



238 – 258 Captain Cook Drive,
Kurnell: Biodiversity Management Plan

FINAL REPORT

Prepared for Dicker Data Ltd

20 June 2019

Biosis offices

NEW SOUTH WALES

Newcastle

Phone: (02) 4911 4040
Email: newcastle@biosis.com.au

Sydney

Phone: (02) 9101 8700
Email: sydney@biosis.com.au

Wollongong

Phone: (02) 4201 1090
Email: wollongong@biosis.com.au

Albury

Phone: (02) 6069 9200
Email: albury@biosis.com.au

VICTORIA

Melbourne

Phone: (03) 8686 4800
Email: melbourne@biosis.com.au

Ballarat

Phone: (03) 5304 4250
Email: ballarat@biosis.com.au

Wangaratta

Phone: (03) 5718 6900
Email: wangaratta@biosis.com.au

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Prepared by:	Tobias Scheid
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- Anne Murray (mapping)

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Glossary

BC Act	<i>NSW Biodiversity Conservation Act 2016</i>
Biosecurity Act	<i>Biosecurity Act 2015</i>
BDAR	Biodiversity Development Assessment report
DPE	NSW Department of Planning and Environment
EEC	Endangered Ecological Community
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
GIS	Geographic Information System
LEP	Local Environmental Plan
LGA	Local Government Area
LLS	Local Land Services
NPW Act	<i>National Parks and Wildlife Act 1974</i>
NSW	New South Wales
OEH	NSW Office of Environment and Heritage
PCT	Plant Community Type
study area	238 – 258 Captain Cook Drive, Kurnell
SSD	State Significant Development
TEC	Threatened Ecological Community
BMP	Biodiversity Management Plan

1 Introduction

1.1 Project background

Biosis Pty Ltd was commissioned by Dicker Data to develop a Biodiversity Management Plan (BMP) for 238 – 258 Captain Cook Drive, Kurnell (the study area).

Biosis was previously engaged by Devkon Pty Ltd (on behalf of Dicker Data) to prepare a Biodiversity Development Assessment Report (BDAR) (Biosis 2018) to support a DA for proposed industrial development of the study area. Since that time, the development application has been approved and Biosis has now been engaged by Dicker Data directly.

Development of the study area is to include the construction of a warehouse and distribution centre with associated office, car parking, landscaping, services and site subdivision.

Due to the scale of the proposed development, the project was assessed under Part 4 Division 4.7 Section 4.36 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) as a State Significant Development (SSD), with the Department of Planning and Environment (DPE) as the Consent Authority. The BMP has been prepared in accordance with the conditions provided by DPE in the development Consent (SSD 8662).

Condition B30 of the development consent (SSD 8662 [DPE 2019]) dated 12 April 2019 states that:

The Applicant must prepare a Biodiversity Management Plan (BMP) for the development in consultation with OEHL. The BMP must be approved by the Planning Secretary prior to the commencement of clearing for construction and must form part of the CEMP in accordance with condition C2. The BMP must ensure that:

- *any felled native trees which are greater than approximately 25-30 cm in diameter and 3 m in height are salvaged and used to enhance habitat at the site,*
- *remnant native vegetation removed from the site, especially juvenile plants are translocated to the proposed landscape areas,*
- *the topsoil from the removal of native vegetation is used in site landscaping,*
- *seed from the native plants removed from the site is collected and used in site landscaping.*

This BMP provides controls and actions required to implement the above conditions within certain sections of the study area (referred to as 'the BMP area') (Figure 1 and Figure 2).

Additionally, the BMP includes a species list that suitably satisfies condition B31(a) of SSD 8662 (DPE 2019) which states:

- *The Applicant must ensure the site landscaping features a diversity of native vegetation from the relevant native vegetation communities. Then Landscaping must:*
 - *comprise native provenance trees, shrubs and groundcover species which are consistent with the Plant Community Types described in the Biodiversity Development Assessment Report prepared by Biosis dated 22 February 2018.*

The species list will assist the applicant and suitably qualified subcontractors in implementing the landscaping requirements of the development application.

The Final BMP (this report) has been prepared in consultation with the OEHL and amended to include comments pursuant to written advice included within document DOC19/367049 dated May 2019 following the exhibition of the draft BMP in accordance with Condition of Approval B30 for SSD-8662.

1.2 Description of BMP area

The study area is located at 238-258 Captain Cook Drive, Kurnell, NSW within the Sutherland Shire Local Government Area and the Greater Sydney Local Land Services Region, it is located approximately 2 kilometres south-west of the township of Kurnell, and approximately 20 kilometres south of the Sydney CBD (Figure 1).

