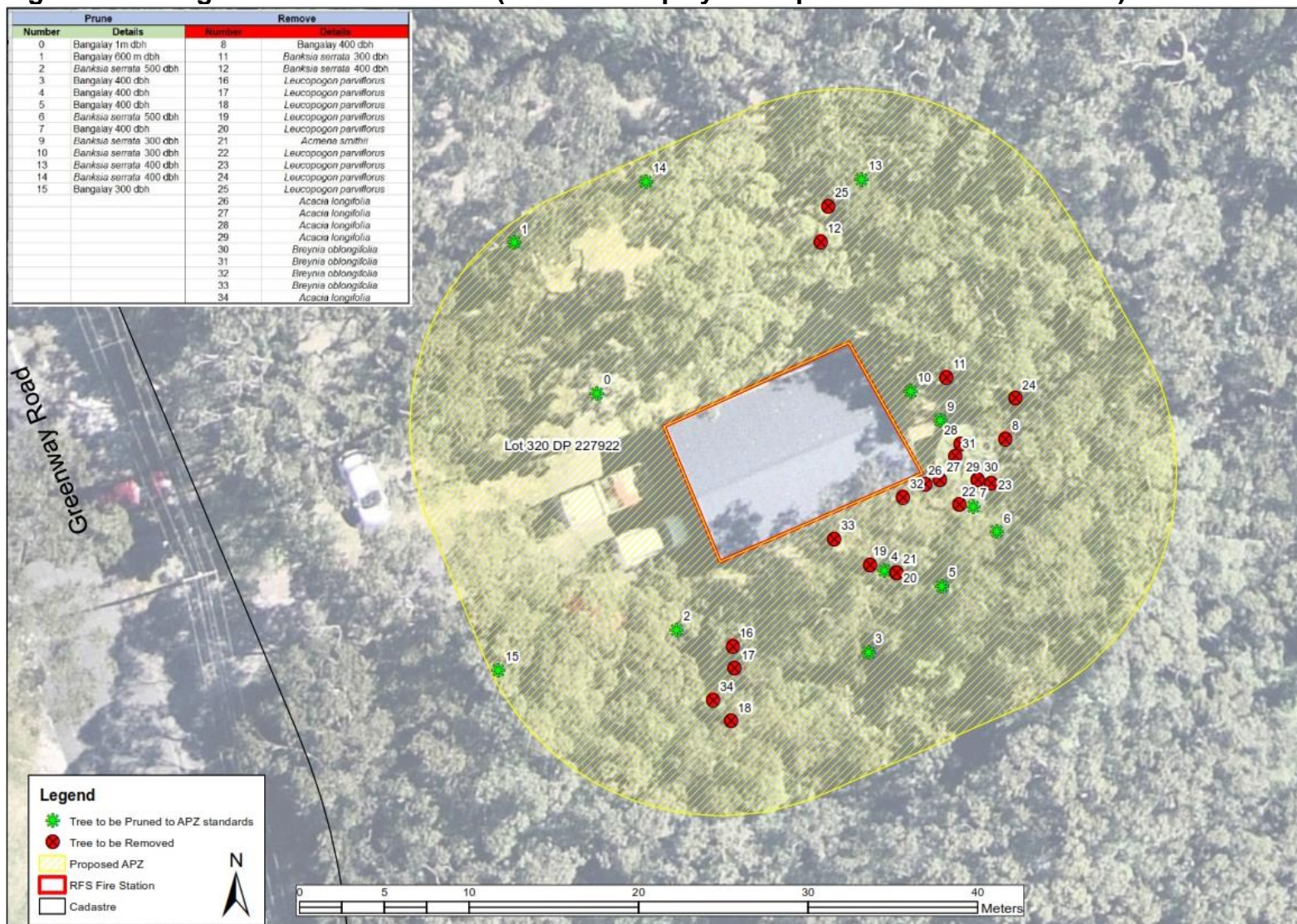
The impact caused by the vegetation removal is not significant for the following reasons:

- The trees and shrubs affected are common species and do not contain hollows or nests.
- There are no plants in this area listed in the threatened species schedules of the NSW *Biodiversity Conservation Act 2016* (NSW BC Act) or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

- Fauna species listed in the threatened species schedules of the NSW BC Act and the EPBC Act are not likely to reside in this location or rely on this vegetation for food, refuge or breeding (refer to Section 0 of this REF).
- The clearing would not have a significant impact on an endangered ecological community listed under the NSW BC Act or EPBC Act (refer to Sections 3.3.2 and 3.4 of this REF).
- The vegetation is not within a riparian area of a waterway.
- The vegetation does not appear to provide important food sources for locally occurring threatened species and does not appear to contain nests or hollows.
- The vegetation is not mapped on the Biodiversity Values Map administered for the purposes of the NSW *Biodiversity Conservation Act 2016*.

An environmental impact statement (EIS) is therefore not considered warranted.

Figure 3 Vegetation to be removed (does not display Pittosporum which is abundant)



3.3 Threatened species impact assessment (NSW)

Section 1.7 of the EP&A Act 1979 applies the provisions of Part 7 of the NSW *Biodiversity Conservation Act 2016* and Part 7A of the *NSW Fisheries Management Act 1994* that relate to the operation of the Act in connection with the terrestrial and aquatic environment. Each are addressed below.

3.3.1 Part 7A Fisheries Management Act 1994

Part 7A relates to threatened species conservation. As the activity is not going to occur in a marine, estuarine, tidal or aquatic environment, no further consideration of Part 7A is required.

3.3.2 Part 7 Biodiversity Conservation Act 2016

An assessment of the potential for NSW threatened flora and fauna species occurring on-site or otherwise being impacted by the proposal was undertaken (refer to Appendix A). The following threatened species or endangered ecological communities are considered to have some potential to occur on-site or be otherwise impacted by the proposal:

- Bangalay Sand Forest of the Sydney Basin and South East Corner Bioregions – endangered ecological community (EEC)
- Gang-gang Cockatoo *Callocephalon fimbriatum* – Vulnerable (V)
- Varied Sittella *Daphoenositta chrysoptera* – V
- Grey-headed Flying-fox *Pteropus poliocephalus* – V
- Eastern Coastal Free-tailed Bat *Microsomus norfolkensis* – V
- White-footed Dunnart (eastern) *Sminthopsis leucopus* – V
- Southern Brown Bandicoot *Isodon obesulus obesulus* - E

Section 7.3 of the Act provides a ‘five-part’ test to determine whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats. Each Part is addressed below:

Part A - In the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the lifecycle of the species such that a viable local population of the species is likely to be place at risk of extinction.

Gang-gang Cockatoo

The Gang-gang Cockatoo is distributed from southern Victoria through south- and central-eastern NSW. In spring and summer, the bird is generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In autumn and winter, the species often moves to lower attitudes in drier more open eucalypt forests and woodlands, particularly box-gum and box-ironbark assemblages, or in dry open forest in coastal areas and often found in urban areas. Favours old grown forest and woodland attributes for nesting and roosting. Nests are located in hollows that are seven centimetres in diameter or larger in eucalypts and three metres or more above the ground (OEH 2022).

Although the species has been recorded within five kilometres, and the proposed activity site contains suitable foraging habitat, the proposed activity is not likely to have an adverse effect on the lifecycle of the species such that a viable local population of the species is likely to be placed at risk of extinction for the following reasons:

- A viable population or records for the species are not known for the site, the site provides only potential foraging habitat.

- The site does not contain trees with suitable hollows for nesting.
- The removal of 765m² of vegetation to be removed, comprising predominantly Sweet Pittosporum, is insignificant in comparison to the amount of habitat in the immediate vicinity of the proposed activity.
- If the birds are present during works, they would be expected to fly away and not be directly harmed.

A species impact statement (SIS) or entry into the Biodiversity Offset Scheme (BOS) is therefore not required for this species for this Part.

Varied Sittella

The Varied Sittella is sedentary and inhabits most of mainland Australia except the treeless deserts and open grasslands. The species inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland. It builds a cup-shaped nest of plant fibres and cobwebs in an upright tree fork high in the living tree canopy, and often re-uses the same fork or tree in successive years (OEH 2017).

Although the species have been recorded within five kilometres, and the proposed activity site contains suitable foraging habitat, the proposed activity is not likely to have an adverse effect on the lifecycle of the species such that a viable local population of the species is likely to be placed at risk of extinction for the following reasons:

- A viable population or records for the species are not known for the site, the site provides only potential habitat.
- The site does not contain visible nests.
- The removal of 765m² of vegetation to be removed, comprising predominantly Sweet Pittosporum, is insignificant in comparison to the amount of habitat in the immediate vicinity of the proposed activity.
- If the birds are present during works, they would be expected to fly away and not be directly harmed.

A SIS or entry into BOS is therefore not required for this species for this Part.

Grey-headed Flying-fox (GHFF)

The GHFF occurs in subtropical and temperate rainforest and woodlands, heath and swamps as well as urban gardens and cultivated fruit crops.

Roosting camps are generally located within 20 kilometres of a regular food source and may contain thousands of animals for mating, and giving birth and rearing young (OEH 2020). The species feeds on nectar and pollen of native trees, including Eucalypts and also in cultivated urban gardens. A roosting camp is located approximately five kilometres to the south of the site in Huskisson, although this is infrequently used. More permanent camps are located in North Nowra / Bomaderry approximately 20 kilometres to the south¹

Although the proposed activity site and adjacent lands contains suitable foraging habitat, the proposed activity is not likely to have an adverse effect on the lifecycle of the species such that a

¹ National Flying-fox monitoring viewer <https://www.environment.gov.au/webgis-framework/apps/ffc-wide/ffc-wide.jsf>

viable local population of the species is likely to be placed at risk of extinction for the following reasons:

- A viable population or records for the species are not known for the site, the site provides only potential foraging habitat.
- The site and surrounds is not a roosting camp. The nearest known camp is approximately five kilometres away with more permanent / frequented camps 20 kilometres away.
- The removal of 765m² of vegetation to be removed, comprising predominantly Sweet Pittosporum, is insignificant in comparison to the amount of habitat in the immediate vicinity of the proposed activity.
- The environmental impact mitigation measures and safeguards prescribed in Section 7 of this REF will ensure that a pre-clearing survey is carried out to detect any GHFF. Clearing would be postponed if detected.

A SIS or entry into BOS is therefore not required for this species for this Part.

Eastern Coastal Free-tailed Bat

The Eastern Coastal Free-tailed Bat is found along the east coast from south Queensland to southern NSW. It occurs in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range. Roosts mainly in tree hollows but will also roost under bark or in man-made structures (OEH 2022b).

