



Tree Management Strategies

# Biodiversity Management Plan



65 SEAFORTH CRESCENT,  
SEAFORTH, NSW.

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Tree Management Strategies

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## PREFACE

This Biodiversity Management Plan has been prepared by *Tree Management Strategies* to identify the flora and fauna characteristics and risks to the local Biodiversity of land within *65 Seaforth Crescent, Seaforth, NSW*.

This report provides an assessment of existing habitats and the potential for the proposed activity to significantly impact on threatened species, ecological important habitat and how to mitigate potential impacts on local Biodiversity according to the provisions of Section 5(A) of the *Environmental Planning and Assessment (EP&A) Act* 1979, the *Biodiversity Conservation Act* 1995 and *Coastal Management Act* 2016.

|                                                                     |    |
|---------------------------------------------------------------------|----|
| EXECUTIVE SUMMARY .....                                             | 2  |
| 1. Section 1 Introduction.....                                      | 3  |
| 2. Section 2 Ecological Characteristics .....                       | 5  |
| 3. Section 3 Proposed Development and Impacts on Biodiversity ..... | 12 |
| 4. Section 4 State Environmental Planning Policy.....               | 14 |
| 5. Section 5 Conclusions .....                                      | 17 |
| 8. References.....                                                  | 18 |
| 9. Appendices .....                                                 | 19 |
| Appendix 1: .....                                                   | 19 |
| Appendix 2: .....                                                   | 24 |

## Executive Summary

### CONCLUSIONS

- i. Based on the field survey and information provided in this report it is concluded that: no rare or threatened flora or fauna species will be negatively impacted by the proposed development.
- ii. No threatened flora or fauna populations were observed within the subject site during surveys.
- iii. No threatened ecological community as listed within the *BC Act* (2016) was observed within the subject site during surveys.
- iv. The proposed development is not likely to have a significant effect on threatened species, populations or ecological communities or their habitats.
- v. There were no tree hollows or rock outcrops surveyed on the subject site.
- vi. The subject site does not provide high quality habitat and is not connected to other natural areas within the locality.
- vii. The ecological value of the subject site has been assessed as extremely low and no significant environmental or ecological features observed.
- viii. The subject site borders Sydney Harbour Foreshore and the construction of the seawall and buildings will require appropriate erosion and sediment controls. The controls need to be implemented to minimise sediment and nutrients entering the waterway of Sydney Harbour, thereby preserving the local aquatic habitat and localising disturbance.
- ix. The proposed development complies with all development controls outlined in the Coastal Management SEPP. No Koala food trees or Koalas or evidence of Koala habitation were observed on the subject site and it not considered to form potential koala habitat as defined by Koala Habitat Assessment SEPP.
- x. The proposed development is not likely to have a significant effect on Biodiversity.

# SECTION 1

## INTRODUCTION

### 1.1 INTRODUCTION

*Tree Management Strategies* have been engaged by Armada Architecture to prepare a Biodiversity Management Plan for a proposed Development Application (DA) at 65 Seaforth Crescent, Seaforth.

This Biodiversity Management Plan has been prepared to identify potential impacts to Biodiversity, the ecological value of habitat on the subject site, significant environmental and ecological features, flora and fauna characteristics of the site and to determine whether or not the proposed development will impact the local Biodiversity, according to the provisions of Section 5(A) of the *Environmental Planning & Assessment Act 1979* (EP&A Act), the *Biodiversity Conservation Act 2016* and *Coastal Management Act 2016*.

### 1.2 SITE CHARACTERISTICS

The site and planning details of the subject site are provided in Table 1.1.

| TABLE 1<br>SITE DETAILS |                                |
|-------------------------|--------------------------------|
| Location                | 65 Seaforth Crescent, Seaforth |
| Local Government Area   | Northern Beaches Council       |
| Existing Land Use       | Residential Home               |
| Proposed Development    | Residential Home               |

### 1.3 PROPOSED DEVELOPMENT

The proposed development is to extend and modify the existing residential home with the addition of two new levels of the building to be constructed containing a pool and terrace area. In addition, new landscaping of the terraced courtyard and gardens at the front of the site. A graded pathway and gardens at the rear of the building, leading to a boathouse. The construction of a seawall above the mean high tidal level will also be considered as part of the development.

### 1.4 IDENTIFICATION AND DESCRIPTION OF THE SITE AND SURROUNDS.

The site contains a residential home which comprises of a building, driveway, car parking spaces and landscaped areas. The site exhibits high levels of disturbance with the removal of trees and the removal of the naturally occurring vegetation understorey. Weeds have now invaded the cleared, unused areas of the site thereby reducing the habitat quality. A large area of unusable space to the rear of the site is highly invested with weeds. This highly disturbed the area contains one remnant naturally occurring canopy tree and is considered to provide very limited habitat for fauna. The site is very

steep with the slope being approximately 45 degrees. The site is terraced which eliminates the slope, however, the terrace stops approximately halfway along the site. This area has previously been covered with matting of woven plastic, to reduce erosion by protecting the earth underneath. This matting stopped any natural rehabilitation of the area, by preventing natural germination of local flora. This area is now highly invested with weed species. The site is on the waterfront to the South of the site and has a rocky shore within the intertidal area.

## SECTION 2

### ECOLOGICAL CHARACTERISTICS

#### 2.1 FLORA CHARACTERISTICS

A search of the Bio Net Atlas NSW (2019) was undertaken to identify records of threatened flora species located within a 10km radius of the site. This allowed for a specific search for threatened flora to be undertaken determining if any threatened flora species were present within the subject site. Details on threatened flora species as listed in *BC Act* (2016), with a known or possible occurrence within the local area, are provided in Appendix 1.