The BMP area is located within the study area and is defined as the total area of disturbance, encompassing the development footprint. The development footprint includes the final development (operational) footprint and all areas that could be disturbed during construction (eg plant laydown and access tracks), and areas to be rehabilitated and/or landscaped during the operational phase of the project (Figure 2).

Native vegetation within the broader study area varied in composition and condition as a result of previous industrial land uses. The BMP area was reportedly limited to planted native tree species such as Broad-leaved paperbark *Melaleuca quinquenervia*, Norfolk Island Hibiscus *Lagunaria patersonia* littered with isolated stands of Coastal Banksia *Banksia integrifolia* and Swamp Oak *Casuarina glauca*. The understory was predominately represented by a conglomeration of exotic herbs and horticultural grass species as a result of regular slashing and mowing (Biosis 2018). Whilst occasional native canopy species were observed within the vegetation to be removed for the development works, the mid storey stratum was primarily dominated by NSW Priority Weed species such Bitou Bush *Chrysanthemoides monilifera* subsp. *rotundata* and Lantana *Lantana camara*. In sections where woody weed species were limited in their dominance, scrambling exotic flora such as Morning Glory *Ipomoea indica* were common (Biosis 2018).

1.2.1 TECs and no-go zones

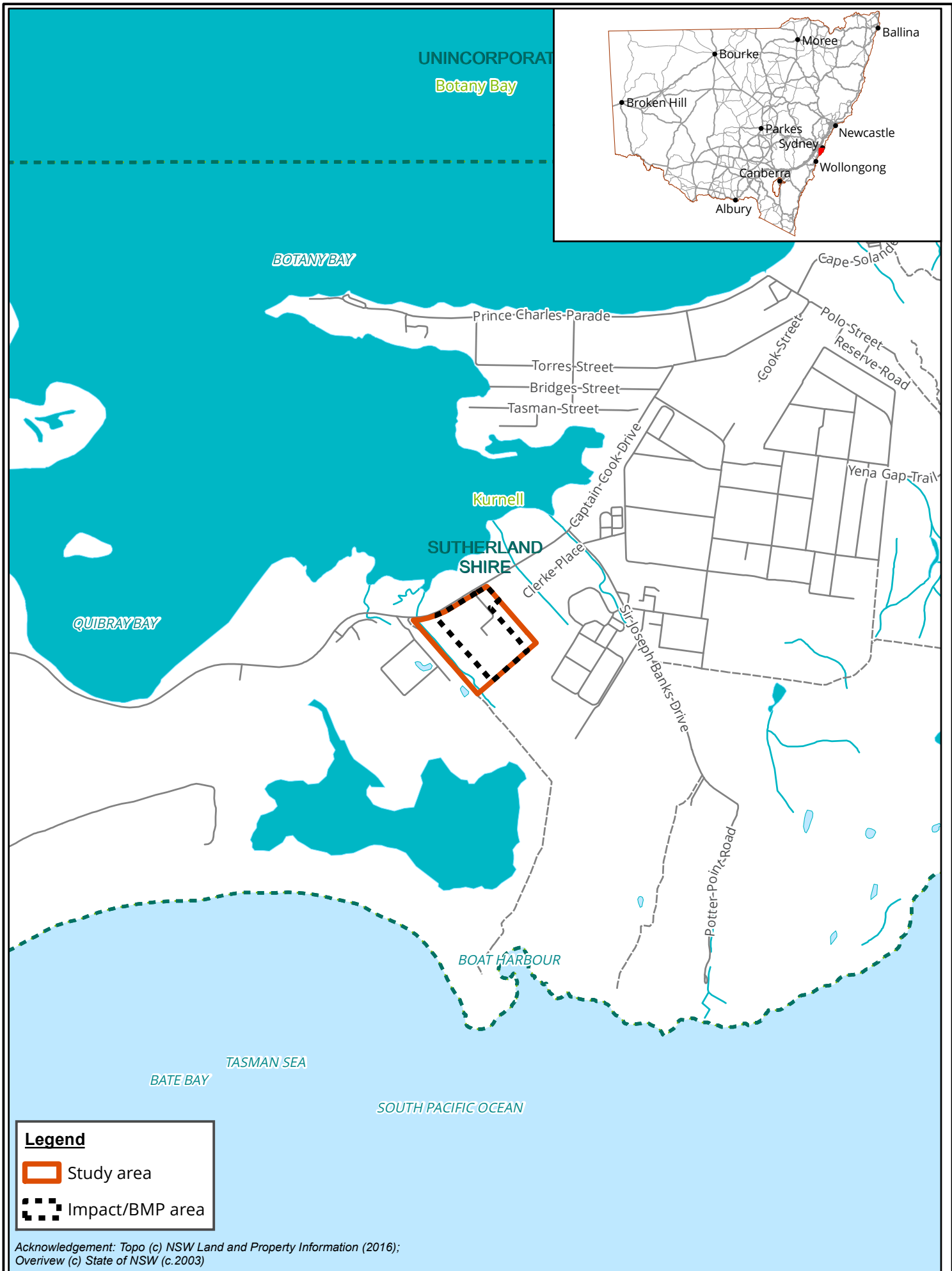
The vegetation immediately northeast and southwest of the BMP area contains threatened ecological communities listed under the NSW *Biodiversity Conservation Act 2016* (BC Act), including:

- Bangalay Sand Forest (Endangered BC Act).
- Swamp Oak Floodplain Forest (Endangered BC Act).
- Swamp Sclerophyll Forest (Endangered BC Act).