Although the species have been recorded within five kilometres, and the proposed activity site contains suitable foraging habitat, the proposed activity is not likely to have an adverse effect on the lifecycle of the species such that a viable local population of the species is likely to be placed at risk of extinction for the following reasons:

- Viable population or records for the species are not known for the site, the site provides only potential foraging habitat.
- The site does not contain quality roosting sites for the species.
- The removal of 765m² of vegetation to be removed, comprising predominantly Sweet Pittosporum, is insignificant in comparison to the amount of habitat in the immediate vicinity of the proposed activity.
- There would be no reduction in foraging habitat for this species and no additional barriers.
- Removal of vegetation would occur during typical construction work hours and is therefore unlikely to impact nocturnal foraging activities of the species.

A SIS or entry into BOS is therefore not required for this species for this Part.

White-footed Dunnart

The White-footed Dunnart occurs in Tasmania and along the Victorian and southern NS coast. The Shoalhaven area is the species northern-most limit (OEH 2017b). The marsupial is found in a range of different habitats across its distribution, including coastal dune vegetation and coastal forest. The species is an opportunistic carnivore that feeds on a variety of ground dwelling invertebrates and, occasionally, small lizards. They shelter in bark nests in hollows, under standing or fallen timber, burrows in the ground, piles of logging debris, in the 'skirts' of grass trees *Xanthorrhoea spp.* and cycads *Macrozamia spp.* and rock crevices.

The proposal would remove some potential foraging habitat in relatively small area adjacent to Fire Brigade building. The proposed removal of vegetation within the site would represent only a negligible reduction in available foraging habitat in the locality. The proposed activity may also not necessarily reduce prey resources.

The proposal would not result in fragmentation of habitat or severing of movement corridors.

Pre-works survey would be undertaken through proposed clearing areas to ensure no disturbance or risk of impact to the species potentially nesting within areas to be disturbed.

It is considered unlikely therefore that the White-footed Dunnart would be impacted by the proposed works and the proposed activity is unlikely to have an adverse effect on the lifecycle of the species such that a viable local population of any of these species is likely to be placed at risk of extinction. A SIS or entry into BOS is therefore not required for this species for this Part.

Southern Brown Bandicoot

The Southern Brown Bandicoot is a terrestrial marsupial with a patchy distribution. It is found in south-eastern NSW, east of the Great Dividing Range south from the Hawkesbury River, southern coastal Victoria and the Grampian Ranges, south-eastern South Australia, south-west Western Australia and the northern tip of Queensland. Southern Brown Bandicoots are largely crepuscular (active mainly after dusk and/or before dawn). They are generally only found in heath or open forest with a heathy understorey on sandy or friable soils. They feed on a variety of ground-dwelling invertebrates and the fruit-bodies of hypogeous (underground-fruited) fungi. Their searches for food often create distinctive conical holes in the soil. Males have a home range of approximately 5-20 hectares whilst females forage over smaller areas of about 2-3 hectares. The Southern Brown Bandicoot nests during the day in a shallow depression in the ground covered by leaf litter, grass or other plant material. Nests may be located under Grass trees *Xanthorrhoea* spp., blackberry bushes and other shrubs, or in rabbit burrows. The upper surface of the nest may be mixed with earth to waterproof the inside of the nest. Mating occurs any time of the year, usually following heavy rain. Two or three litters of 2-4 young may be produced annually. The gestation period of 11-12 days is the shortest known of any marsupial while young remarkably become independent around 60 days after being born (OEH 2017c).

The site and adjacent areas contain suitable foraging habitat and potential nesting and breeding habitat for the Southern Brown Bandicoot. Conical holes indicating Bandicoot foraging were however not detected during survey and no nesting areas were detected during site survey.

The proposal would remove some potential foraging habitat in relatively small area adjacent to Fire Brigade building. The proposed removal of vegetation within the site would represent only a negligible reduction in available foraging habitat in the locality. The proposal would not result in fragmentation of habitat or severing of movement corridors.

Removal of vegetation would occur during typical construction work hours and is therefore unlikely to impact nocturnal foraging activities of the species.

Pre-works survey would be undertaken through proposed clearing areas to ensure no disturbance or risk of impact to the species potentially nesting within areas to be disturbed.

It is considered unlikely therefore that the Southern Brown Bandicoot would be impacted by the proposed works and the proposed activity is unlikely to have an adverse effect on the lifecycle of the species such that a viable local population of any of these species is likely to be placed at risk of extinction. A SIS or entry into BOS is therefore not required for this species for this Part.

Part B - In the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

- (i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or***
- (ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction***

The proposed activity would be located within the EEC *Bangalay Sand Forest of the Sydney Basin and South East Corner Bioregions* ('Bangalay Sand Forest'). Bangalay Sand Forest is the name given to the ecological community associated with coastal sand plains of marine or aeolian origin. It occurs on deep, freely draining to damp sandy soils on flat to moderate slopes within a few kilometres of the sea and at altitudes below 100 metres.

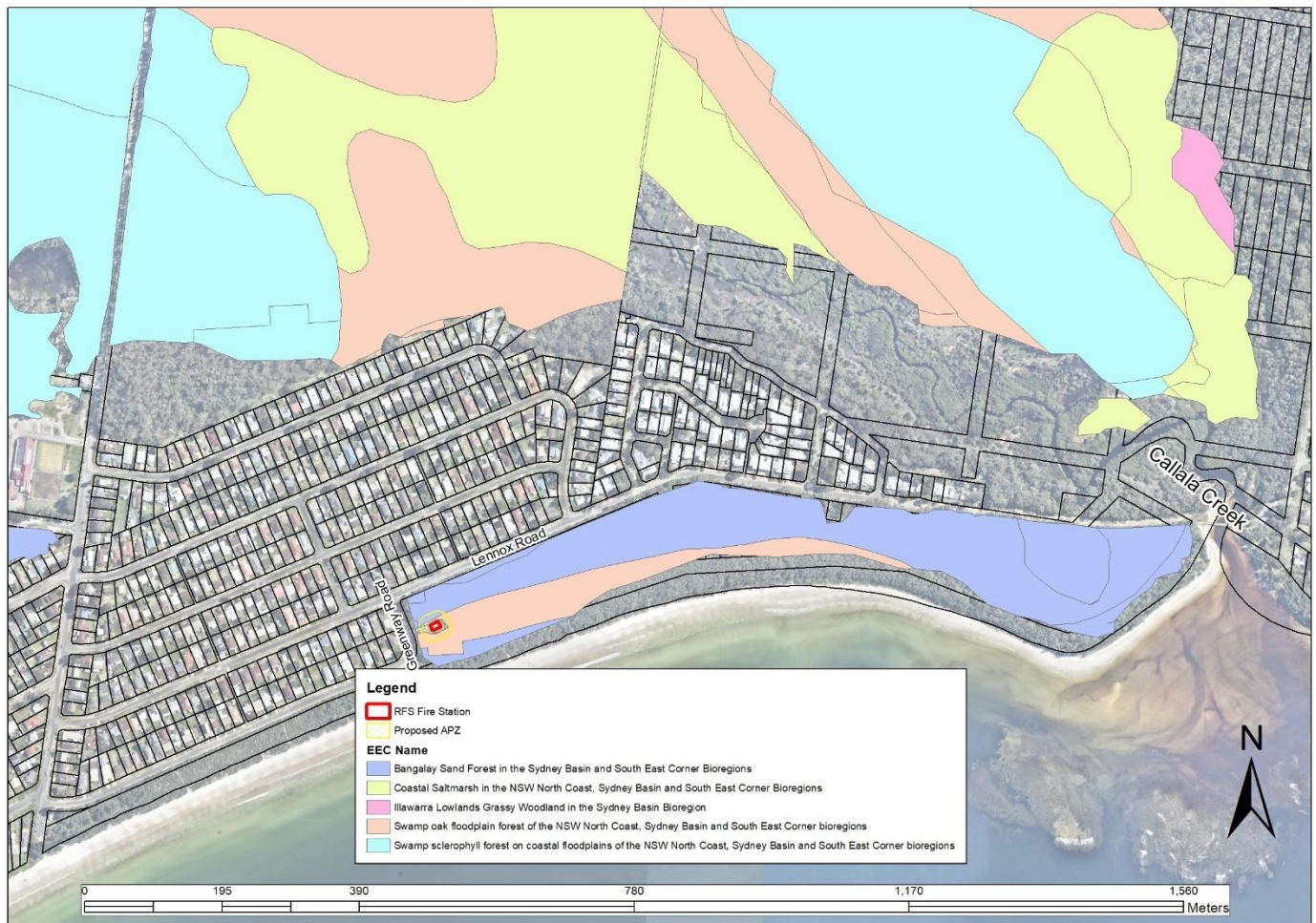
The local extent of this EEC extends to Callala Creek and has an area of approximately 115,000m² (Figure 4 below). The proposed 15 metre APZ being approximately 1300m², represents only 1.1% of the local extent. The area that requires clearing (765m²) to establish the APZ on the southern and eastern sides of the building, represents only 0.7% of the local extent.

As the EEC is on the edge of the local extent, the proposed activity is unlikely to exacerbate discontinuity of the EEC in this location.

The remaining extent of the EEC is predominantly in SCC ownership and zoned C3 – Environmental Management under the Shoalhaven Local Environmental Plan. The remaining EEC extent should therefore have a high level of protection.

The proposal would not result in the fragmentation or isolation of areas of any EEC and is unlikely to adversely affect the extent or composition of any EEC such that a local occurrence of the EEC would be placed at risk of extinction. A SIS or entry into the BOS is therefore not required.

Figure 4 EECs mapped in the vicinity of the proposed activity



Part C - In relation to the habitat of a threatened species or ecological community:

(iii) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity

(iv) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

(v) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality.

No important habitat for threatened species would be removed or otherwise significantly impacted (see Part A).

No EEC would be fragmented or isolated, nor removed or modified to an extent that would affect the long-term survival of the EEC occurring in the locality (refer to Part B).

The proposal will therefore not affect the long-term survival of any threatened species or endangered ecological community in the locality.

Part D – Whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly).

No “areas of outstanding biodiversity values” have been declared in the City of Shoalhaven.

Part E – Whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

Clearing of native vegetation is listed as a key threatening process, defined by the Scientific Committee's determination as

the destruction of a sufficient proportion of one or more strata (layers) within a stand or stands of native vegetation so as to result in the loss, or long-term modification, of the structure, composition and ecological function of a stand or stands.

