

27 September 2022

Tom Foster Senior Town Planner

Dear Tom,

#### **Re: Flora and fauna assessment for a Pedestrian bridge, Station Street Menangle** Project no. 37774

Biosis Pty Ltd was commissioned by Mirvac Homes (NSW) c/o Calibre Group to complete a Flora and Fauna assessment for a proposed pedestrian bridge at Station Street Menangle. The Flora and Fauna assessment will form part of the Review of Environment Factors being prepared by Calibre Group for the Australian Rail Track Corporation (ARTC) and is required to describe the ecological values and constraints associated with the proposed pedestrian bridge.

Biosis understands Mirvac is proposing to develop around 350 lots at Menangle either side of the rail line. The existing bridge makes no provision for separation of pedestrians and vehicles and as such, Mirvac are seeking to provide a pedestrian bridge over the southern rail line (the project) on behalf of Wollondilly Shire Council.

The objective of this flora and fauna assessment is to determine the presence of any threatened ecological communities (TECs) within the study area and, where applicable, assess the impacts of the project on any threatened species, populations and/or ecological communities (biota), or their habitat, listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and *Biodiversity Conservation Act 2016* (BC Act).

## Background

The study area is located approximately 10 kilometres from Campbelltown central business district in the Wollondilly Local Government Area (LGA). The study area is located within land designated as SP2 Infrastructure, R2 Low density Residential and RU1 Primary Production under the Wollondilly Local Environment Plan (LEP) and is approximately 0.54 hectares, which includes the impact area and footprint area (Figure 1). The impact area is 0.07 hectares and is defined as the full extent of clearing and ground disturbance required for the construction of the pedestrian bridge, to the north of Station Street and including a section of Stevens Road in Menangle.

The surrounding land use is primarily agricultural with historic clearing of native vegetation providing paddocks for livestock grazing. To the south of the study area is a small hub of residential properties. The study area crosses the southern rail line, connecting rural towns with the Central Business Districts of Campbelltown and Sydney. Approximately 0.8 kilometres to the north of the study area is the Nepean River which is surrounded by a corridor of native vegetation. The study area is poorly connected to native

Biosis Pty Ltd Western Sydney



vegetation, forming a narrow (10-20 metre) linear corridor along Stevens Road to the Hume Highway through remnant paddock trees. This in turn is connected to the Nepean river riparian corridor where the Hume Highway bridges the Nepean River. The Nepean River corridor provides connectivity to large areas of in-tact bushland within and connected to the Dharawal National Park in the East.

### Method

#### **Database and literature review**

Prior to completing the field investigation, information provided by Calibre Group as well as other key information was reviewed, including:

- Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW) Protected Matters Search Tool for matters protected by the EPBC Act.
- NSW Environment, Energy and Science (EES) BioNet Atlas of NSW Wildlife, for items listed under the BC Act.
- NSW Department of Primary Industries (DPI) *Biosecurity Act 2015* for Priority listed weeds for the Greater Sydney Local Land Services (LLS) area.
- EES Vegetation Information System (VIS) mapping, including:
  - Interpretation Guidelines for the Native Vegetation Maps of the Cumberland Plain, Western Sydney (Tozer 2003)

The implications for the project were assessed in relation to key biodiversity legislation and policy including:

- Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).
- Environmental Planning and Assessment Act 1979 (EP&A Act).
- Biodiversity Conservation Act 2016 (BC Act).
- Biosecurity Act 2015. (Biosecurity Act).
- State Environmental Planning Policy (Biodiversity and Conservation) 2021.
- Wollondilly Local Environmental Plan 2011.
- Wollondilly Development Control Plan 2016.

#### **Field investigation**

A field investigation of the study area was undertaken on 15 April by Averill Wilson (Ecologist) of Biosis. Vegetation within the study area was surveyed using the random meander technique (Cropper 1993) over three person hours.

General classification of native vegetation in NSW used in this report is based on the classification system in Keith (2004) which uses three groupings of vegetation: vegetation formation, vegetation class and vegetation type, with vegetation type the finest grouping. The grouping referred to in this report is Plant Community Type (PCT) as defined by the Biodiversity Assessment Method (BAM) (DPIE 2020), and has been the standard used across NSW since 2016.

The vegetation types, within the study area, were stratified into PCTs broadly based on previous vegetation mapping, and the vegetation boundaries marked with a hand-held GPS in the field. Appropriate PCTs were selected on the basis of species composition and structure, known geographical distribution, landscape position, underlying geology, soil type, and any other diagnostic features.



A habitat-based assessment was completed to determine the presence of suitable habitat for threatened species previously recorded (EES 2021) or predicted to occur (Commonwealth of Australia 2021) within five kilometres. This list was filtered according to species descriptions, life history, habitat preference and soil preference to determine those species most likely to be present within the study area.