TEC areas are ecologically sensitive and have been included in Figure 2 as no-go zones. These areas are to be avoided during construction and establishment works. The exclusion fencing must be regularly checked and maintained throughout the construction stage and establishment works. The extent of ecologically sensitive areas located adjacent to the works area will be shown on relevant Sensitive Site maps and physically delineated on site using protective fencing and signposting. Prior to the commencement of earthworks, exclusion fencing is to be installed along the boundaries of vegetated areas to be retained. The alignment of this fencing is to be in accordance with the Australian Standard *Protection of Trees on Development Sites* (AS4970-2009) and incorporate the relevant tree protection zones for trees and vegetation to be retained.

The fencing should be constructed of, as a minimum, capped star pickets and high visibility para webbing and have appropriate signage stating that it is an environmentally sensitive area to inform and educate construction personnel. No-go zones are to be clearly marked and labelled on design drawings issued for construction and should be displayed in prominent places and provided in site inductions. A register of sensitive area maps will be maintained.

No storage of materials or machinery is to be undertaken within no-go zones or retained vegetation, no preparation of chemicals or concrete to be mixed in these areas, or adjacent, and care to avoid the compaction of soils to be observed.



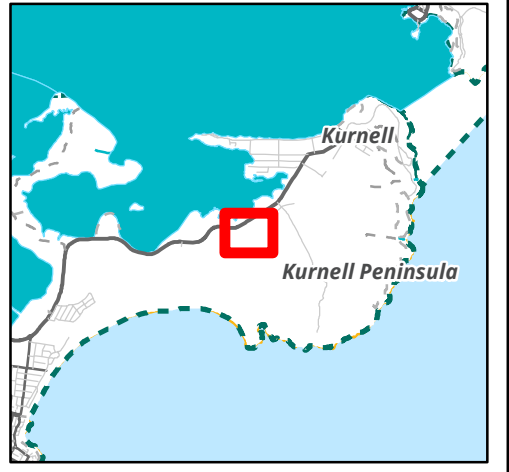
Legend

- Study area
- Impact/BMP area

Acknowledgement: Topo (c) NSW Land and Property Information (2016);
 Overview (c) State of NSW (c.2003)

Figure 1 Location of the study area

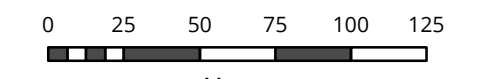
0 250 500 750 1,000
 Metres
 Scale 1:25,000 @ A4, GDA 1994 MGA Zone 56



Legend

- Study area
 - No go zone
 - Landscape areas
- TEC**
- Bangalay Sand Forest
 - Swamp Oak Floodplain Forest
 - Swamp Sclerophyll Forest
- Vegetation community**
- Cleared Vegetation
 - PCT772 Coast Banksia - Coast Wattle dune scrub of the Sydney Basin Bioregion and South East Corner Bioregion (SR531)
 - Planted natives and exotic grasses
 - PCT772 Coast Banksia - Coast Wattle dune scrub of the Sydney Basin Bioregion and South East Corner Bioregion (SR531) - to be removed

Figure 2 Biodiversity management plan area



Scale: 1:2,500 @ A3
 Coordinate System: GDA 1994 MGA Zone 56



Albury, Ballarat, Melbourne,
 Newcastle, Sydney, Wangaratta & Wollongong

2 BMP scope and objectives

2.1 Scope

The scope of this BMP is to develop a framework for the management and re-use of vegetation, biotic material and topsoil to be removed within the study area during works. The BMP will also outline target species suitable for translocation into the surrounding landscape areas and identify native provenance species suitable for landscaping and integration into the landscape plan for the project.

2.2 Objectives

The specific objectives for the implementation of this BMP are to:

- Outline the management, salvage and reuse requirements and for any vegetation to be retained, including details the re-use of felled trees which are greater than approximately 25-30 cm in diameter and 3 metre in height.
- Review flora species lists of three surrounding TECs and identify a suite of flora species suitable for revegetation and landscape works within the BMP area.
- Identify remnant vegetation species and selection criteria for individuals present within the impacted vegetation that are suitable for translocation.
- Outline appropriate methodologies for the translocation process.
- Detail the potential reuse of topsoil from the removal of native vegetation into the landscape areas.
- Incorporate a seed collection strategy and methodology to guide the collection and reuse of seed material collected from native vegetation removed within the impact area.