Clearing of native vegetation has been shown to:

- cause widespread fragmentation of ecological communities;
- reduce the viability of ecological communities by disrupting ecological functions;
- result in the destruction of habitat and loss of biological diversity;
- lead to soil and bank erosion, increased salinity and loss of productive land.

Extensive native vegetation areas would remain around the site. Canopy gaps of 2 to 5m would not affect the movement of locally occurring fauna species. The proposal would not result in fragmentation of habitat or severing of movement corridors.

There would be no destruction of important habitat nor impact to any locally occurring threatened species (see Part 1).

The proposed vegetation clearing would therefore not result in fragmentation of ecological communities or disrupt ecological function.

The impacts of the key threatening process of clearing of native vegetation would therefore be minimised and managed as part of the proposal.

3.4 Threatened species impact assessment (Commonwealth EPBC Act 1999)

A Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters Report was generated on 01 February 2023. An EPBC Protected Matters Report provides general guidance on matters of national significance and other matters protected by the EPBC Act in the area selected. Of those threatened species and endangered ecological communities reported as likely occurring or having habitat within the area of the report, the following were considered to have potential habitat on the site and requiring of further assessment:

- Southern Brown Bandicoot - Endangered
- Grey-headed Flying-fox – Vulnerable

Additional highly mobile species including migratory birds may occur occasionally and transiently within the vicinity of the proposed activity but would not be affected by the proposed activity.

Table 1 EPBC Significant impact assessment

Critically endangered and endangered species - Significant impact criteria	
Species to consider: Southern Brown Bandicoot	
Criteria	Assessment
lead to a long-term decrease in the size of a population	The proposed activity will not impact a known population of Southern Brown Bandicoot.
reduce the area of occupancy of the species	No
fragment an existing population into two or more populations	No

adversely affect habitat critical to the survival of a species	Habitat critical to the survival of this species would not be removed or substantially degraded by the proposed works.
disrupt the breeding cycle of a population	No
modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The site and adjacent areas contain suitable foraging habitat and potential nesting and breeding habitat for the Southern Brown Bandicoot. Conical holes indicating Bandicoot foraging were however not detected during survey and no nesting areas were detected during site survey. The proposal would remove some potential foraging habitat in relatively small area adjacent to Fire Brigade building. The proposed removal of vegetation within the site would represent only a negligible reduction in available foraging habitat in the locality. The proposal would not result in fragmentation of habitat or severing of movement corridors.
result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	No invasive species will be introduced
introduce disease that may cause the species to decline	No disease will be introduced
interfere with the recovery of the species	No
Vulnerable species - Significant impact criteria Species to consider: Grey-headed Flying-fox	
Criteria	Assessment
lead to a long-term decrease in the size of an important population of a species	The proposed activity will not directly impact on the Grey-headed Flying-fox, will not affect or disrupt breeding and will not impact on breeding or foraging habitat.
reduce the area of occupancy of an important population	No
fragment an existing important population into two or more populations	No
adversely affect habitat critical to the survival of a species	No important habitat will be impacted by the proposed activity
disrupt the breeding cycle of an important population	The site is not a roosting camp. The nearest known camp is approximately five kilometres away with more permanent / frequented camps 20 kilometres away.
modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	No significant decrease in foraging habitat is anticipated.
result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	No invasive species will be introduced
introduce disease that may cause the species to decline	No disease will be introduced
interfere substantially with the recovery of the species	No

Conclusion of EPBC Significant Impact Assessment

The proposal is therefore unlikely to have an adverse effect on a vulnerable, endangered, critically endangered or migratory species or its habitat, nor on the extent or integrity of an endangered ecological community such that its local occurrence is likely to be placed at risk of extinction. Further assessment and referral to the Commonwealth is therefore not required.

3.5 Indigenous heritage

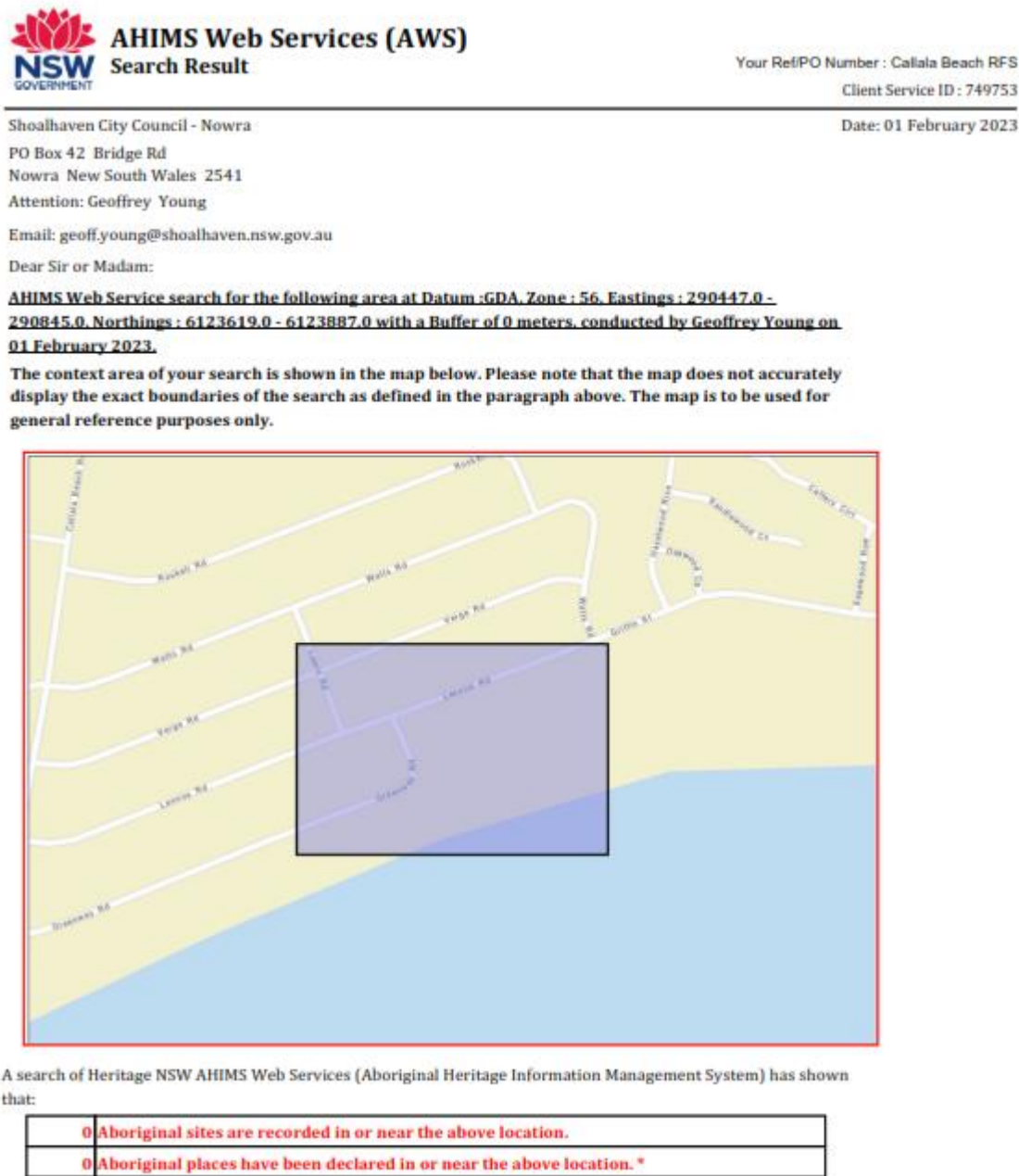
Under Section 86 of the NSW *National Parks and Wildlife Act 1974* (NPW Act) it is an offence to disturb, damage, or destroy any Aboriginal object without an Aboriginal Heritage Impact Permit (AHIP). The Act, however, provides that if a person who exercises 'due diligence' in determining that their actions will not harm Aboriginal objects has a defence against prosecution if they later unknowingly harm an object without an AHIP (Section 87(2) of the Act). To effect this, the NSW Department of Environment, Climate Change and Water have prepared the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* hereafter referred to as the 'Due Diligence Guidelines' (DECCW 2010) to assist individuals and organisations to exercise due diligence when carrying out activities that may harm Aboriginal objects and to determine whether they should apply for an AHIP.

A search on the Aboriginal Heritage Information Management System (AHIMS) on 01 February 2023 indicated that there are no recorded Aboriginal sites or places in the vicinity of the proposal (refer to AHIMS report in Figure 5 below).

The site of the proposed activity is in a landscape with a higher potential for Aboriginal objects, as outlined in the Due Diligence Guidleline, *i.e.* within 200m of waters and within a sand dune system. Consequently, a site survey was conducted on the 16 December 2022. No Aboriginal heritage objects were located within the proposed activity.

As the proposal would not impact any recorded or known Aboriginal sites or places and is unlikely to significantly disturb the ground surface, the Due Diligence Guidelines requires no further assessment, an AHIP is not required, and the activity can proceed.

Figure 5 Results of AHIMS Aboriginal heritage search



3.6 Soil impacts and coastal hazards

The APZ would be established on land mapped as class 4 risk for acid sulfate soils. However, consideration of class 4 mapped areas need only occur when works are to be undertaken 2 metres below the natural ground surface. This is not going to occur and, as such, an acid sulfate soil management plan is not required.

The entire lot is mapped for the purpose of Clause 7.4 – Coastal Risk Planning of the Shoalhaven Local Environmental Plan 2014. The mapping acknowledges the risk of beach erosion and/or oceanic inundation particularly for new residential development.

The APZ will be established on the landward side of 2100 Coastal Hazard Line (Figure 6 below) which is considered low risk with limited restrictions for development prescribed in the Shoalhaven Development Control Plan Chapter 6.

Although the area of the proposed APZ comprises erodible soils, being Holocene coastal sand deposits, the site is reasonably flat and separated from the more active parts of the beach by at least 50 metres of vegetated dune system that is largely intact. The APZ area would also only affect a small proportion of the dune system present within the reserve which is predominantly in good, intact, well-vegetated condition. If the environmental mitigation measures prescribed in Section 7 of this REF are adhered to, erosion within the APZ is unlikely.

Figure 6 Coastal Hazards Lines



3.7 EP&A Regulation – Clause 171 matters of consideration

Section 171(2) of the *Environmental Planning and Assessment Regulation 2021* lists the factors to be taken into account when consideration is being given to the likely impact of an activity on the environment under Part 5 of the EP&A Act. These matters are addressed in Table 2 below.