No threatened flora species, as listed in the *BC Act* (2016) and the *EPBC Act* (1999) was observed within the subject site. One species, *Prostanthera marifolia* commonly known as *Seaforth Mintbush* is a critically endangered plant listed in the *BC Act* (2016) and the *EPBC Act* (1999). It has a very restricted distribution and only occurs on dry ridgetops. Although the subject site does not provide preferable habitat a targeted search was conducted for *Prostanthera marifolia* during surveys. A detailed species list is not provided in this report and is not required due to the disturbed nature of the site and the presence of one naturally occurring, locally endemic native tree species.

Therefore it can be considered that no rare or threatened flora species will be negatively impacted by the proposed development.

##### **2.1.1 Threatened Flora Populations**

There are no Threatened Flora Populations currently listed as occurring in the local government area, therefore this matter does not require any further consideration.

##### **2.1.2 Threatened Ecological Communities**

No threatened ecological community, as listed by the *BC Act* (2016) was observed within the subject site during surveys. Site characteristics and topography have been taken into consideration when compiling possible communities to be assessed. Therefore it can be considered that no threatened ecological community will be negatively impacted by the proposed development.

## **2.2 VEGETATION SURVEY METHODOLOGY**

To determine the likely and actual occurrence of flora species and plant communities on the subject site, field survey work was undertaken to supplement literature reviews and previous flora surveys of the area. The methods utilised for the flora survey are outlined as follows.

### **2.2.1 Literature Review**

- A review of available literature for the area was undertaken to obtain reference material and background information for this study. These documents are listed in the References section of this Report.
- A search of the Bio Net Atlas of NSW (2019) was undertaken to identify records of threatened flora species located within 10km radius of the site. This enabled the preparation of a predictive list of threatened flora species that could possibly occur within the habitats found on the site.

### **2.2.3 Flora Survey**

- A field survey which consisted of foot traverses within vegetated areas was conducted according to Cropper (1993) to identify the occurrence of flora species and the extent and location of vegetation communities present across the subject site. Due to the small size and high level of disturbance within the subject site, the flora surveys undertaken did not involve quadrat or transect surveys.
- The flora survey was undertaken on 11<sup>th</sup> February 2019 from 7:30-13:30. Weather conditions were warm (27°C) and fine with a 0/8 cloud cover and a light to moderate SW breeze, no rain was recorded.
- Specimens of plants not readily identified in the field were collected for identification.
- Areas of domestic gardens and landscape plantings were not subject to detailed surveys.
- Determination of species composition as well as structural descriptions of the vegetation on the site according to Specht *et. al.* (1995) was also carried out.

### **2.2.4 Vegetation Community Nomenclature**

- The vegetation communities identified within the site by *Tree Management Strategies* were classified according to a modified Walker and Hopkins (1990) methodology. Within the descriptions, the dominant species are listed after the structural description.
- Corresponding Threatened Ecological Communities listed on both the *BC Act* (2016) and *Environmental Protection and Biodiversity Conservation Act* (1999) (EPBC) are also provided if relevant.

### **2.2.5 Seasonality**

As many threatened flora species are best observed during their flowering period, this survey was unable to detect species which flower at various other times of the year.

However due to the nature of the vegetation and extent of weed cover present additional seasonal surveys are not considered necessary for this site.

## **2.3 VEGETATION COMMUNITY DESCRIPTIONS AND FLORA SPECIES**

The vegetation community present within the subject site is described as Cleared Land with Scattered Trees. A vegetation community description is provided below. A detailed species list is not provided in this report and is not required due to the disturbed nature of the site and the presence of one naturally occurring, locally endemic native tree species.

### **CLEARED LAND WITH SCATTERED TREES**

#### **Structure:**

**Trees:** To 25 metres high with > 5% Projected Foliage Cover (PFC).

**Shrubs:** To 5 metres high with >5% PFC.

**Groundlayer:** To 0.5 metres high with 95% PFC.

#### **Floristics:**

(Main Species Present)

**Trees:** *Eucalyptus saligna* (Sydney Blue Gum), *Banksia serrata* and *Jacaranda mimosifolia*.

**Shrubs:** *Callistemon sp.*, *Pittosporum undulatum* and vine weed species.

**Ground-layer:** Consists of exotic planted species and weeds.

**Weeds:** *Cissus Antarctica*, *Salpichroa organifolia*, Crofton weed, Lantana, Green seturm, Small Leave Privet, Large leave Privet, Thistle, Chickweed, Squatter, Asparagus fern, Bougainvillea, *Monstera deliciosa*.

#### **2.3.1 Classification**

All trees and shrubs identified existed as single species. No section of this vegetation community representing Scattered Trees corresponds to an Endangered Ecological Community.

#### **2.3.2 Disturbance**

This vegetation community is disturbed from clearing and extensive weed invasion. This community includes the landscaped areas, gardens and weed infested disturbed areas to the rear of the site.

#### **2.3.3 Location and Distribution**

This vegetation community occupies all vegetated areas of the subject site.

#### **2.3.4 Weed Invasion**

The site contains landscaped gardens and major weed invasions concentrated within the shrub and groundcover layers and is prominent to the rear of the site.

### **2.3.5 Variation**

A variation occurs within the front section of the site which consists of a terrace garden with planted native trees and exotic flora species and is now not regularly maintained.

## **FAUNA AND FAUNA HABITATS**

### **2.4 THREATENED FAUNA SPECIES**

A search of the Bio Net Atlas of NSW (2019) was conducted for threatened fauna recorded within 10km radius of the subject site. This allowed for a specific search for threatened fauna to be undertaken determining if any threatened fauna species were present within the subject site. This revealed a number of threatened species that may be present in the area. Details on threatened fauna species *BC Act* 2016, which are known to occur within the area are provided in Appendix 1.

No threatened fauna species, as listed in the *BC Act* (1995) and the *EPBC Act* (1999) was observed within the subject site. A detailed species list is not provided in this report and is not required due to the disturbed nature of the site and all species observed were considered as common; mostly over abundant species.