3 Methods

3.1 Desktop research

A review of all available and relevant design plans and site reports relating to the BMP area and broader study areas was conducted, as well as relevant legislation, recent vegetation mapping and other documentation relevant to the current project, including:

- Relevant reports including:
 - BDAR 238-258 Captain Cook Drive, Kurnell (Biosis 2018)
 - Vegetation Management Plan for 238-258 Captain Cook Drive, Kurnell (Biosis 2015)
 - Flora and Fauna Assessment for 238-258 Captain Cook Drive, Kurnell (Biosis 2015)
 - Arboricultural Impact Assessment for 238-258 Captain Cook Drive, Kurnell (Morrison 2018)
- Approved site plans for Dicker Data facility (WMK Architecture 2019).
- Sutherland Shire Local Environmental Plan (SSLEP 2015).
- The *Native Vegetation of the Sydney Metropolitan Area* (OEH 2016)
- NSW Scientific Committee final determinations for threatened biodiversity.
- Department of the Environment and Energy (DEE) Protected Matters Search Tool for matters protected by the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- Office of Environment and Heritage (OEH) NSW BioNet, the database for the Atlas of NSW Wildlife, for matters protected under the BC Act.

3.2 Site assessment

An ecological assessment of the study area was undertaken by Biosis in November 2017 in accordance with the NSW *Biodiversity Assessment Methodology* (OEH 2017) by a qualified and experienced ecologist. The study area was surveyed using a range of methods. This involved:

- The identification of native and exotic plant species, according to *Field Guide to the Native Plants of Sydney* (Robinson 2003) and the *Flora of NSW* (Harden 1992, Harden 1993, Harden 2000, Harden 2002) with reference to recent taxonomic changes.
- The identification and mapping of plant communities according to the structural definitions of Native Vegetation of the Sydney Metropolitan Area (OEH 2016)
- An assessment of the natural resilience of the vegetation of the site.
- Identification of previous and current factors threatening the ecological function and survival of native vegetation within and adjacent to the study area.
- Fauna survey including nocturnal spotlighting and call-playback and deployment of motion sensing camera traps.

The conservation significance of plant species and plant communities was determined according to:

- BC Act for significance within NSW.

-
- EPBC Act for significance within Australia.

3.3 Limitations

Ecological surveys provide a sampling of flora and fauna at a given time and season. There are a number of reasons why not all species will be detected at a site during survey, such as species dormancy, seasonal conditions, and ephemeral status of waterbodies and migration and breeding behaviours of some fauna. In many cases these factors do not present a significant limitation to assessing the overall ecological values of a site.

4 Specific management actions

4.1 Salvage of felled trees

Condition of Consent B30 (a) states that:

- *Any felled native trees which are greater than approximately 25-30cm in diameter and 3 metres in height are to be salvaged and used to enhance habitat on site.*

Any native trees within this size class are to be identified and appropriately marked with flagging tape during an ecological preclearance survey before vegetation removal is to commence within the BMP area. All salvaged felled trees are to be stockpiled and retained on site until they can be incorporated into landscaping works.

During landscaping works salvaged logs should be used within the landscape areas illustrated in Figure 2. Salvaged logs can be used to control mass movement and soil stabilisation in risk areas to eliminate any potential surface erosion and instability. By slowing overland water flow, water can infiltrate the soil and provide ideal conditions for germination promoting natural regeneration and supporting plantings within the landscape area (OEH 2011a)

Laying salvaged logs within the landscape areas will provide additional habitat for native fauna within the landscape area. Logs should be moved to the landscape area after final earthworks and soil grading/preparation is complete but before revegetation works begin.

Additionally salvaged felled trees may be chipped and reused as mulch within the landscape areas providing any native wood chip generated is free of weed seed and exotic plant propagules. Wood chip and other biomass should be stockpiled and applied to the landscape areas in conjunction with the laying of felled logs.

It is also recommended that in addition to the salvage of large trees that any hollow-bearing trees to be removed are identified and placed in areas of retained vegetation to provide additional fauna habitat.

4.2 Topsoil reuse

Condition of Consent B30(c) states that:

- *the topsoil from the removal of native vegetation is used in site landscaping.*

As such, any top soil (spoil) generated during the removal of native vegetation will be required to be stockpiled on site for application to the landscape areas detailed in Figure 2 prior to revegetation works. The topsoil is highly likely to be weed infested, and as such the following treatment methods are recommended.