Table 2 Clause 171(2) Matters of consideration

Does the proposal:	Assessment	Reason
a) Have any environmental impact on a community?	Positive	<p>The proposed activity would improve bushfire protection to the Callala Beach Fire Brigade Building and associated appliances and equipment.</p> <p>The proposed activity would not have any impact on other community services and infrastructure such as water, waste management, educational, medical or social services.</p>
b) Cause any transformation of a locality?	Low-adverse	<p>The locality would remain a public reserve and an area for the purposes of Callala Beach Fire Brigade operations.</p> <p>The environment to the north and west of the building would essentially remain in its current form. The environment to the south and east would, for 15 metres, be transformed from forest to APZ. The rest of the reserve would remain a forest. The impact is considered low as it would be a small area in comparison to the remaining reserve and is consistent with the existing APZ surrounding the township of Callala Beach.</p>
c) Have any environmental impact on the ecosystem of the locality?	Low-adverse	<p>The five-part test of significance (Section 3.3 of this REF) concludes that the proposed activity would not have a significant impact upon threatened species or endangered ecological communities.</p> <p>No hollow-bearing trees or food resources critical to the survival of a particular species would be removed.</p> <p>Aquatic ecosystems are not likely to be affected by the proposed activity and there is not likely to be any long-term or long-lasting impact through the input of sediment and nutrient into the ecosystem.</p> <p>Environmental safeguards and mitigation measures prescribed in Section 7 of this REF would be employed to minimise impacts.</p>
d) Cause a diminution of the aesthetic, recreational, scientific or other environmental quality or value of a locality?	negligible	<p>The site has no significant aesthetic, recreational, scientific or other environmental quality or value. As such, the proposed activity would have no impact on these factors.</p>
e) Have any effect on a locality, place or building having aesthetic, anthropological,	negligible	<p>The site has no historical, social or scientific significance and does not contain, nor is associated with any heritage item listed on the NSW State Heritage Inventory, Commonwealth heritage list or in the Shoalhaven LEP 2014.</p>

Does the proposal:	Assessment	Reason
archaeological, architectural, cultural, historical, scientific, or social significance or other special value for present or future generations?		<p>In accordance with the NSW Department of Environment, Climate Change and Water's Due Diligence Code of Practice (DECCW 2010), the proposed activity does not require an Aboriginal Heritage Impact Permit as the activity is unlikely to harm an Aboriginal artefact (refer to Section 3.5 of this REF).</p> <p>The site is not within an Aboriginal Place declared under the <i>National Parks and Wildlife Act 1974</i>.</p>
f) Have any impact on the habitat of protected fauna (within the meaning of the Biodiversity Conservation Act 2016)?	Negligible	<p>Vegetation, including native species, would be removed, however:</p> <ul style="list-style-type: none"> The five-part test of significance, provided in Section 3.3.2 above, concludes that the proposed activity would not have a significant impact upon threatened fauna. As outlined in Section 3.2 of this REF, the impact of the vegetation removal is considered not significant. Fauna habitat values are not limited in the area and there are no food resources critical for particular species, rock outcrops or hollow-bearing trees to be removed. The area impacted by the proposed activity is insignificant in comparison to the remaining bushland in the reserve. <p>The prescribed environmental safeguards and mitigation measures (Section 7) would mitigate indirect impacts to fauna and habitat including through pre-clearing surveys, control of sediment and prevention of inadvertent damage beyond what is necessary for the activity.</p>
g) Cause any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?	Low adverse	<p>No important habitat would be removed or otherwise impacted. The tests of significance, provided in Section 3.3 above, concludes that the proposed activity would not have a significant impact upon threatened fauna or flora. As outlined in Section 3.2 of this REF, the impact of the vegetation removal is considered not significant.</p> <p>No important habitat suitable for any potentially occurring threatened species will be impacted or modified to the extent that any they might be adversely affected.</p> <p>There are no species likely to rely on the site of the proposed works to the extent that modification would put them further in danger.</p>

Does the proposal:	Assessment	Reason
h) Have any long-term effects on the environment?	Negligible / potentially low-adverse	<p>The proposed activity would not use hazardous substances or use or generate chemicals which may build up residues in the environment.</p> <p>Works would be relatively short term and the noise generated would occur during normal working hours.</p> <p>The area will remain a Bushfire Brigade operational area surrounded by bushland reserve.</p> <p>The possible impacts have been discussed in detail under Section 3. Refer also to the prescribed environmental safeguards and mitigation measures in Section 7.</p>
i) Cause any degradation of the quality of the environment?	Negligible	<p>Aquatic ecosystems are not likely to be affected by the proposed activity and there is not likely to be any long-term or long-lasting impact through the input of sediment and nutrient into the ecosystem.</p> <p>The proposal would not intentionally introduce noxious weeds, vermin, or feral animals into the area or contaminate the soil.</p> <p>Potential acid sulfate soils are unlikely to occur at the site or be disturbed and exposed.</p> <p>Environmental safeguards and mitigation measures (Section 7) would be employed to minimise risk of impacts.</p>
j) Cause any risk to the safety of the environment?	Negligible with positive effects	<p>The proposed activity would not involve hazardous wastes and would not lead to increased bushfire or landslip or coastal hazard risks.</p> <p>The activity is not going to adversely affect flood or tidal regimes or exacerbate flooding risks.</p> <p>The proposed activity would provide improved bushfire protection for the Bushfire Brigade building and associated appliances and equipment.</p>
k) Cause any reduction in the range of beneficial uses of the environment?	Negligible - positive	<p>The site is used by the Callala Beach Fire Brigade.</p> <p>The proposed activity would create improved bushfire protection and a defendable space to which bushfire suppression can be undertaken around the building.</p>
l) Cause any pollution of the environment?	Low-adverse	<p>The proposal would involve a temporary and local increase in noise due to the use of machinery such as chainsaws, bush-cutters, and mulchers. However, this is not anticipated to significantly affect any sensitive receivers such as schools, childcare centres and hospitals.</p> <p>The site is mapped as having Class 4 risk for acid sulfate soils. The activity is therefore not expected to</p>

Does the proposal:	Assessment	Reason
		<p>result in the oxidation of acid sulfate soils and subsequent leaching back into waterways.</p> <p>It is unlikely that the activity (including the environmental impact mitigation measures prescribed in Section 7 of this REF) would result in water or air pollution, spillages, dust, odours, vibration or radiation.</p> <p>The proposal does not involve the use, storage or transportation of hazardous substances or the generation of chemicals which may build up residues in the environment.</p> <p>The risk of contamination and spills from machinery including fuel and hydraulic fluids would be minimised through prescribed environmental safeguards and mitigation measures (Section 7).</p>
m) Have any environmental problems associated with the disposal of waste?	Negligible	<p>Waste (cut, mulched and removed vegetation) could be re-used in accordance with a Resource Recovery Exemption or taken to a licenced waste facility. There would be no trackable waste, hazardous waste, liquid waste, or restricted solid waste as described in the <i>NSW Protection of the Environment Operations Act 1997</i>.</p>
n) Cause any increased demands on resources (natural or otherwise) which are, or are likely to become, in short supply?	Negligible	<p>The amount of resources that would be used are not considered significant and would not increase demands on current resources such that they would become in short supply.</p>
o) Have any cumulative environmental effect with other existing or likely future activities?	Negligible	<p>The assessed low adverse or negligible impacts of the proposal are not likely to interact.</p> <p>No further clearing in the vicinity of the works are anticipated.</p>
p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions	Negligible	<p>Refer to Section 3.6.</p>

Does the proposal:	Assessment	Reason
q) Any applicable local strategic planning statement, regional strategic plan or district strategic plan made under Division 3.1 of the Act	Low-adverse	<p>The proposed activity is consistent with the Shoalhaven 2040 planning statement particularly Planning Priority 11 – <i>Adapting to natural hazards through building resilience</i> (https://doc.shoalhaven.nsw.gov.au/displaydoc.aspx?record=D20/437277) i.e. “Community assets at risk from bush fire have been identified and a program of coordinated treatments set to reduce identified risks, including fuel reduction, community education and fire trail maintenance.” and “Implementing the land-sue recommendations of Shoalhaven’s Adaptation Plan.....and the Shoalhaven District Bushfire Risk Management Plan.”</p> <p>The proposed activity is consistent with the Illawarra Shoalhaven Regional Plan 2041 (https://www.planning.nsw.gov.au/-/media/Files/DPE/Plans-and-policies/Plans-for-your-area/Regional-plans/Illawarra-Shoalhaven-Regional-Plan-05-21.pdf) in particular Objective 12 – <i>Build resilient places and communities</i>, Strategy 12.1 “integrate emergency management and recovery needs into new and existing urban areas including evacuation planning, safe access and egress for emergency services personnel, buffer areas,...</p> <p>The proposed activity would impact an area mapped in the plan as “High Environmental Value”. This reflects the presence of endangered ecological communities present in the location. However, as explained in Section 3.2 and Section 3.3.2 of this REF the removal of the vegetation to establish the bushfire APZ would not have a significant impact on the endangered ecological community.</p>
R) Any other relevant environmental factors	N/A	Addressed in Section 3 of this REF.

4. PERMISSIBILITY

4.1 Environmental Planning & Assessment Act 1979

Section 4.1 (Development that does not need consent) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) states that:

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

In this regard, Section 2.52(8) of the NSW *State Environmental Planning Policy (Transport and Infrastructure) 2021* (Transport & Infrastructure SEPP) provides that:

“Development for the purpose of bushfire hazard reduction work may be carried out by any person without consent on any land that is not within the coastal wetlands and littoral rainforests area if the development is consistent with the applicable bush fire management plan or the direction of agreement relating to the applicable designated fire trail.”

This Section of the SEPP applies as:

- The proposed activity would not be undertaken within coastal wetlands and littoral rainforest
- The site would be within the “Callala Villages Interface” asset area in the Shoalhaven Bush Fire Risk Management Plan (SBFMC 2018) which has an assessed bushfire risk as “Very High” and prescribed treatments including “*Inspect APZ on LG (local government) tenure and maintain as required*” (applicable treatment reference number 8 – hazard reduction).
- The APZ was inspected and found to be deficient by SCC and NSW RFS.

As the proposal does not require development consent, and as it constitutes an ‘activity’ for the purposes of Part 5 of the EP&A Act, being carried out by (or on behalf of) a public authority, environmental assessment under Part 5 of the EP&A Act is required. This REF provides this assessment and ensures that Council as determining authority in consideration of the activity, meets its obligation under s5.5 of the EP&A Act, to examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

4.2 NSW Local Government Act 1993

The proposed activity would be undertaken on land owned by SCC in freehold title. Under the NSW *Local Government Act 1993* the land is community land with category of Natural Area (Bushland). It has a common name of “Callala Creek Bushland Reserve”.