## Results

The study area is located approximately 10 kilometres from Campbelltown central business district, the surrounding land use is comprised of low density residential properties (zoned R2 under the Wollondilly LEP) with the broader landscape predominantly comprised of farmland zoned RU1 primary production and the rail corridor zoned SP2 Infrastructure under Wollondilly LEP.

Regional soil landscape mapping indicates that the study area occurs on the Oakdale Tablelands variant a landscape of the Hawkesbury-Nepean Soil Landscapes (DECCW 2008). The Oakdale Tablelands variant soils landscape is characterised by gently undulating slopes between 1% to 10%, overlying the Wianamatta Shale group. The landscape is mostly cleared, containing a number of sclerophyll open forests.

The study area is a linear section adjacent to the north side of Station Street, crossing the southern rail line. Vegetation within the study area consists primarily of remnant canopy trees with highly disturbed understorey and ground cover species which consist primarily of exotic grasses and weeds. The study area has previously been cleared with remnant native species and exotic introduces species distributed linearly along the side of Steven's Road, with smaller remnant patches also occurring at the edges of Station Street (Figure 1). Previous disturbances surrounding the study area have impacted the quality of habitat for threatened biota and includes agricultural land use and construction and maintenance of the existing adjacent sealed roads, bridge over the rail line and the rail corridor itself.

#### **Vegetation communities**

Prior to the field investigation, Biosis confirmed that various native vegetation communities including two TECs have been mapped in the broader landscape (Tozer 2003, EES 2021), these include:

- *Cumberland Plain Woodland of the Sydney Basin Bioregion* (Critically Endangered Ecological Community (CEEC), EPBC Act and BC Act).
- *River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions* (CEEC, EPBC Act and BC Act).

A key focus of the field investigation was to assess the vegetation of the study area against the final determinations for the above listed TECs to determine presence or absence.

The vegetation of the study area was found to comprise two communities:

- PCT 849 Grey Box Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion which forms part of Cumberland Plain Woodland CEEC.
- Urban Native/Exotic.

The PCT 849 *Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion* contains Narrow-leaved Ironbark *Eucalyptus crebra* with a primarily exotic understorey including African Olive *Olea europaea* subsp. *cuspidata,* African Boxthorn *Lycium ferocissimum* and Rhodes Grass *Chloris gayana*. Native understory species were limited to occurrences of Whitethorn *Commelina cyanea*. This community forms part *Cumberland Plain Woodland of the Sydney Basin Bioregion* due to occurrences of a characteristic canopy species (Narrow-leaved Ironbark) located within the Cumberland Plain overlying Wianamatta shale derived soils. This community does not satisfy listing requirements under the EPBC Act as it occurs within a patch < 0.5 hectares and contains less than 40% native understory.



Urban Native/Exotic occurs as weed species under the existing bridge including planted street trees, African Olive, African Boxthorn and Lantana *Lantana camara*.

#### **Threatened species**

Background searches identified 21 threatened flora species and 51 threatened fauna species recorded (EES 2021) or predicted to occur (Commonwealth of Australia 2021) within 5 kilometres of the study area. Those species considered most likely to have habitat within the study area based on the background research are as follows:

#### Flora

- Spiked Rice-flower Pimelea spicata (Endangered, EPBC Act and BC Act).
- Camden White Gum Eucalyptus benthamii (Endangered, EPBC and BC Act).

#### Fauna

- Cumberland Plain Land Snail Meriodolum corneovirens (Endangered, BC Act).
- Grey-headed Flying-fox Pteropus poliocephalus (Vulnerable, EPBC Act and BC Act).
- Gang-gang Cockatoo Callocephalon fimbriatum (Endangered, EPBC Act and Vulnerable, BC Act).
- Little Lorikeet Glossopsitta pusilla (Vulnerable, BC Act).
- Koala Phascolarctos cinereus (Endangered, EPBC Act and BC Act).
- Dusky Woodswallow Artamus cyanopterus (Vulnerable, BC Act).
- Diamond Firetail Stagonopleura guttata (Vulnerable, BC Act).
- Brown tree-creeper Climacteris picumnus victoriae (Vulnerable, BC Act).

No threatened flora species were recorded during the field investigation. Due to the small size, easy access and disturbed nature of the study area and that species likely to occur within the study area are not cryptic in nature, it is considered unlikely that the study area can provide more than marginal habitat for any of the flora species. Therefore, none of the threatened flora species predicated to occur have been assessed as having greater than a low likelihood of occurrence within the study area. As such no further assessment of impacts to threatened flora species is required.