- Soil is stockpiled in banded area, and regularly treated for germinating weeds with herbicide to exhaust reproductive material.
- If herbicide treatment of weeds in the topsoil is required, spot herbicide treatment should only be used (rather than blanket herbicide spraying).
- Weed infested soil must not be stockpiled adjacent to native vegetation.
- Soil exhausted of viable weed propagules and other reproductive material can be reused on site.

- Any re-used soil should be monitored and treated for any future weed re-growth, and this should be undertaken for a period of weeks to months prior to installation of landscape plantings, to ensure exhaustion of the exotic seedbank.

The generated topsoil should be covered by geofabric material or similar (as required) and surrounded by appropriate soil erosion controls consistent with measures outlined within *Landcom Managing Urban Stormwater: Soils and Construction* (Landcom 2004) to minimise soil loss and potential dust pollution during high wind and rainfall events.

The topsoil stockpile(s) should be included in all induction material for the construction phase and appear on relevant stockpile and material tracking maps.

4.3 Translocation of removed vegetation

Condition of consent B30(b) states that:

- *remnant native vegetation removed from the site, especially juvenile plants are translocated to the proposed landscape areas.*

The definition of translocation as provided in the *Guidelines for the Translocation of Threatened Plants in Australia* (Commander et al. 2018) states:

- *Translocation is the deliberate transfer of plants or regenerative plant material from an ex situ collection or natural population to a new location, usually in the wild. It includes reintroduction, introduction, reinforcement, assisted migration and assisted colonization.*

Not all native species recorded within the area of vegetation to be removed are suitable for translocation, meaning certain translocated plants may not survive. As such only suitable species have been included as 'target species' in Table 1 below for translocation during clearing works within the BMP area. It should also be noted that the vegetation to be removed exists in relatively low ecological condition and as such floristic diversity is low, and potential target species are few.

Table 1 Target species for translocation

Family	Scientific Name	Common Name	
Proteaceae	<i>Banksia integrifolia</i>	Coast Banksia	Healthy Juvenile seedlings only with minimum of two seasons of growth. Height up to 30 cm maximum
Poaceae	<i>Imperata cylindrica</i>	Blady Grass	Healthy Individuals of all ages
Lomandraceae	<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	Healthy Individuals of all ages
Dennstaedtiaceae	<i>Pteridium esculentum</i>	Bracken	Healthy Individuals of all ages
Menispermaceae	<i>Stephania japonica var. discolor</i>	Snake Vine	Healthy Juvenile seedlings only with minimum of two seasons of growth.

* - Not recorded in the BMP area but likely to occur throughout.

^ - Clumping plants are able to be separated into several plants. Tuberous herbaceous plants with larger tubers (i.e. older plants) are more likely to survive outplanting than plants with smaller tubers (Smith et al. 2009).

Translocated individuals are to be interspersed throughout the landscape area and/or incorporated into separate distinct areas. These translocated individuals/areas may require extra management in the form of additional watering and prevention of disturbance to ensure successful establishment.

4.3.1 Translocation Process

The date for translocation should be based on seasonal suitability and favourable prevailing weather conditions, when soil moisture is adequate. The translocation should be undertaken by appropriately trained Bush Regeneration contractors and supervised by the project Ecologist.

To improve the chances of successful establishment of the translocated plants the following process should be followed.

The translocation individuals

- All target species are identified, the number of individual plant species to be translocated area counted and marked by an appropriately qualified Ecologist during pre-clearance surveys prior to vegetation removal.
- Translocate plants during cooler periods and preferably during wet weather.
- Remove plant material by hand in a mass of soil large enough to minimal damage to rootball/mass centred on the target individual. Seedlings can be dug up with trowels or a bulb planter (Commander et al. 2018). Care needs to be taken to ensure that pests and diseases are not transferred with the plants or associated soil.
- After being removed from the ground target individuals can be carefully transferred to a wheel barrow, tub or similar with care taken not to lose any of the soil around the root mass.
- Excessive upper foliage can be removed from sedge, rush and woody species.
- Clumping plants are able to be separated into several plants and should be separated for translocation.
- Plants should be immediately planted out in appropriately sized holes at the receival site and well-watered within one hour of being translocated with a "Seasol" solution (or similar) to reduce stress on the individuals.

The receival site

- The receival site should be free from exotic weed cover that may compete with the target translocation individuals and should be prepared prior to translocation.
- The soil at the receival site should be prepared so that a suitable planting environment is achieved. This can include loosening of compacted soil with hand tools and or ripping.
- Prior to removing the native plants to be translocated, pre-dig holes for planting at appropriate locations within the receival site.
- Water each new hole by filling the holes with water before planting the translocated plants and then water in the translocated plants to reduce moisture stress.
- If the translocated plants are to be re-planted in a separate and distinct area it should fenced-off so that the area is not disturbed during other landscaping works and the site can be found for ongoing maintenance including weed treatment and watering as required.