Part 2 Division 3 of the Local Government Act 1993 regulates the management of community land. Section 35 of the Act provides that Community Land is required to be used and managed in accordance with the plan of management (PoM).

The PoM applying to the land is likely the Generic Community Land Plan of Management – Natural Areas Version 5 March 2016
(<https://doc.shoalhaven.nsw.gov.au/displaydoc.aspx?record=D16/208141>).

Bushfire mitigation is addressed in Section 3.2.8 of the Natural Areas POM:

“Council has a responsibility under the Rural Fires Act, 1997 to ‘prevent the occurrence of bushfires on, and to minimise the danger of the spread of bushfires on and from any land

vested in or under its control and management'. Additionally, significant natural areas may need protection from wildfire.

Bushfire management in the Shoalhaven is undertaken according to the Bushfire Risk Management Plan adopted by the Shoalhaven District Bush Fire Management Committee in August 2010."

As the proposed activity would be undertaken to meet Council's responsibilities under the Rural Fires Act 1997 and is considered consistent with Shoalhaven Bush Fire Management Plan, the proposed activity is also considered consistent with the PoM and with the Local Government Act 1993.

As the proposed APZ will be established within a public accessible reserve that has already an APZ established on the interface with Callala Beach elsewhere, the proposed activity is also consistent with the current usage of the reserve and the nature and use of the land will not be significantly changed. No further action or consideration is required.

4.3 NSW Biodiversity Conservation Act 2016

The proposed development complies with the *Biodiversity Conservation Act 2016* for the following reasons:

- The proposed activity is unlikely to have a significant impact on threatened species and/or threatened ecological communities listed in the schedules of the Act (refer to Section 3.3 of this REF). There is, therefore, no requirement to 'opt in' to the Biodiversity Offset Scheme.
- The prescribed environmental impact mitigation measures and safeguards (Section 7 of this REF) would ensure that no *serious and irreversible impacts on biodiversity values* (as defined by the BC Act) occur at the site of the proposed activity.
- The proposed activity is not within an area declared to be of "outstanding biodiversity value" as defined in the Act and Regulations.

Because of the above considerations, neither a species impact statement nor a biodiversity development assessment report is required for the proposed activity.

It is also a defence to a prosecution for an offence under Part 2 of the Act (harming animals, picking plants, damaging the habitat of threatened species or ecological communities *etc*) if the work was essential for the carrying out of an activity by a determining authority within the meaning of Part 5 of the *Environmental Planning and Assessment Act 1979* after compliance with that Part. Therefore, the activity is considered permissible as this REF has been prepared and determined in accordance with the EP&A Act.

4.4 Other

A summary of other relevant legislation and permissibility is provided in Table 4 below.

Table 3 Summary of other relevant legislation and permissibility

NSW STATE LEGISLATION	
<i>Shoalhaven Local Environmental Plan 2014 (SLEP)</i>	
Permissible <input checked="" type="checkbox"/>	Not permissible <input type="checkbox"/>
Under the SLEP the proposed activity may have required development consent. The provisions of Transport and Infrastructure SEPP, however, prevail over the SLEP where there is an inconsistency by virtue of Section 3.28 of the EP&A Act. Consequently, development consent is not required.	
<i>State Environmental Planning Policy (Resilience and Hazards) 2021</i>	
Permissible <input checked="" type="checkbox"/>	Not permissible <input type="checkbox"/>
Justification: The site is not mapped as for the purpose of the SEPP.	
<i>NSW Fisheries Management Act 1994</i>	
Permissible <input checked="" type="checkbox"/>	Not permissible <input type="checkbox"/>
<p>Justification:</p> <p>the proposed activity:</p> <ul style="list-style-type: none"> would not involve dredging for reclamation of waterland and or key fish habitat (Section 200 of the Act) would not affect declared aquatic reserves (Part 7, Division 2 of the Act); would not involve blocking the passage of fish (s.219); would not impact mangroves and marine vegetation (Part 7, Division 4); would not involve disturbance to gravel beds where salmon or trout spawn (s.208 of the Act); does not involve the release of live fish (Part 7, Division 7); does not involve the construction of dams and weirs (s.218); would not result in the blocking of the passage of fish; would not impact declared threatened species of endangered ecological communities (Part 7A); does not constitute a declared key threatening process (Part 7A); and would not use explosives in a watercourse (Clauses 70 and 71 of the <i>Fisheries Management (General) Regulation 2019</i>). 	
<i>Aboriginal Land Rights Act 1983</i>	
Permissible <input checked="" type="checkbox"/>	Not permissible <input type="checkbox"/>
<p>Justification:</p> <p>There are no Aboriginal Land Rights claims over the land.</p>	

Local Land Services Act 2013

Permissible ☒ Not permissible ☐

Justification:

Any clearing of vegetation would be of a kind authorised under Section 60O(b)(ii) of the Local Land Services Act 2016 ("an activity carried out by a determining authority within the meaning of Part 5 of the Act after compliance with that Part."). No separate authorisation under the Act is required.

Protection of the Environment Operations Act 1997

Permissible ☒ Not permissible ☐

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

National Parks and Wildlife Act 1974 (NP&W Act)

Permissible ☒ Not permissible ☐

- The proposed activity would not encroach into National Park estate.
- The Act provides the basis for the legal protection and management of Aboriginal sites in NSW. Under Sections 86 and 90 of the Act it is an offence to disturb an Aboriginal object or knowingly destroy or damage, or cause the destruction or damage to, an Aboriginal object or place, except in accordance with a permit of consent under section 87 and 90 of the Act.
- As there are no recorded sites or visible objects and as the site is on 'disturbed land', the Due Diligence Guidelines requires no further assessment as it is reasonable to conclude that there is a low probability of objects occurring in the area of the proposed activity and an AHIP is not required. Refer to Section 3.5 for more information.

Heritage Act 1977

Permissible ☒ Not permissible ☐

The proposed activity would not disturb an item of state heritage significance. The proposal would constitute 'minor works' under 'Relics of local heritage significance: a guide for minor works with limited impact'. The proposal would not result in any direct impacts on heritage items or values. Works can be undertaken with caution under an applicable exception under s139(1) and (2) of the Act.

Water Management Act 2000

Permissible ☒ Not permissible ☐

Local councils are exempt from s.91E(1) of the Act in relation to all controlled activities that they carry out in, on or under waterfront land by virtue of clause 41 of the *Water Management (General) Regulation 2018*. The proposal would not interfere with the aquifer and therefore an interference licence is not required (s.91F).

COMMONWEALTH LEGISLATION

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

Permissible ☒ Not permissible ☐

The proposed activity would not be undertaken on Commonwealth land and no matters of National Environmental Significance are likely to be significantly impacted by the proposed activity (Section 3.4 of this REF). The proposed activity is therefore not a controlled action and does not require commonwealth referral.

Commonwealth *Native Title Act 1993*

Permissible ☒ Not permissible ☐

Works on Lot CP (7) would occur on freehold land. It is anticipated that Native Title has been extinguished as a Past Act (Section 228 and 229 of the Act). No procedural rights are applicable.

5. CONSULTATION WITH GOVERNMENT AGENCIES

5.1 Transport & Infrastructure SEPP

Section 2.10 – Development with impacts on council-related infrastructure or services

The SCC City Services – Building Services is the asset custodian of the Fire Brigade Building. No consultation is required as Building Services is also the proponent.

As City Development – Environmental Services are the asset custodian of the bushland surrounding the building and APZ, a notice of intention to carry out the proposed activity was sent to the 'natural areas' unit of this section on 30 January 2023 (D23/31643). As of 14 February 2023 there has been no response.

The proposed activity would not:

- have an impact on SCC stormwater systems
- generate additional traffic
- involve connection to SCC sewage or water supply systems
- involve the installation of a temporary structure on, or the enclosing of, a public place
- involve excavation of a road.

No further internal consultation is required.

Section 2.11 – Development with impacts on local heritage

The proposed activity is not likely to affect the heritage significance of a local heritage item, or of a heritage conservation area. Consultation with prescribed entities is not required.

Section 2.12 – Development with impacts on flood liable land

and

Section 2.13 – Consultation with State Emergency Service—development with impacts on flood liable land

The proposed activity would not be undertaken on flood liable land. Consultation with the prescribed entities is not required.

Section 2.14 – Development with impacts on certain land within the coastal zone

The proposal would not occur within a coastal vulnerability area. Consultation with internal SCC staff is therefore not required.

Section 2.15 – Consultation with public authorities other than councils

In consideration of the consultation requirements specified under Section 2.15 of the Infrastructure SEPP, the proposed activity:

- would not be undertaken on adjacent to land reserved under the *National Parks and Wildlife Act 1974* or in Zone E1 or in equivalent zones.

- could not comprise a fixed or floating structure in or over navigable waters
- would not increase the amount of artificial light in the night sky and located on land within the dark sky region as identified on the dark sky region map
- would not be undertaken within Defence communications facility buffer (only relevant to the defence communications facility near Morundah)
- would not be undertaken on land in a mine subsidence district within the meaning of the *Mine Subsidence Compensation Act 1961*

Consultation with the prescribed entities is not required.

Section 2.16 – Consideration of Planning for Bush Fire Protection (PBP)

The proposed activity is not a type applicable to this clause *i.e.* health services facilities, correctional centres and residential accommodation. Consideration of PBP is therefore not required.

6. COMMUNITY ENGAGEMENT

Community engagement is not required as the works primarily would occur on Council freehold land without an effect on the community. However, as the works may be of public interest (vegetation within an endangered ecological community), this REF shall be published on the NSW Planning Portal in accordance with clause 171(4) of the EP&A Regulation – as soon as practicable and no later than one month after the activity commences.

7. ENVIRONMENTAL SAFEGUARDS AND MEASURES TO MINIMISE IMPACTS

Note that all environmental safeguards and measures are prescribed unless otherwise stated.