Therefore it can be considered that no rare or threatened fauna species will be negatively impacted by the proposed development.

### **2.5 THREATENED FAUNA POPULATIONS**

There are two species listed as Threatened Fauna Populations currently listed as occurring in the Northern Beaches Local Government Area, the Little Penguin in the Manly Point Area and the Long-nosed Bandicoot in North Head Reserve. Both species have very restricted and known distributions, these known areas where species occur are an estimated 5 km away from the site. Further, the required habitat for these species is not present on the subject site. It is consider that the subject site dose not form significant or potential habitat for these species.

### **2.6 FAUNA HABITATS**

The site contains a residential home which comprises of a building, driveway, car parking spaces and landscaped areas. The site exhibits high levels of disturbance with the removal of trees and the removal of naturally occurring vegetation understorey. Weeds have now invaded the cleared, unused areas of the site thereby reducing the habitat quality. Large areas of unusable space to the South of the site are highly invested with weeds. Although highly disturbed the site contains one remnant naturally occurring canopy tree and a small number of other planted native trees and is considered to provide some limited habitat for fauna. These habitats include:

- Nectar and seed producing native and exotic tree and shrub species;

The site offers only extremely sub-optimal habitat for fauna species. The flower,

nectar, fruit and seed producing tree and shrub species associated with the remnant vegetation and landscaped gardens provide a very limited level of seasonal foraging source for arboreal mammal, microchiropteran bat, and some bird species.

The area has been neglected and is suffering from a major weed invasion. The site may provide shelter habitat for rodents and some reptilian species.

## **2.7 FAUNA SURVEY METHODOLOGY**

In order to detect the possible occurrence of threatened fauna species specific methods targeting these species were employed.

### **2.7.1 Literature Review**

- Review of local resource documents;
- A search of the Bio Net Atlas of NSW (2019) was undertaken to identify records of threatened fauna species located within 10km radius of the site. This enabled the preparation of a predictive list of threatened fauna species that could possibly occur within the habitat found on the site.

### **2.7.2 Fauna Survey**

Due to the small area of the subject site, the high levels of disturbance and the absence of tree hollows, surveys were restricted to:

- Diurnal habitat searches for frogs, reptiles and mammals
- Bird census

Due to the cryptic nature of micro bat species, threatened microchiropteran bat species recorded within a ten kilometre radius of the subject site would normally be assessed. It is considered that suitable foraging habitat for microchiropteran bat species is present on the subject site within the flowering tree species. However, due to the highly disturbed nature of the site and the extremely sub-optimal habitat available. It is considered that the action proposed is not likely to have an adverse effect on the life cycle of the microchiropteran bat species such that a viable local population is likely to be placed at risk of extinction. Therefore, threatened microchiropteran bat species will not be considered further in this report.

Fauna surveys were undertaken on the 11<sup>th</sup> February 2019 from 7:30-13:30. Weather conditions were warm (27°C) and fine with a 0/8 cloud cover and a light to moderate SW breeze, no rain was recorded.

## **2.8 FAUNA OBSERVED**

The fauna species observed within the subject site was very limited. A detailed species list is not provided in this report and is not required due to the disturbed nature of the site and the presence of common; mostly over abundant species. No threatened fauna species were observed within the subject site during surveys.

## 2.9 ASSEMENT AND CONCLUSIONS FOR IMPACT ON RARE and THREATENED SPECIES

As identified in Section 5(A) of the *EP&A Act* 1979 the following matters need to be addressed to determine whether or not a significant effect on threatened species, populations or ecological communities or their habitats is likely to result from the proposed development. No threatened species, population or ecological community

**a) *species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,***

There are two species listed as Threatened Fauna Populations currently listed as occurring in the Northern Beaches Local Government Area, the Little Penguin in the Manly Point Area and the Long-nosed Bandicoot in North Head. Both species have very restricted and known distributions, these known areas where these species occur are an estimated 5 km away from the subject site. Further, the required habitat for these species is not present on the subject site.

**b) *In the case of a critically endangered or endangered ecological community, whether the action proposed:***

**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***

No Threatened Ecological Community as listed as critically endangered within the *BC Act* (2016) was observed within the subject site during surveys.

**ii. *Is likely to substantially and adversely modify the composition such that its local occurrence is likely to be placed at risk of extinction,***

The proposed development will not involve the removal of species forming part of a Threatened Ecological Community. Due to the highly disturbed nature of the vegetation within small scale of the proposed development and the presence of several larger areas of high quality nature reserves within the local area. It is considered that the proposed development is not likely to substantially and adversely modify the composition such that the local occurrence of any ecological community is likely to be placed at risk of extinction.

**d) *In relation to the habitat of threatened species, populations or ecological community:***

**i. *The extent to which habitat is likely to be removed or modified as a result of the action proposed, and***

The proposed development will involve the removal of tree, shrub, weed species, planted exotic vegetation and some of the existing building. The removal of this vegetation which constitutes habitat is of sub-optimal habitat and does not provide the necessary species or community structure for threatened species. The proposed action will not remove high quality habitat.

Therefore the habitat is not of significant importance to the long-term survival of threatened species, populations or ecological communities.

***ii. Whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and***

The subject site is considered to already be fragmented and isolated from other areas of habitat. The proposed action is unlikely to further fragment or isolate vegetation within the subject site.

***iii. The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality***

Given the high amount of disturbance and sub-optimal quality of vegetation and lack of connectivity present to areas of high quality habitat within the local area. It is considered that the habitat to be removed, modified, fragmented or isolated within the subject site for the proposed development is not of significant importance to the long-term survival of threatened species, populations or ecological communities in the locality.

***e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),***

The subject site has not been classed as critical habitat within the provisions of the *Biodiversity Conservation Act* (2016). Therefore it is considered that the proposed development will not have an adverse effect on critical habitat (either directly or indirectly).

***f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,***

There are no recovery plans or threat abatement plans for threatened species likely to be affected by the proposal.