- If the translocated plants are to be interspersed throughout the landscaping area, they are to be the last plantings installed to minimise potential disturbance.

Ongoing maintenance

- Regular maintenance including watering, weed control and potential pest animal management will be required to ensure the successful establishment of translocated plants.
- Maintenance is recommended for a period of 24 months following re-plantings and should be undertaken by a qualified and experienced landscaping or bush regeneration contractor.
- Monitor and document the translocated plantings and any regeneration of native plant and weed species in the landscape areas.

4.4 Seed collection from removed vegetation

Condition of Consent B30(d) states that:

- *Seed from the native plants removed from the site is collected and used in site landscaping.*

When native vegetation is lost as a result of project works, revegetation may be necessary to reinstate native vegetation and habitat in the project area. The purpose of revegetation for this project includes:

- Replacing lost or damaged flora.
- Maintaining native seed banks and local provenance of species indigenous to the area and genetic diversity.

Seed collection is to be undertaken for the vegetation to be removed as a result of the works. Collection of additional seed from the adjoining retained vegetation may be required (depending on seasonal variations in seed production) to ensure adequate genetic diversity is maintained.

Detailed Seed collection methods are provided in Appendix 1.

Seed collection is to be carried out in accordance with the Florabank Guidelines, by experienced and licenced seed collectors/ecologists.

As significant lead time is required between the collection of seed and the planting of plants germinated from that seed, the use of any such seed-stock during the major landscaping / revegetation works within the BMP area is likely to be unfeasible. As such, it is recommended that seed collected from the removed vegetation be germinated and grown-on at a local nursery, and incorporated into the site landscaping as supplementary plantings once the plants reach an age and condition suitable for installation.

4.5 Landscape species planting list

Condition of Consent B31(a) states:

- *The Applicant must ensure the site landscaping features a diversity of native vegetation from the relevant native vegetation communities. Then Landscaping must:*
 - *comprise native provenance trees, shrubs and groundcover species which are consistent with the Plant Community Types described in the Biodiversity Development Assessment Report prepared by Biosis dates 22 February 2018;*

A species list is included as Appendix 2 and is considered consistent with the surrounding TECs mapped within the study area and reported in the BDAR (Biosis 2018) prepared for 238-258 Captain Cook Drive, Kurnell.

The species list will assist the applicant and suitably qualified subcontractors in implementing the landscape requirements of the development consent. The species list is provided as a guide only as some species may not be locally available or suited to the final landform or landscape requirements.

“Native provenance” (as outlined above) is considered to be plantings grown from seed collected within the Kurnell peninsular or within a 5 kilometre radius.

Species list for landscape plantings is presented in Appendix 2.

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Appendices

Appendix 1 Seed collection and propagation methods

Seed collection methods

To minimise negative impacts associated with seed collection, no more than 10% of the total seed available at the site (and from individual plants) should be collected in any one year (Ralph 1993). However, this is not applicable in the project footprint where all native vegetation is to be cleared. If seed is collected from adjoining retained areas however, the 10% rule applies. General considerations for seed collection include:

- Ensure seed is collected from as many individual plants as possible to maximise genetic diversity.
- Ensure seed is collected from stands or groups of plants rather than isolated plants, even if they carry large amounts of seed.
- Neighbouring plants are likely to be related so ensure that seed is collected from plants across the entire area.
- Approximately equal amounts of seed from each plant should be collected.
- Ensure seed is collected from various parts of the plant (not just those easily accessible).
- Label each batch of seed collected with:
 - Species.
 - Location.
 - Date collected and collector's name.
 - Number of plants collected from.
 - Details on position in the landscape, percentage of seed ripe, soil type, and other relevant details.

Seed may be collected from tall trees by utilising fallen limbs and branches, or using a long-handled pruner. Seed on small trees and shrubs can be collected using secateurs or pruners, hand-picked, or the branches hand-stripped. A drop-sheet or tarpaulin under the plant can be used to catch fallen seeds and fruit when branches are shaken. For species which release their seed very quickly upon ripening (such as wattles and bush-peas), it may be worthwhile to tie paper bags or nylon stockings around the branches before the seed pods ripen (OEH 2011b).

Timing of seed collection

Timing of seed collection is a critical consideration. Timing is mostly dependant on when the seed matures and how long the seed remains on the plant after maturity. The peak seed collection period in NSW usually occurs from October to December. Although seed ripens generally the same time each year, seasonal variations and local climatic factors and conditions may lead to variations in timing from year to year (Ralph 1993)

Key indications of seed maturity include:

- Colour changes of fruits, seed heads or cones.
- Seed or fruit hardness.
- Dryness of fruits.
- Ease of removal.