Safeguard / Measure	Responsibility
Site Establishment	
1. The extent of the 15 metre APZ to the south and east shall be accurately measured and marked. The APZ shall not extend past the measured 15 metre distance.	SCC Environmental Officer or Bushfire Mitigation Officer
2. The contractor shall always keep an emergency spill kit on-site with procedures to contain and collect any leakage or spillage of fuels, oils and greases from plant and equipment.	Contractor
Works	
3. A preclearing fauna survey shall be conducted prior to tree felling and vegetation clearing. Clearing shall be postponed if Grey-headed Flying-fox or nests of threatened species are detected or suspected.	SCC Environmental Operations Officer
4. The understorey shall be removed initially and then trees for removal / pruning shall be selected and appropriately marked using flagging tape and/or paint.	Contractor and SCC Environmental Officer or Bushfire Mitigation Officer.
5. The APZ shall be established using hand-tools including brush-cutters and chainsaws to minimise ground disturbance. Mulching operations shall occur on existing cleared or hardstand surfaces.	Contractor
6. The understorey shall be removed first and then trees selected for removal / retention to provide for disconnected canopy and other required APZ standards under safeguard 7 while keeping a spread of trees	Contractor
7. In the event that any wildlife be significantly disturbed or injured during works, Council's Environmental Officers are to be contacted on 4429 3405, or if unavailable, Wildlife Rescue – South Coast should be contacted on 0418 427 214, to rescue and relocate the animal(s).	Contractor
8. Works shall be consistent with the NSW Rural Fire Service document <i>Standards for Bush Fire Protection</i> https://www.rfs.nsw.gov.au/_data/assets/pdf_file/0010/13321/Standards-for-Asset-Protection-Zones.pdf principally: a. Reduction of fuel does not require removal of all vegetation, which could cause environmental damage. Some ground cover is needed prevent soil erosion.	Contractor and SCC Bushfire Mitigation Officer

Safeguard / Measure	Responsibility
<p>b. Fuels are to be controlled by:</p> <ul style="list-style-type: none"> i. Raking or manual removal of fine fuels – Ground fuels such as fallen leaves, twigs (less than 6 millimetres in diameter) and bark should be removed on a regular basis. Fine fuels can be removed by hand or with tools such as rakes, hoes and shovels. ii. Mowing or grazing of grass – grass shall be cut and kept short. iii. Removal or pruning of trees, shrubs and understorey – the control of existing vegetation involves both selective fuel reduction and the retention of vegetation. Prune or remove trees so that you do not have a continuous tree canopy leading from the hazard to the asset. Separate tree/shrub by two to five metres. A canopy should not overhang within two to five metres of the dwelling. Shrubs should be retained covering not more than 20% of the area. <p>c. A small amount of ground cover can greatly improve soil stability and does not constitute a significant bush fire hazard. Ground cover includes any material which directly covers the soil surface such as vegetation, twigs, and leaf litter. 90% ground cover shall be retained within the APZ.</p>	
<p>9. Pruning of trees is to be undertaken in accordance with AS4373 – <i>Pruning of Amenity Trees</i>.</p>	Contractor
Post construction	
<p>10. Signage, to delineate the extent of the newly established APZ, shall be installed to prevent further encroachment into the surrounding bushland.</p>	SCC Bushfire Mitigation Officer

8. SIGNIFICANCE EVALUATION & DECISION STATEMENT

This Review of Environmental Factors has assessed the likely environmental impacts, in the context of Part 5 of the Environmental Planning and Assessment Act 1979, of a proposal by Shoalhaven City Council for the establishment and maintenance of a 15 metre bushfire APZ around the Callala Beach Fire Brigade Building.

In consideration of the proposal as described in Section 1 and assuming the implementation of all proposed safeguards and mitigation measures prescribed in Section 7, it is determined that:

1. It is unlikely that there will be any significant environmental impact as a result of the proposed activity and an Environmental Impact Statement is not required.
2. The proposed activity will not be carried out in a declared area of outstanding biodiversity value and is not likely to significantly affect threatened species, populations or ecological communities, or their habitats, and a Species Impact Statement / BDAR is not required.
3. No statutory approvals, licences, permits or further external government consultations are required.
4. The proposed activity may proceed.

In accepting and adopting this REF, Shoalhaven City Council commits to ensuring the implementation of the proposed safeguards and mitigation measures identified in this report (Section 7) to minimise and/or prevent detrimental environmental impacts.

Determined by:



Gary George
Manager – Building Services
Shoalhaven City Council

Date: 10/03/2023

9. REFERENCES

- DAWE (Department of Agriculture, Water and the Environment, Australian Government). 2021. *Species Profiles and Threats Database* (online database). Available at <https://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>
- DECCW (Department of Environment, Climate Change and Water, NSW) 2010 Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales. <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Aboriginal-cultural-heritage/due-diligence-code-of-practice-aboriginal-objects-protection-100798.pdf>
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- OEH (NSW Office of Environment and Heritage) 2017b. White-footed Dunnart – profile. Available at: <https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10758>
- OEH (NSW Office of Environment and Heritage) 2017c. Southern Brown Bandicoot – profile. Available at: [Southern Brown Bandicoot \(eastern\) - profile | NSW Environment, Energy and Science](#)
- OEH (NSW Office of Environment and Heritage) 2020. Grey-headed Flying-fox – profile. Available at: <https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10697>
- OEH (NSW Office of Environment and Heritage) 2022. Gang-gang Cockatoo – profile. Available at: <https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10975>
- OEH (NSW Office of Environment and Heritage) 2022b. Eastern Coastal Free-tailed Bat - profile. Available at: <https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10544>
- SBFMC (Shoalhaven Bush fire Management Committee) 2018 *Bush Fire Risk Management Plan* https://www.rfs.nsw.gov.au/_data/assets/pdf_file/0016/2527/Shoalhaven-BFRMP.pdf

APPENDIX A – Threatened Species Likelihood of Occurrence

NSW Threatened Species Likelihood of Occurrence Table

The table of likelihood of occurrence evaluates the likelihood of threatened species to occur on the subject site. This list is derived from previously recorded species within a 5 km radius (taken from NSW BioNet Atlas) around the subject site searched on the 31 January 2023. Ecology information unless otherwise stated, has been obtained from the *Threatened Biodiversity Profile Search* on the NSW OEH (Office of Environment & Heritage) online database (<https://www.environment.nsw.gov.au/threatenedspeciesapp/>).

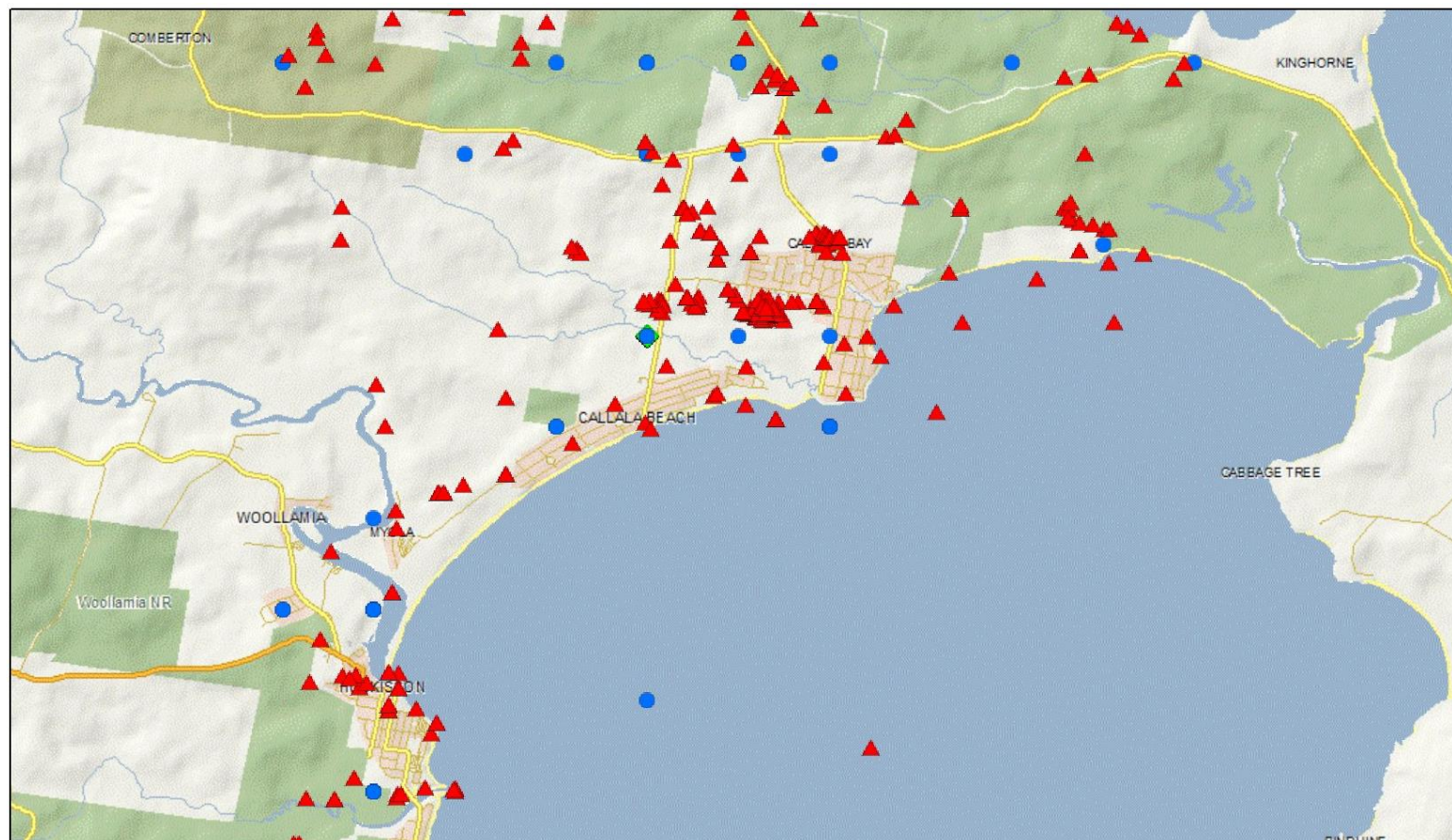
Likelihood of occurrence in study area

1. Unlikely – Species, population or ecological community is not likely to occur. Lack of previous recent (<25 years) records and suitable potential habitat limited or not available in the study area.
2. Likely – Species, population or ecological community could occur and study area is likely to provide suitable habitat. Previous records in the locality and/or suitable potential habitat in the study area.
3. Present – Species, population or ecological community was recorded during the field investigations.

Possibility of impact

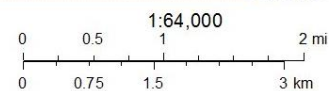
1. Unlikely – The proposal would be unlikely to impact this species or its habitats. No NSW *Biodiversity Conservation Act 2016* “Test of Significance” or EPBC Act significance assessment is necessary for this species.
2. Likely – The proposal could impact this species, population or ecological community or its habitats. A NSW *Biodiversity Conservation Act 2016* “Test of Significance” and/or EPBC Act significance assessment is required for this species, population or ecological community.

Note that where further assessment is deemed required, this is undertaken within the REF as a Test of Significance (in the case of NSW listed species) or an EPBC Significant Impact Assessment (in the case of Commonwealth listed species).