***g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.***

The proposal is not considered to constitute or be part of a threatening process and is therefore is not considered a class of development recognised as a key threatening processes.

**3.7 THE ECOLOGICAL VALUE OF EXISTING BUSHLAND AND BUSHLAND IMPACTED UPON BY THE PROPOSED DEVELOPMENT.**

The ecological value of existing bushland is extremely low. There is no native bushland present on the site. All flora species exist in residential gardens and all native species present on the site have been planted, except for a single individual Sydney Blue Gum *Eucalyptus saligna*. Further, a large section of the site is an unused area which has previously been covered with matting of woven plastic. To reduce erosion by protecting the earth underneath from weather. This area is now invested with weeds and has not been regularly maintained. Due to the lack of native bushland and weed

infestation on the site there is very limited ecological value present on the site and represents sub-optimal foraging for local fauna species. There will be no impact on existing bushland by the proposed development and an Arboricultural Impact Assessment will assess the impact upon the only native naturally occurring tree.

## **2.10 IDENTIFICATION OF SITE CONSTRAINTS INCLUDING SIGNIFICANT ENVIRONMENTAL FEATURES.**

No native vegetation as structural community was recorded on the subject site. No rare or threatened species were recorded on the subject site. Fauna habitats were surveyed and with sub-optimal faunal foraging habitat assessed. There were no tree hollows or rock outcrops surveyed on the subject site that would provide habitat for specific threatened species. The subject site does not provide high quality habitat and is not connected to other natural areas within the locality. Therefore, the subject site is not considered as a wildlife corridor. The subject site has a southern boundary that borders Sydney Harbour Foreshore and the construction of the seawall and boathouse will require appropriate erosion and sediment controls to minimise debris, sediments and nutrients from entering the waterway. Thereby preserving the local aquatic habitat. Although during the construction phase of the development there will be some localise disturbance to the flora and fauna species that inhabit the intertidal muddy and rocky shore area where the seawall is to be constructed. However, the species will recolonise the disturbed muddy and rocky shore zone once the construction phase is completed. This will be considered further in Proposed Development and Impacts on Biodiversity in Section 4 of this report. No wetlands and natural drainages are present on the subject site.

## **2.11 IDENTIFICATION OF VEGETATION CONDITION AND RESILIENCE.**

The resilience of vegetation or habitat to pressures of development depends on the extent to which essential natural processors have been or can be maintain. Resilience is high where vegetation is intact (SOE 2016). The subject site having been assess as having extremely low ecological value and almost all natural habitat removed with limited natural processors present within the ecology of the site. The general unnatural state of the subject site requires resilience to be assessed as extremely low. Therefore, condition and resilience will not be considered further in this report.

# **SECTION 3**

## **PROPOSED DEVELOPMENT AND IMPACTS ON BIODIVERSITY**

### **3.1 ENVIRONMENT PROTECTION & BIODIVERSITY CONSERVATION ACT (1999) ASSESSMENT**

The *Environment Protection and Biodiversity Conservation Act*, (1999) requires that Commonwealth approval be obtained for certain actions. The Act provides an

assessment and approvals systems for actions that have a significant impact on matters of National Environment Significance (NES). These may include:-

- Wetlands protected by international treaty (the Ramsar Convention)
- Nationally listed threatened species and ecological communities
- Nationally listed migratory species

Actions are projects, developments, undertakings, activities, and series of activities or alteration of any of these. An action that needs Commonwealth approval is known as a controlled action. A controlled action needs approval where the Commonwealth decides the action would have a significant effect on a NES matter.

Where a proposed activity is located in an area identified to be of NES, or such that it is likely to significantly affect threatened species, ecological communities, migratory species or their habitats, the matter needs to be referred to the Department of Sustainability, Environment, Water, Population and Communities (SEWPAC).

No threatened flora, Threatened Ecological Community or migratory fauna species listed within the *EPBC Act* (1999) were observed within the subject site.

It is considered that a referral of this project to the Department of Environment and Energy is not required as it is not likely to impact on a significant population of nationally listed threatened species or on any nationally listed endangered ecological community.

### **3.2 IDENTIFICATION OF POTENTIAL IMPACTS TO BIODIVERSITY**

The *EPBC Act* (1999) and *BC Act* (2016) requires the nature and extent of any proposed construction activities to be considered for potential impacts to Biodiversity. The proposed development does require the clearing of planted landscape gardens and a vegetated area dominated by weeds species at the rear of the subject site. As the clearing requires the removal of weeds, planted native and exotic trees that have been assess in the Arboricultural Impact Assessment. As the habitat has been assessed as providing sub-optimal foraging habitat for fauna and extremely low ecological value the clearing of vegetation on the subject site will not significantly impact on Biodiversity.

#### **3.2.1 Preclearing and clearing of the subject site**

The preclearing and clearing provisions within ecological and biodiversity management guidelines is to ensure that the natural habitat remaining on a subject site is preserved by describing impact mitigation methods for pre-clearing and clearing works. Preclearing and clearing works involve activities such as tree removal with established hollows that may be providing habitat for arboreal marsupials or birds. Preclearing and clearing works undertaken near bushland have requirements for the treatment and removal of weeds and vegetation waste from the site. So that weed seed and vegetation debris do not increase the likelihood of spreading and encouraging weed species to invade the remaining natural habitat.

The subject site having no natural habitat with a structural community present. Therefore, the preclearing and clearing works associated with this development will be no impact on remaining bushland. Preclearing and clearing works need only to ensure that all weed material is removed from site and disposed in an approved landfill.