- Opening of fruits.

Another consideration of seed collection is that many plants flower over a long period of time and therefore contain seeds of varying maturity. It is important to only collect the mature seed and a second or third visit to the plant may be required to allow time for all seed to mature.

Propagation

A nursery, local to the BMP area should be sourced at least 6 months to 12 months prior to construction and provided with the proposed planting list in Appendix 2, so that seed can be sourced and propagated for revegetation works on site. Seed collection should follow the procedure outline above.

All plants shall be true to scheduled nomenclature, well formed, hardened off and disease free nursery stock.

They shall be container grown in potting soil with a firmly established root system but with no large roots growing out of the container. No plant shall be pot bound.

The condition of plant stock should encourage future growth that is strong and typical of the species. Correct nursery/growing practices shall help ensure the long-term health and viability of the plant stock on site after planting.

The Bush Regeneration Contractor shall allow for an independent Horticultural certification of all stock prior to delivery to site that confirms the following:

- Stock is disease free and healthy.
- Rootball has adequately grown into the container appropriate to the specified size.
- Stock shows no evidence of spirally, being pot bound, or other undesired outcomes of growth at the nursery.

Appendix 2 Recommended planting species list

Table 2 Recommended species planting list for combined surrounding TECs

Botanical name	Common name
Trees (10 -20 +m)	
<i>Acmena smithii</i>	Lilly Pilly
<i>Cupaniopsis anacardioides</i>	Tuckeroo
<i>Eucalyptus botryoides</i>	Banglay
<i>Melaleuca quinquenervia</i>	Broad-leaved paperbark
<i>Melaleuca styphelioides</i>	Prickly-leaved Tea Tree
Trees (5- 10 m)	
<i>Glochidion ferdinandi</i>	Cheese Tree
<i>Melaleuca ericifolia</i>	Swamp Paperbark
<i>Melaleuca linariifolia</i>	Flax-leaved Paperbark
<i>Notelaea longifolia</i>	Large Mock-olive
<i>Elaeocarpus reticulatus</i>	Blueberry Ash
<i>Banksia integrifolia</i>	Coast Banksia
Shrubs	
<i>Leptospermum laevigatum</i>	Coast Teatree
<i>Ficus coronata</i>	Sandpaper Fig
<i>Callistemon salignus</i>	Willow Bottlebrush
Forbs, herbs and ground covers	
<i>Commelina cyanea</i>	-
<i>Dianella caerulea</i>	Blue Flax-lily
<i>Lomandra longifolia</i>	Spiny-headed mat-rush
<i>Viola banksii</i>	Wild violet
Climbers and scramblers	
<i>Geitonoplesium cymosum</i>	Scrambling Lily
<i>Smilax australis</i>	Barbwire Vine
<i>Stephania japonica var. discolor</i>	Snake vine
Grasses	
<i>Entolasia marginata</i>	Bordered Panic
<i>Imperata cylindrica var. major</i>	Blady grass
<i>Oplismenus imbecillis</i>	Creeping Beard Grass
<i>Themeda triandra</i>	Kangaroo Grass

Appendix 3 OEH consultation

Condition of Approval B30 for SSD-88662 states that the BMP must be prepared in consultation with OEH. OEH provided comment on the draft DMP in response letter DOC19/367049 dated May 2019 attached below. Table 3 below outlines how the comments received from OEH have been addressed and incorporated into the final BMP (this document)

Table 3 OEH Consultation

OEH Consultation notes & comments (DOC19/367049 dated May 2019)	Biosis Response
<p>Section 1.2.1 of the draft BMP notes the threatened ecological communities listed under the Biodiversity Conservation Act 2016 (BC Act) are to be physically delineated on site using protective fencing. It is recommended this section includes the following:</p> <p><i>The exclusion fencing must be regularly checked and maintained throughout the construction stage and establishment works.</i></p>	<p>Text added to section 1.2.1 as requested.</p>
<p>OEH recommends Figure 2 is amended to include:</p> <ul style="list-style-type: none"> The Plant Community Type -: PCT722 Coast Banksia – Coast Wattle Dune Scrub of the Sydney Basin Bioregion and South East Corner Bioregion which occurs in the site landscaping area (see Figure 2 of BMP and Figure 4 in the Biodiversity Development Assessment Report (BDAR). 'no-go zone' in the landscape area where remnant native vegetation occurs such as PCT722 Coast Banksia - Coast Wattle dune scrub of the Sydney Basin Bioregion and South East Corner Bioregion. Figure 2 shows the 'cleared vegetation' area as a no-go zone. It is unclear if this area is proposed for natural regeneration. It is recommended the BMP includes details on why this is a no-go zone. If the seed bank is depleted from this area and the native vegetation community is unable to regenerate, it is recommended it is included in the landscape area and is planted with native provenance trees, shrubs and groundcover species from the relevant PCT(s) as described in the BDAR. 	<p>Figure 2 of the BMP updated to include PCT722 areas that occur within the landscape areas as '<i>PCT722 Coast Banksia - Coast Wattle dune scrub of the Sydney Basin Bioregion and South East Corner Bioregion- to be removed</i>'.</p> <p>This area has not been included as a no-go-area as under the BDAR prepared by Biosis 2018 this area is within the area clear area and has had all impacts addressed and approved under the BDAR.</p> <p>The cleared vegetation area in Figure 2 has been renamed to Cleared vegetation - Proposed translocation area.</p>