January 31, 2023

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<i>Endangered Ecological Community name</i>	<i>Status</i>	<i>Likelihood of presence within areas impacted by the activity</i>
Bangalay Sand Forest of the Sydney Basin and South East Corner Bioregions	Endangered - <i>NSW BC Act</i>	Does occur on-site. Refer to Section 3.3.2 for impact assessment
Coastal Saltmarsh in the NSW North Coast, Sydney Basin and South East Corner Bioregions	Endangered - <i>NSW BC Act</i> Vulnerable - Commonwealth <i>EPBC Act</i>	Does not occur on-site and is mapped as being more than 500 metres to the north of the site. No further assessment required.
Freshwater wetlands on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions	Endangered - <i>NSW BC Act</i>	Does not occur on-site and not mapped as occurring in close proximity to the site. No further assessment required.
Illawarra Lowlands Grassy Woodland in the Sydney Basin Bioregion	Endangered - <i>NSW BC Act</i> Critically Endangered - Commonwealth <i>EPBC Act</i>	Does not occur on-site and is mapped as being more than one kilometre to the east of the site. No further assessment required.
Illawarra Subtropical Rainforest in the Sydney Basin Bioregion	Endangered - <i>NSW BC Act</i> Critically Endangered - Commonwealth <i>EPBC Act</i>	Does not occur on-site and is not mapped as occurring in close proximity to the site. No further assessment required.
Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Endangered - <i>NSW BC Act</i> Critically Endangered - Commonwealth <i>EPBC Act</i>	Does not occur on-site and is not mapped as occurring in close proximity to the site. No further assessment required.
Swamp oak floodplain forest of the NSW North Coast, Sydney Basin and South East Corner bioregions	Endangered - <i>NSW BC Act</i> Endangered - Commonwealth <i>EPBC Act</i>	Although mapped, this EEC does not physically occur on-site. No further assessment required.

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Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions		Endangered - NSW BC Act	Does not occur on-site and is mapped as being more than 400 metres to the north of the site. No further assessment required.
Species name	Status	Habitat requirements (www.environment.nsw.gov.au)	Likelihood of presence within areas impacted by the activity
FLORA			
Round-leafed Wilsonia <i>Wilsonia rotundifolia</i>	Vulnerable NSW BC Act	This species occurs on the margins of saltmarshes and lakes	Unlikely. No suitable habitat present within the site.
Villous Mint-bush <i>Prostanthera densa</i>	Vulnerable NSW BC Act and EPBC Act	Generally grows in sclerophyll forest and shrubland on coastal headlands and near coastal ranges, chiefly on sandstone, and rocky slopes near the sea.	Unlikely. No suitable habitat present within the site. Not observed during site inspections.
Magenta Lily Pilly <i>Syzgium paniculatum</i>	Endangered NSW BC Act and Vulnerable EPBC Act	The species occurs on grey soils over sandstone, restricted mainly to remnant stands of Littoral (coastal) rainforest.	Unlikely. No suitable habitat present within the site. Not observed during site inspections.
Thick Lip Spider Orchid <i>Caledonia tessellata</i>	Endangered NSW BC Act and Vulnerable EPBC Act	The species is found in grassy sclerophyll woodland on clay loam or sandy soils.	Unlikely. No suitable habitat present within the site.

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Pretty Beard Orchid <i>Calochilus pulchellus</i>	Endangered NSW BC Act	At Vincentia the species grows in low Scribbly Gum dominated woodland with a low wet heath understorey. The soil is a sandy loam overlying sandstone. In Booderee National Park it grows in a tall heathy association. In Morton National Park on the Little Forest Plateau it occurs in low heath among scattered clumps of emergent eucalypts and Banksia in shallow coarse white sand over sandstone, in a near-escarpment area subject to strong orographic precipitation.	Unlikely. No suitable habitat present within the site.
Leafless Tongue Orchid <i>Cryptostylis hunteriana</i>	Vulnerable NSW BC Act and Vulnerable EPBC Act	The larger populations typically occur in woodland dominated by Scribbly Gum, Silvertop Ash, Red Bloodwood, and Black Sheoak.	Unlikely. No suitable habitat present within the site.
Bauer's Midge Orchid <i>Genoplesium baueri</i>	Endangered NSW BC Act and EPBC Act	Grows in dry sclerophyll forest and moss gardens over sandstone.	Unlikely. No suitable habitat present within the site.
Jervis Bay Leek Orchid <i>Prasophyllum affine</i>	Endangered NSW BC Act and EPBC Act	Grows on poorly drained grey clay soils that support low heathland and sedgeland communities.	Unlikely. No suitable habitat present within the site.
Australian Saltgrass <i>Distichlis distichophylla</i>	Endangered NSW BC Act	A coloniser of damp saline soils; found at the edges of salt marshes and on low dunes.	Unlikely. No suitable habitat present within the site.
AMPHIBIANS			

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Green and Golden Bell Frog <i>Litoria aurea</i>	Vulnerable <i>EPBC Act</i> Endangered <i>NSW BC Act</i>	Marshes, dams and stream-sides, particularly those containing bullrushes (<i>Typha</i> spp.) or spikerushes (<i>Eleocharis</i> spp.). Optimum habitat for the species includes water-bodies that are unshaded, free of predatory fish such as Plague Minnow (<i>Gambusia holbrooki</i>), with a grassy area nearby and diurnal sheltering sites available.	Unlikely to occur. No suitable habitat present within the site.
REPTILES			
Green Turtle <i>Chelonia mydas</i>	Vulnerable <i>EPBC Act</i> Vulnerable <i>NSW BC Act</i>	Ocean-dwelling species spending most of its life at sea. Eggs laid in holes dug in beaches throughout their range.	Unlikely to occur. No suitable habitat present within the site.
BIRDS			
White-throated Needletail <i>Hirundapus caudacutus</i>	Vulnerable and Migratory <i>EPBC Act</i>	Almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above the ground. Because they are aerial, it has been stated that conventional habitat descriptions are inapplicable, but there are, nevertheless, certain preferences exhibited by the species. Although they occur over most types of habitat, they are probably recorded most often above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy, but they are less commonly recorded flying above woodland. They also commonly occur over heathland, but less often over treeless areas, such as grassland or swamps. When flying above farmland, they are more often recorded above partly cleared pasture, plantations or remnant vegetation at the edge of paddocks. In coastal areas, they are sometimes seen flying over sandy beaches or mudflats, and often around coastal cliffs and other areas with prominent updraughts, such as ridges and sand-dunes. They are sometimes recorded above islands well out to sea.	Possibly occurring over or in proximity to the site, but unlikely to utilise or rely on available habitat within the site.

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Gould's Petrel <i>Pterodroma leucoptera leucoptera</i>	Vulnerable EPBC Act and Endangered NSW BC Act	This pelagic or ocean-going species breeds on both Cabbage Tree Island, 1.4 km offshore from Port Stephens and on nearby Boondelbah island. The range and feeding areas of non-breeding petrels are unknown.	Unlikely to occur. No suitable habitat present within the site.
White-bellied Sea-Eagle <i>Haliaeetus leucogaster</i>	NSW BC Act Vulnerable Migratory EPBC Act	Found in coastal habitats (especially those close to the sea-shore) and around terrestrial wetlands in tropical and temperate regions of mainland Australia and its offshore islands. The habitats occupied by the sea-eagle are characterized by the presence of large areas of open water (larger rivers, swamps, lakes, the sea). Birds have been recorded in (or flying over) a variety of terrestrial habitats. The species is mostly recorded in coastal lowlands, but can occupy habitats up to 1400 m above sea level on the Northern Tablelands of NSW and up to 800 m above sea level in Tasmania and South Australia. Birds have been recorded at or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs, saltmarsh and sewage ponds. They also occur at sites near the sea or sea-shore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves.	Possibly occurring over or in proximity to the site, but unlikely to utilise available habitat within the site. No breeding habitat. No further assessment is warranted.
Square-Tailed Kite <i>Lophoictinia isura</i>	Vulnerable NSW BC Act	Summer breeding migrant to the south-east, including the NSW south coast, arriving in September and leaving by March. Found in a variety of timbered habitats including dry woodlands and open forests. Shows a particular preference for timbered watercourses large hunting ranges of more than 100km ² . Breeding is from July to February, with nest sites generally located along or within 200m of riparian areas, near watercourses, in a fork or on large horizontal limbs.	Possibly occurring over or in proximity to the site, but unlikely to utilise available habitat within the site. No further assessment is warranted.
Eastern Osprey <i>Pandion cristatus</i>	Vulnerable NSW BC Act	Favour coastal areas, especially the mouths of large rivers, lagoons and lakes. Feed on fish over clear, open water. Breed from July to September in NSW. Nests are made high up in dead trees or in dead crowns of live trees, usually within one kilometre of the sea.	Possibly occurring over or in proximity to the site, but unlikely to utilise available habitat within the site. No stick nests in proposed activity site. No further assessment is warranted.

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Sooty Oystercatcher <i>Haematopus fuliginosus</i>	Vulnerable NSW BC Act	Shore bird. Found around the entire Australian coast, including offshore islands, being most common in Bass Strait. Small numbers of the species are evenly distributed along the NSW coast. The availability of suitable nesting sites may limit populations. Favours rocky headlands, rocky shelves, exposed reefs with rock pools, beaches and muddy estuaries. Forages on exposed rock or coral at low tide for foods such as limpets and mussels. Breeds in spring and summer, almost exclusively on offshore islands, and occasionally on isolated promontories. The nest is a shallow scrape on the ground, or small mounds of pebbles, shells or seaweed when nesting among rocks.	Unlikely to occur. No suitable habitat present within the site.
Pied Oystercatcher <i>Haematopus longirostris</i>	Endangered NSW BC Act	Favours intertidal flats of inlets and bays, open beaches and sandbanks. Forages on exposed sand, mud and rock at low tide, for molluscs, worms, crabs and small fish. Nests mostly on coastal or estuarine beaches although occasionally they use saltmarsh or grassy areas. Nests are shallow scrapes in sand above the high tide mark, often amongst seaweed, shells and small stones.	Unlikely to occur. No suitable habitat present within the site.
Eastern Curlew <i>Numenius madagascariensis</i>	Critically Endangered EPBC Act	Most commonly associated with sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass. Occasionally, the species occurs on ocean beaches (often near estuaries), and coral reefs, rock platforms, or rocky islets. The birds are often recorded among saltmarsh and on mudflats fringed by mangroves, and sometimes use the mangroves. The birds are also found in saltworks and sewage farms (Marchant & Higgins 1993). The numbers of Eastern Curlew recorded during one study were correlated with wetland areas. Mainly forages on soft sheltered intertidal sandflats or mudflats, open and without vegetation or covered with seagrass, often near mangroves, on saltflats and in saltmarsh, rockpools and among rubble on coral reefs, and on ocean beaches near the tideline. The birds are rarely seen on near-coastal lakes and in grassy areas.	Unlikely to occur within the site. No suitable habitat present.