### **3.2.2 Earthworks**

The proposed construction activities requires some excavation and earth works (cut and fill) for the construction of the boat house. The earth works will require the earth toward the southern boundary that leads to the foreshore of Sydney Harbour to become cleared and therefore creating areas of unstable soil that is exposed to weather. Earthworks in such close proximity to a waterway provides potential impacts to local aquatic intertidal species and seagrass beds. The potential impacts to Biodiversity are caused by; weather events causing erosion of soil sediments and additional nutrients to be washed into the waterway and a reduction in water quality (turbidity) near the subject site. To reduce and minimise the potential impacts to the aquatic habitat; appropriate erosion and sediment controls need to be implemented to minimise sediment and nutrients entering the waterway of Sydney Harbour.

### **3.2.3 Seawall**

The proposed construction activities requires the construction of a seawall on the boundary of the property and the foreshore above the mean high tide level. The construction works will require the earth and rock to be excavated on southern boundary on the foreshore of Sydney Harbour. Earth works in such close proximity to a waterway provides potential impacts to local aquatic intertidal species and seagrass beds. The potential impacts to local Biodiversity are caused by; excavation works in the intertidal zone, weather events causing erosion of soil sediments and additional nutrients to be washed into the waterway and a reduction in water quality (turbidity) near the subject site. To reduce and minimise the potential impacts to the local Biodiversity; appropriate erosion and sediment controls need to be implemented to minimise sediment and nutrients entering the waterway and localising the disturbance to the area near the subject site.

### **3.2.4 Operational activities**

The nature and extent of any proposed operational activities for the proposed development include landscaping works. The landscape plan includes a variety earthworks, planting of trees, shrubs and ground covers and other general landscaping activities. Earth works in such close proximity to a waterway provides potential impacts to local aquatic intertidal species and seagrass beds. The potential impacts to local Biodiversity are caused by; weather events causing erosion of soil sediments and additional nutrients to be washed into the waterway and a reduction in water quality (turbidity) near the subject site. To reduce and minimise the potential impacts to the Biodiversity; appropriate erosion and sediment controls need to be

implemented to minimise sediment and nutrients entering the waterway of Sydney Harbour.

Other operational activities to be consider are material storage and on-site waste water and effluent disposal. The proposed development does not require the storage of potentially environmentally dangerous material and no on-site waste water or effluent is required to be disposed of.

### **3.5 IDENTIFICATION OF POTENTIAL INDIRECT IMPACTS TO ANY VEGETATION IN AREAS ADJOINING THE DEVELOPMENT OR COASTAL PROTECTED AREAS**

There is no naturally occurring vegetation or native habitat adjoining the subject site. Therefore, no potential indirect impacts to areas adjoining the development can occur. Coastal Protected Areas will be considered in the State Environmental Planning Policy- Coastal Development in Section 5 of this report.

### **3.6 MANAGEMENT OF RETAINED VEGETATION AND REHABILITATION AREAS**

Management of retained vegetation and rehabilitation areas will form part of the landscape plan. Therefore, not required as part of the Biodiversity Management Plan.

## **SECTION 4**

### **STATE ENVIRONMENTAL PLANNING POLICIES**

#### **4.1 Coastal Management SEPP**

State Environmental Planning Policy (Coastal Management) 2018, known as the Coastal Management SEPP, defines the coastal zone and establishes state-level planning priorities and development controls to guide decision-making for development within the coastal zone. The Coastal Management SEPP commenced on 3 April 2018. It promotes an integrated and coordinated approach to land use planning in the coastal zone that is consistent with the objective of the Coastal Management Act 2016.

This SEPP consolidates and updates SEPP 14 (Coastal Wetlands), SEPP 26 (Littoral Rainforests) and SEPP 71 (Coastal Protection), which are now repealed. The Act replaces the Coastal Protection Act 1979.

The coastal zone is defined in the Act as being the area of land comprised of one or more of four coastal management areas:

- **coastal wetlands and littoral rainforests area** - defined as areas with particular hydrological and ecological characteristics
- **coastal vulnerability area** - defined as the area affected by any one of seven coastal hazards
- **coastal environment area** - defined as the coastal waters of the state, estuaries, coastal lakes and foreshores including beaches, dunes, headlands and rock platforms as well as surrounding land

- **coastal use area** - defined as land adjacent to the coast, where development is or may be carried out.

Under the previous *Coastal Protection Act 1979*, the coastal zone comprised of a single area. It is now comprised of four distinct coastal management areas, enabling more targeted management of the diversity of environments, associated pressures and interests in the coast. Targeted development controls apply to each area and are designed to achieve the specific management objectives for that area as set out in the Act.

Development controls for the:

- **coastal wetlands and littoral rainforests area** continue the existing protections for these important ecological communities
- **coastal vulnerability area** are concerned with managing risks to human life and public and private property that may be impacted by coastal hazards, now and into the future
- **coastal environment area** aim to protect and improve natural coastal processes, features and environmental values
- **coastal use area** focus on appropriate urban development for coastal areas, taking into account urban design issues such as maintaining public access to the coast, open space and natural areas, scenic qualities, and Aboriginal cultural heritage and places.

#### **4.2 Coastal Management SEPP Conclusion**

The Coastal Management SEPP outlines four areas which need to be considered for developments within Coastal Management Zone. The vegetation and species composition on the subject site is not representative of Coastal Wetlands and Littoral Rainforests. Therefore, the development is not considered to impact upon Coastal Wetlands and Littoral Rainforests. The subject site is not considered to be unstable or vulnerable to coastal processors that endanger human life. The subject site is not considered to be of ecological or environmental value that requires protection or modifying the development to protect environmentally important features or processors. The development does not change the access the public had to the foreshore area on the subject site. Furthermore, the development does not significantly alter the amount of open space and the natural amenity of locality will be improved by the implementation of the Landscape Plan.

#### **4.3 Koala Habitat Assessment SEPP**

The subject site was assessed for activity by Koalas using the following methods:

- A search of the Bio Net Atlas of NSW (2019) was undertaken to identify records of Koalas in the area.
- The site was surveyed on foot with any species of Koala food trees being inspected for signs of Koala usage. Trees were inspected and identified for presence of Koalas, scratch and claw marks on the trunk and scats around the

base of each tree. The proportion of any trees showing signs of Koala use was calculated for the whole of the site. Additionally the location and density of droppings if found were documented.