OEH Consultation notes & comments (DOC19/367049 dated May 2019)	Biosis Response
<p>4.2 Topsoil reuse</p> <p>OEH recommended in its EIS submission of 19 July 2018 that "the topsoil from native vegetation that is to be removed is used in the landscape areas on the site". It is noted this measure has been included in Condition of Consent B30(c). The BMP indicates the topsoil is highly likely to be weed infested and it recommends regularly treating the soil for germinating weeds with herbicide to exhaust reproductive material (section 4.2, page 8). Native plant seeds are also likely to be present in the soil seed bank. If blanket herbicide spraying is used this would also kill any germinating native seedlings. OEH recommends the BMP is amended to stipulate:</p> <ul style="list-style-type: none"> • If herbicide treatment of weeds in the topsoil is required, spot herbicide treatment should only be used (rather than blanket herbicide spraying); and/or • hand weeding is undertaken to remove weed seedlings without harming native plant seedlings. 	<p>The following text has been incorporated into section 4.2 of the Final BMP:</p> <p><i>If herbicide treatment of weeds in the topsoil is required, spot herbicide treatment should only be used (rather than blanket herbicide spraying).</i></p>
<p>4.3.1 Translocation of removed native vegetation</p> <p>The following amendments (in bold italics) are recommended under 'the translocation individuals':</p> <ul style="list-style-type: none"> • All target species are <i>identified, the number of individual plant species to be translocated are counted and</i> marked by an appropriately qualified Ecologist during preclearance surveys prior to vegetation removal • Translocate plants during cooler, and preferably wet weather. 	<p>All provided text has been included in the final BMP in section 4.3.1.</p>
<p>OEH recommends the following additional dot points are included under 'the receival site':</p> <ul style="list-style-type: none"> • Prior to removing the native plants to be translocated, pre-dig holes for planting at appropriate locations in the receival site <ul style="list-style-type: none"> • Water each new hole by filling the holes with water before planting the translocated plants and then water in the translocated plants to reduce moisture stress. <p>OEH recommends the following additional dot points are included under 'ongoing maintenance':</p> <ul style="list-style-type: none"> • Monitor and document the translocated plantings and any regeneration of native plant and weed species in the landscape areas. 	<p>All provided text has been included in the final BMP in section 4.3.1.</p>

OEH Consultation notes & comments (DOC19/367049 dated May 2019)	Biosis Response
<p>4.4 Seed collection from removed vegetation Include the following in Section 4.4:</p> <ul style="list-style-type: none"> In areas where native vegetation is to be cleared, collect 100% of the total native seed that is available. <p>Mitigation measure to avoid/minimise project impacts Section 5.1 of the BDAR includes mitigation measures for the construction period to avoid/minimise project impacts including the following measure (see page 42 of BDAR):</p> <ul style="list-style-type: none"> Any hollow-bearing trees to be removed should be placed in areas of retained vegetation to provide additional fauna habitat. OEH recommends this measure is included in the BMP. <p>Appendix 2 Recommended planting species list OEH recommends an additional column 'Plant Community Type' is included in Table 2 so the BMP identifies the relevant PCT for each plant species listed, particularly as Condition of Consent 831 (a) requires the landscaping to comprise native provenance trees, shrubs and groundcover species which are consistent with the PCT described in the BDAR report prepared by Biosis dated 22 February 2018.</p>	<p>This guidance is not in accordance with Florabank Guidelines 6: Native Seed Collection Methods and as such has not been included in the BMP.</p> <p>All provided text has been included in the final BMP in section 4.1</p> <p>All species identified in the provided species list are considered to be suitable and consist of native provenance trees, shrubs and groundcover species. The species provided have been identified from a mix of the broader PCT within the study area. As the purpose of the landscape areas is not to recreate surrounding PCTs rather use suitable native provenance species suited for the area the list provided need not identify appropriate PCT of origin, all species are suitable to be planted throughout the landscape areas identified within Figure 2.</p>