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		Roosts on sandy spits and islets, especially on dry beach sand near the high-water mark, and among coastal vegetation including low saltmarsh or mangroves. It occasionally roosts on reef-flats, in the shallow water of lagoons and other near-coastal wetlands. Eastern Curlews are also recorded roosting in trees and on the upright stakes of oyster-racks.	
Sooty Tern <i>Onychoprion fuscata</i>	Vulnerable NSW BC Act	Large flocks can be seen soaring, skimming and dipping but seldom plunging in off shore waters. Breeds in large colonies in sand or coral scrapes on offshore islands and cays including Lord Howe and Norfolk Islands	Unlikely to occur within the site. No suitable habitat present. No breeding or foraging habitat present.
Gang-gang Cockatoo <i>Callocephalon fimbriatum</i>	Vulnerable NSW BC Act	Tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In winter, may occur at lower altitudes in drier more open eucalypt forests and woodlands, and often found in urban areas. preferring more open eucalypt forests and woodlands, particularly in box-ironbark assemblages, or in dry forest in coastal areas. Favours old growth attributes for nesting and roosting	Suitable foraging habitat present. Species has potential to occur in the activity area. Impact assessment is provided in Section 3.3.2
Glossy Black-cockatoo <i>Calyptorhynchus lathami</i>	Vulnerable NSW BC Act	The species inhabits open forest and woodlands of the coast where stands of she-oak occur. In the locality the species feed almost exclusively on the seeds of the black she-oak <i>Allocasuarina littoralis</i> shredding the cones with their bill.	Unlikely to occur within the site. No suitable habitat present. No breeding or foraging habitat present.
Little Lorikeet <i>Glossopsitta pusilla</i>	Vulnerable NSW BC Act	Forages primarily in the canopy of open Eucalyptus forest and woodland, yet also finds food in Angophora, Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity.	Unlikely to occur within the site. No suitable habitat present. No breeding or foraging habitat present.
Swift Parrot <i>Lathamus discolor</i>	Endangered EPBC Act Endangered NSW BC Act	Migrates to the Australian south-east mainland between March and October. On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany <i>Eucalyptus robusta</i> , Spotted Gum <i>Corymbia maculata</i> , Red Bloodwood <i>C. gummifera</i> , Mugga Ironbark <i>E. sideroxylon</i> , and White Box <i>E. albens</i> . Commonly used lerp infested trees include	Unlikely to occur within the site. No suitable habitat present. No breeding or foraging habitat present.

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		Inland Grey Box <i>E. microcarpa</i> , Grey Box <i>E. moluccana</i> and Blackbutt <i>E. pilularis</i> . Return to some foraging sites on a cyclic basis depending on food availability. Following winter they return to Tasmania where they breed from September to January, nesting in old trees with hollows and feeding in forests dominated by Tasmanian Blue Gum <i>Eucalyptus globulus</i> .	
Eastern Ground Parrot <i>Pezoporus wallicus wallicus</i>	Vulnerable NSW BC Act	The species occurs in high rainfall coastal and near coastal low heathlands and sedgeland, generally below one metre in eight and very dense (up to 90% project foliage cover).	Unlikely to occur within the site. No suitable habitat present.
Powerful Owl <i>Ninox strenua</i>	Vulnerable NSW BC Act	Coastal Woodland, Dry Sclerophyll Forest, wet sclerophyll forest and rainforest- Can occur in fragmented landscapes Roosts in dense vegetation comprising species such as Turpentine <i>Syncarpia glomulifera</i> , Black She-oak <i>Allocasuarina littoralis</i> , Blackwood <i>Acacia melanoxylon</i> , Rough-barked Apple <i>Angophora floribunda</i> , Cherry Ballart <i>Exocarpus cupressiformis</i> and a number of eucalypt species. requires old growth elements-hollow bearing tree resources for nesting and prey resource. Nests in large tree hollows in large eucalypts that are at least 150yrs old. Often in riparian areas. Large home range.	Possibly occurring over or in proximity to the site, but unlikely to utilise available habitat within the site. No hollow-bearing trees in the site suitable for breeding. No further assessment is warranted.
Masked Owl <i>Tyto novaehollandiae</i>	Vulnerable NSW BC Act	Lives in dry eucalypt forests and woodlands from sea level to 1100 m. A forest owl, but often hunts along the edges of forests, including roadsides. The typical diet consists of tree-dwelling and ground mammals, especially rats. Pairs have a large home-range of 1000 hectares or more, depending on prey availability. Roosts and breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting.	Possibly occurring over or in proximity to the site, but unlikely to utilise available habitat within the site. No breeding habitat (hollow-bearing trees).
White-fronted Chat <i>Epthianura albifrons</i>	Vulnerable NSW BC Act	Usually found foraging on bare or grassy ground in wetland areas, singly or in pairs.	Unlikely to occur within the site. No suitable habitat present.

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Varied Sittella <i>Daphoenositta chrysoptera</i>	Vulnerable NSW BC Act	Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland	Suitable foraging habitat present. Species has potential to occur in the activity area. Impact assessment is provided in Section 3.3.2.
Olive Whistler <i>Pachycephalia olivacea</i>	Vulnerable NSW BC Act	Mostly inhabit wet forests above about 500m. During the winter months they may move to lower altitudes	Unlikely to occur within the site. No suitable habitat present.
Dusky Woodswallow <i>Artamus cyanopterus cyanopterus</i>	Vulnerable NSW BC Act	Primarily inhabit dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and ground-cover of grasses or sedges and fallen woody debris. It has also been recorded in shrublands, heathlands and very occasionally in moist forest or rainforest. Also found in farmland, usually at the edges of forest or woodland.	Unlikely to occur within the site. No suitable habitat present.
MAMMALS			
White-footed Dunnart (eastern) <i>Isodon obesulus obesulus</i>	Vulnerable NSW BC Act	The White-footed Dunnart is found in a range of different habitats across its distribution, including coastal dune vegetation, coastal forest, tussock grassland and sedgeland, heathland, woodland and forest.	Suitable foraging habitat present. Species has potential to occur in the activity area. Impact assessment is provided in Section 3.3.2.
Southern Brown Bandicoot (eastern) <i>Isodon obesulus obesulus</i>	Endangered NSW BC Act and EPBC Act	They are generally only found in heath or open forest with a heathy understorey on sandy or friable soils.	Suitable foraging habitat present. Species has potential to occur in the activity area. Impact assessment is provided in Section 3.3.2.
Yellow-bellied Glider <i>Petaurus australis</i>	Vulnerable NSW BC Act and EPBC Act	Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils.	Unlikely to occur within the site. No suitable habitat present.

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Greater Glider <i>Petauroides Volans</i>	Endangered NSW BC Act and EPBC Act	The greater glider is an arboreal nocturnal marsupial, predominantly solitary and largely restricted to eucalypt forests and woodlands of eastern Australia. It is typically found in highest abundance in taller, montane eucalypt forests of fertile soils with relatively old trees and abundant hollows.	Unlikely to occur within the site. No suitable habitat present.
Grey-headed Flying-fox <i>Pteropus poliocephalus</i>	Vulnerable NSW BC Act and EPBC Act	Occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 kilometres of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy. The species feeds on the nectar and pollen of native trees, in particular <i>Eucalyptus</i> , <i>Melaleuca</i> and <i>Banksia</i> , and fruits of rainforest trees and vines	Suitable foraging habitat present nearby. Species has potential to occur in the activity area. Impact assessment is provided in Section 3.3.2
Eastern Coastal Free-tailed Bat <i>Micronomus norfolkensis</i>	Vulnerable NSW BC Act	Occur in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range. Roosts mainly in tree hollows but will also roost under bark on in man-made structures.	Suitable foraging habitat present nearby. Species has potential to occur in the activity area. Impact assessment is provided in Section 3.3.2
Large-eared Pied Bat <i>Miconomus norfolkensis</i>	Vulnerable NSW BC Act	Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (<i>Petrochelidon ariel</i>), frequenting low to mid-elevation dry open forest and woodland close to these features. Females have been recorded raising young in maternity roosts (c. 20-40 females) from November through to January in roof domes in sandstone caves and overhangs. They remain loyal to the same cave over many years. Found in well-timbered areas containing gullies	Unlikely to occur within the site. No suitable habitat present.
Eastern False Pipistrelle <i>Falsistrellus tasmaniensis</i>	Vulnerable NSW BC Act	Prefers moist habitats, with trees taller than 20m. Generally roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings.	Possibly occurring over or in proximity to the site, but unlikely to utilise available habitat within the site. No roosting habitat or food resources affected.

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Southern Myotis <i>Myotis macropus</i>	Vulnerable NSW BC Act	Generally roost in groups of 10 to 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage.	Possibly occurring over or in proximity to the site, but unlikely to utilise available habitat within the site. No roosting habitat or food resources affected.
Greater Broad-nosed Bat <i>Scoteanax rueppellii</i>	Vulnerable NSW BC Act	The Greater Broad-nosed Bat is found mainly in the gullies and river systems that drain the Great Dividing Range. The species utilises a variety of habitats from woodland to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forests. Although this species usually roosts in tree hollows, it has been found in buildings.	Possibly occurring over or in proximity to the site, but unlikely to utilise available habitat within the site. No roosting habitat or food resources affected.
Large Bent-winged Bat <i>Miniopterus orianae oceanensis</i>	Vulnerable NSW BC Act	Caves are the primary roosting habitat, but also use derelict mines, stormwater tunnels, buildings and other man-made structures. The species form discrete populations centred on a maternity cave that is used annually. At other times of the year, populations disperse within about 300 km range of maternity caves.	Possibly occurring over or in proximity to the site, but unlikely to utilise available habitat within the site. No roosting habitat or food resources affected.
New Zealand Fur-seal <i>Arctocephalus forsteri</i>	Vulnerable NSW BC Act.	Marine mammal	Unlikely to occur within the site. No suitable habitat present.
Australian Fur-seal <i>Arctocephalus pusillus doriferus</i>	Vulnerable NSW BC Act	Marine mammal	Unlikely to occur within the site. No suitable habitat present.
Southern Right Whale <i>Eubalaena australis</i>	Vulnerable NSW BC Act	Marine mammal	Unlikely to occur within the site. No suitable habitat present.