- Koalas were also targeted during nocturnal spotlight surveys.
- Identification and assessment of the density of tree species listed as Koala food trees in State Environmental Planning Policy No. 44 - Koala Habitat Protection was undertaken across the site.

| <b>TABLE 4.1</b><br><b>SEPP- 44 KOALA FEED TREE SPECIES</b><br>(From SEPP-44 Schedule 2) |                           |                         |                                       |
|------------------------------------------------------------------------------------------|---------------------------|-------------------------|---------------------------------------|
| <b>Scientific Name</b>                                                                   | <b>Common Name</b>        | <b>Observed On Site</b> | <b>Percentage within survey plots</b> |
| <i>Eucalyptus tereticornis</i>                                                           | Forest Red Gum            | No                      | 0%                                    |
| <i>Eucalyptus microcorys</i>                                                             | Tallowwood                | No                      | 0%                                    |
| <i>Eucalyptus punctata</i>                                                               | Grey Gum                  | No                      | 0%                                    |
| <i>Eucalyptus viminalis</i>                                                              | Ribbon or Manna Gum       | No                      | 0%                                    |
| <i>Eucalyptus camaldulensis</i>                                                          | River Red Gum             | No                      | 0%                                    |
| <i>Eucalyptus haemastoma</i>                                                             | Broad-leaved Scribbly Gum | No                      | 0%                                    |
| <i>Eucalyptus signata</i>                                                                | Scribbly Gum              | No                      | 0%                                    |
| <i>Eucalyptus albens</i>                                                                 | White Box                 | No                      | 0%                                    |
| <i>Eucalyptus populnea</i>                                                               | Bimble Box or Poplar Box  | No                      | 0%                                    |
| <i>Eucalyptus robusta</i>                                                                | Swamp Mahogany            | No                      | 0%                                    |

No Koala food tree species as listed on Schedule 2 of State Environmental Planning Policy No. 44 - Koala Habitat Protection (SEPP 44) were observed within the subject site therefore the subject site is considered not to form potential koala habitat as defined by Koala Habitat Assessment SEPP.

No Koalas were observed during the fauna survey and no evidence of Koala habitation, such as scats, claw and scratch marks, were located on the subject site. Therefore, the subject site is not considered to form core koala habitat as defined by Koala Habitat Assessment SEPP.

## SECTION 5

### CONCLUSIONS

- i. Based on the field survey and information provided in this report it is concluded that: no rare or threatened flora or fauna species of significance will be negatively impacted by the proposed development.
- ii. No threatened flora or fauna populations were observed within the subject site during surveys

- iii. No threatened ecological community as listed within the *BC Act* (2016) was observed within the subject site during surveys
- iv. The proposed development is not likely to have a significant effect on threatened species, populations or ecological communities or their habitats
- v. There were no tree hollows or rock outcrops surveyed on the subject site
- vi. The subject site does not provide high quality habitat and is not connected to other natural areas within the locality
- vii. The ecological value of the subject site has been assessed as extremely low and no significant environmental or ecological features observed
- viii. The subject site borders Sydney Harbour Foreshore and the construction of the seawall and buildings will require appropriate erosion and sediment controls need to be implemented to minimise sediment and nutrients entering the waterway of Sydney Harbour, thereby preserving the local aquatic habitat and localising disturbance.
- ix. The proposed development complies with all development controls outlined in the Coastal Management SEPP. No Koala food trees or Koalas or evidence of Koala habitation were observed on the subject site and it not considered to form potential koala habitat as defined by Koala Habitat Assessment SEPP.
- x. The proposed development is not likely to have a significant effect on the Biodiversity of the locality.

## REFERENCES

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- Biodiversity Conservation Act (2016) New South Wales Government.
- Chapman, G.A and Murphy, C.L (1989) Soil Landscapes of the Sydney 1:100000 Sheet. Soil Conservation service of NSW., Sydney.
- Churchill, S (2009) “*Australian Bats*” New Holland Publishers (Australia) Pty Ltd.
- Coastal Management Act (2018) New South Wales Government.
- Coastal Management State Environmental Planning Policy – Coastal management.
- Cropper, S.C. (1993). *Management of Endangered Plants*. CSIRO Publications, East Melbourne.
- Department of the Environment and Heritage. Bio Net Atlas of NSW (2019) New South Wales Government.
- Department of Planning (1995) State Environmental Planning Policy N° 44 – Koala Habitat Protection.
- Environmental Planning and Assessment Act (1979). New South Wales Government.
- Environmental Protection and Biodiversity Conservation Act (1999). Environment Australia.
- Fairley, A. & Moore, P. (1989) *Native Plants of the Sydney District* Kangaroo Press
- Harden, G.J. (1994) *Flora of New South Wales Vols 1-4*. Royal Botanic Gardens. New South Wales University Press, Kensington NSW.
- Harden, G.J. (2002) *Flora of New South Wales Vol 2 - Revised Edition*. Royal Botanic Gardens. New South Wales University Press, Kensington NSW.
- Harden, G.J. & Murray, L.J. (Eds) (2000) Supplement to Flora of New South Wales Volume 1 (UNSW Press: Sydney).
- Schodde, R. and Tidemann, S. (Eds) (1986). Readers Digest complete book of Australian Birds. Second Edition. Reader's Digest Services Pty Ltd, Sydney.
- Specht, R.L.; Specht, A.; Whelan, M.B. and Hegarty, E.E. (1995) Conservation Atlas of Plant Communities in Australia. Southern Cross University Press, Lismore.
- State of the Environment Report (2016) Australian Federal Government.
- Tidemann, C. (1998). “The Mammals of Australia”. (R. Strahan (Ed)). New Holland Publishers Pty. Ltd. Melbourne.
- Walker, J. and Hopkins, M.S. (1990) Vegetation. In Australian soil and land survey field handbook second edition McDonald, R.C., Isbell, R.F., Speight, J.G., Walker, J. and Hopkins, M.S. Inkata Press, Melbourne.

## Appendix 1.

Threatened Fauna Species BioNet Search Results (2019) to allow for targeted search of the subject site.

| <b><i>Species Scientific Name</i></b>   | <b><i>Common Name</i></b> | <b><i>BC Act<br/>(2016)</i></b> | <b><i>EPBC<br/>Act<br/>(1999)</i></b> |
|-----------------------------------------|---------------------------|---------------------------------|---------------------------------------|
| <i>Heleioporus australiacus</i>         | Giant Burrowing Frog      | V,P                             | V                                     |
| <i>Pseudophryne australis</i>           | Red-crowned Toadlet       | V,P                             |                                       |
| <i>Chelonia mydas</i>                   | Green Turtle              | V,P                             | V                                     |
| <i>Varanus rosenbergi</i>               | Rosenberg's Goanna        | V,P                             |                                       |
| <i>Anseranas semipalmata</i>            | Magpie Goose              | V,P                             |                                       |
| <i>Ptilinopus superbus</i>              | Superb Fruit-Dove         | V,P                             |                                       |
| <i>Diomedea exulans</i>                 | Wandering Albatross       | E1,P                            | E,J                                   |
| <i>Thalassarche melanophris</i>         | Black-browed Albatross    | V,P                             | V                                     |
| <i>Ardenna carneipes</i>                | Flesh-footed Shearwater   | V,P                             | J,K                                   |
| <i>Macronectes giganteus</i>            | Southern Giant Petrel     | E1,P                            | E                                     |
| <i>Pterodroma leucoptera leucoptera</i> | Gould's Petrel            | V,P                             | E                                     |
| <i>Eudyptula minor</i>                  | Little Penguin            | P                               |                                       |
| <i>Botaurus poiciloptilus</i>           | Australasian Bittern      | E1,P                            | E                                     |
| <i>Ixobrychus flavicollis</i>           | Black Bittern             | V,P                             |                                       |
| <i>Haliaeetus leucogaster</i>           | White-bellied Sea-Eagle   | V,P                             | C                                     |
| <i>Haliastur sphenurus</i>              | Whistling Kite            | P                               |                                       |
| <i>Hieraaetus morphnoides</i>           | Little Eagle              | V,P                             |                                       |
| <i>^^Lophoictinia isura</i>             | Square-tailed Kite        | V,P,3                           |                                       |
| <i>^^Pandion cristatus</i>              | Eastern Osprey            | V,P,3                           |                                       |
| <i>Burhinus grallarius</i>              | Bush Stone-curlew         | E1,P                            |                                       |
| <i>Esacus magnirostris</i>              | Beach Stone-curlew        | E4A,P                           |                                       |
| <i>Haematopus fuliginosus</i>           | Sooty Oystercatcher       | V,P                             |                                       |
| <i>Onychoprion fuscata</i>              | Sooty Tern                | V,P                             |                                       |
| <i>^Calyptorhynchus lathamii</i>        | Glossy Black-Cockatoo     | V,P,2                           |                                       |
| <i>Glossopsitta concinna</i>            | Musk Lorikeet             | P                               |                                       |

|                                            |                                    |        |    |
|--------------------------------------------|------------------------------------|--------|----|
| <i>^^Lathamus discolor</i>                 | Swift Parrot                       | E1,P,3 | CE |
| <i>Chalcites lucidus</i>                   | Shining Bronze-Cuckoo              | P      |    |
| <i>^^Ninox connivens</i>                   | Barking Owl                        | V,P,3  |    |
| <i>^^Ninox strenua</i>                     | Powerful Owl                       | V,P,3  |    |
| <i>^^Tyto tenebricosa</i>                  | Sooty Owl                          | V,P,3  |    |
| <i>Anthochaera phrygia</i>                 | Regent Honeyeater                  | E4A,P  | CE |
| <i>Daphoenositta chrysoptera</i>           | Varied Sittella                    | V,P    |    |
| <i>Petroica boodang</i>                    | Scarlet Robin                      | V,P    |    |
| <i>Stagonopleura guttata</i>               | Diamond Firetail                   | V,P    |    |
| <i>Dasyurus maculatus</i>                  | Spotted-tailed Quoll               | V,P    | E  |
| <i>Isoodon obesulus obesulus</i>           | Southern Brown Bandicoot (eastern) | E1,P   | E  |
| <i>Perameles nasuta</i>                    | Long-nosed Bandicoot, North Head   | E2,P   |    |
| <i>Phascolarctos cinereus</i>              | Koala                              | V,P    | V  |
| <i>Cercartetus nanus</i>                   | Eastern Pygmy-possum               | V,P    |    |
| <i>Petaurus norfolcensis</i>               | Squirrel Glider                    | V,P    |    |
| <i>Pteropus alecto</i>                     | Black Flying-fox                   | P      |    |
| <i>Pteropus poliocephalus</i>              | Grey-headed Flying-fox             | V,P    | V  |
| <i>Saccolaimus flaviventris</i>            | Yellow-bellied Sheath-tail-bat     | V,P    |    |
| <i>Mormopterus norfolkensis</i>            | Eastern Freetail-bat               | V,P    |    |
| <i>Chalinolobus dwyeri</i>                 | Large-eared Pied Bat               | V,P    | V  |
| <i>Chalinolobus gouldii</i>                | Gould's Wattled Bat                | P      |    |
| <i>Miniopterus australis</i>               | Little Bentwing-bat                | V,P    |    |
| <i>Miniopterus schreibersii oceanensis</i> | Eastern Bentwing-bat               | V,P    |    |
| <i>Myotis macropus</i>                     | Southern Myotis                    | V,P    |    |
| <i>Gerygone olivacea</i>                   | White-throated Gerygone            | P      |    |
| <i>Origma solitaria</i>                    | Rockwarbler                        | P      |    |
| <i>Sericornis citreogularis</i>            | Yellow-throated Scrubwren          | P      |    |
| <i>Anthochaera phrygia</i>                 | Regent Honeyeater                  | E4A,P  | CE |
| <i>Manorina melanocephala</i>              | Noisy Miner                        | P      |    |
| <i>Daphoenositta chrysoptera</i>           | Varied Sittella                    | V,P    |    |
| <i>Petroica boodang</i>                    | Scarlet Robin                      | V,P    |    |
| <i>Stagonopleura guttata</i>               | Diamond Firetail                   | V,P    |    |
| <i>Dasyurus maculatus</i>                  | Spotted-tailed Quoll               | V,P    | E  |

|                                            |                                    |      |   |
|--------------------------------------------|------------------------------------|------|---|
| <i>Isoodon obesulus obesulus</i>           | Southern Brown Bandicoot (eastern) | E1,P | E |
| <i>Perameles nasuta</i>                    | Long-nosed Bandicoot, North Head   | E2,P |   |
| <i>Phascolarctos cinereus</i>              | Koala                              | V,P  | V |
| <i>Cercartetus nanus</i>                   | Eastern Pygmy-possum               | V,P  |   |
| <i>Petaurus breviceps</i>                  | Sugar Glider                       | P    |   |
| <i>Petaurus norfolcensis</i>               | Squirrel Glider                    | V,P  |   |
| <i>Pteropus alecto</i>                     | Black Flying-fox                   | P    |   |
| <i>Pteropus poliocephalus</i>              | Grey-headed Flying-fox             | V,P  | V |
| <i>Saccolaimus flaviventris</i>            | Yellow-bellied Sheath-tail-bat     | V,P  |   |
| <i>Mormopterus norfolkensis</i>            | Eastern Freetail-bat               | V,P  |   |
| <i>Chalinolobus dwyeri</i>                 | Large-eared Pied Bat               | V,P  | V |
| <i>Chalinolobus gouldii</i>                | Gould's Wattled Bat                | P    |   |
| <i>Miniopterus australis</i>               | Little Bentwing-bat                | V,P  |   |
| <i>Miniopterus schreibersii oceanensis</i> | Eastern Bentwing-bat               | V,P  |   |
| <i>Myotis macropus</i>                     | Southern Myotis                    | V,P  |   |
| Dugong                                     |                                    | E1,  |   |
| New Zealand Fur-seal                       |                                    | V,   |   |
| Australian Fur-seal                        |                                    | V,   |   |
| Southern Right Whale                       |                                    | E1,P | E |
| Humpback Whale                             |                                    | V,P  | V |

Threatened Flora Species BioNet Search Results (2019) ) to allow for targeted search of the subject site.

|                                 |                      |      |   |
|---------------------------------|----------------------|------|---|
| <i>Allocasuarina portuensis</i> | Nielsen Park She-oak | E1,3 | E |
| <i>Hibbertia superans</i>       |                      | E1   |   |
| <i>Tetratheca glandulosa</i>    |                      |      | V |
| <i>Tetratheca juncea</i>        | Black-eyed Susan     | V    | V |

|                                                      |                                |         |    |
|------------------------------------------------------|--------------------------------|---------|----|
| <i>Epacris purpurascens</i> var. <i>purpurascens</i> |                                |         | V  |
| <i>Chamaesyce psammogeton</i>                        | Sand Spurge                    | E1      |    |
| <i>Acacia bynoeana</i>                               | Bynoe's Wattle                 | E1      | V  |
| <i>Acacia terminalis</i> subsp. <i>terminalis</i>    | Sunshine Wattle                | E1      | E  |
| <i>Grammitis stenophylla</i>                         | Narrow-leaf Finger Fern        | E1,3    |    |
| <i>Prostanthera junonis</i>                          | Somersby Mintbush              | E1      | E  |
| <i>Prostanthera marifolia</i>                        | Seaforth Mintbush              | E4A,3   | CE |
| <i>Lasiopetalum joyceae</i>                          |                                | V       | V  |
| ^^ <i>Callistemon linearifolius</i>                  | Netted Bottle Brush            | V,3     |    |
| <i>Eucalyptus camfieldii</i>                         | Camfield's Stringybark         | V       | V  |
| <i>Eucalyptus nicholii</i>                           | Narrow-leaved Black Peppermint | V       | V  |
| <i>Melaleuca biconvexa</i>                           | Biconvex Paperbark             | V       | V  |
| <i>Melaleuca deanei</i>                              | Deane's Paperbark              | V       | V  |
| <i>Syzygium paniculatum</i>                          | Magenta Lilly Pilly            | E1      | V  |
| ^ <i>Caladenia tessellata</i>                        | Thick Lip Spider Orchid        | E1,P,2  | V  |
| ^ <i>Microtis angusii</i>                            | Angus's Onion Orchid           | E1,P,2  | E  |
| ^ <i>Prasophyllum fuscum</i>                         | Slaty Leek Orchid              | E4A,P,2 | V  |
| ^ <i>Sarcophilus hartmannii</i>                      | Hartman's Sarcophilus          | V,P,2   | V  |
| ^^ <i>Grevillea caleyi</i>                           | Caley's Grevillea              | E4A,3   | CE |
| ^^ <i>Persoonia hirsuta</i>                          | Hairy Geebung                  | E1,P,3  | E  |

|                                                     |                  |    |   |
|-----------------------------------------------------|------------------|----|---|
| <i>Asterolasia buxifolia</i>                        |                  | E1 |   |
| <i>Thesium australe</i>                             | Austral Toadflax | V  | V |
| <i>Pimelea curviflora</i> var.<br><i>curviflora</i> |                  | V  | V |