The study area provides limited fauna habitat for threatened species due to previous disturbance including historic clearing and existing surrounding land use. Remnant native vegetation within the study area occurs within a fragmented landscape compared to more in-tact, higher-quality stands of remnant native paddock vegetation and national park lands to the east.

Two hollow-bearing trees were noted adjacent to the study area and will not be impacted by the proposed works. Vegetation within the study area may occasionally provide foraging for highly mobile nectar and eucalypt feeding arboreal mammals and birds such as Grey-headed Flying-fox, Gang-gang Cockatoo, and Little Lorikeet. No camp for the Grey-headed flying fox if locate within the study area, with the nearest camp located approximately eight kilometres away near Campbelltown. The study area does constitute important breeding habitat for either the Little Lorikeet, Grey-headed Flying-fox or Gang-gang Cockatoo and as such the works are unlikely impact these species in any notable way, particularly given the marginal clearing required (150 square metres of native vegetation). The study area does not support fallen timber, shrubs and refuge habitat required by smaller woodland birds previously recorded in the locality such as Dusky Woodswallow, Diamond Firetail or Brown tree-creeper. Although these species may occur on occasion during foraging movements through the wider landscape it is considered unlikely the study area would support these species.



The study area is limited in providing terrestrial fauna habitat and does not support dense leaf litter, woody debris, bush rock, tussock grasses, shrub layers or coarse woody debris. Due to the absence of shelter and foraging habitat, the study area has been assessed as not suitable Cumberland Plain Land Snail habitat.

Koala records exist within the wider locality. The majority of the records occur to the east of the Hume Highway in vegetation east of the Nepean River where large areas of high quality habitat occur. Trees occurring within the study area are poorly connected within a heavily cleared environment. The Hume Highway and rail corridor provide significant barriers to dispersal for this species and further reduce suitability of the study area. Additionally, during field investigations it was noted that dogs; which represent a significant threat to Koala are present within the locality, further reducing the likelihood koalas utilising the area. Although there is potential for Koala to move within the study area, given these factors, the study area is not considered to provide suitable habitat for the Koala.

The proposed works will result in the removal of two juvenile Ironbark trees; at the corner of Stevens Road and Station Street. This vegetation does not provide connectivity to any further areas of native vegetation, therefore the project is considered unlikely to impact on connectivity for fauna species moving through the broader landscape.

Based on the size of the study area, the survey effort is considered comprehensive to assess the presence of the flora species. Taking all of these factors into consideration, there is a low likelihood of occurrence for the above listed species.

Based on the size of the study area, the survey effort is considered sufficient to assess habitat presence for the species outlined above. Taking all of these factors into consideration, there is a low likelihood of impact for the above listed species.

#### **Priority weeds**

Four priority weeds for The Greater Sydney region, which includes the Wollondilly LGA, were recorded in the study area:

- Bridal Creeper Asparagus asparagoides
- African Boxthorn Lycium ferocissimum
- African Olive Olea europaea subsp. cuspidata
- Lantana Lantana camara

Bridal Creeper, African Boxthorn and Lantana species are not assigned a specific biosecurity duty relevant to the project. All priority weeds for the region are assigned a general biosecurity duty.

The general biosecurity duty, as outlined in the *Biosecurity Act* states:

All plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.

African Olive has the following relevant Regional Recommended Measure:

#### Regional Recommended Measure

An exclusion zone is established for all lands in Blue Mountains City Council local government area and in Penrith local government area west of the Nepean River. The remainder of the region is classified as the core infestation area.

Whole region: The plant or parts of the plant are not traded, carried, grown or released into the environment. Exclusion zone: The plant is eradicated from the land and the land kept free of the plant.



*Core infestation area: Land managers prevent spread from their land where feasible. Land managers reduce impacts from the plant on priority assets.* 

To prevent biosecurity impacts from occurring as a result of the presence of the above listed priority weeds within the study area, all practical steps should be taken to control and eradicated the weeds from the study area prior to or during vegetation removal.

#### Impact assessment

The proposed pedestrian bridge works involve the following impacts to ecological features:

- Removal of 150 square metres of vegetation forming part of Cumberland Plain Woodland CEEC consisting of two Narrow-leaved Ironbark trees.
- Removal of 77 square metres of vegetation consisting of Urban Native/Exotic including two African Olive trees.
- Removal of 150 square metres of vegetation providing marginal habitat for threatened flora and fauna.

Assessment of the impacts of the proposed works on the Cumberland Plain Woodland CEEC is provided in Appendix 3. The proposed works are not considered likely to result in a significant impact to the threatened ecological community or threatened species and their habitats as listed under the EPBC Act or BC Act. Works should proceed as planned whilst implementing the recommendations outlined below to minimise and mitigate any residual impact to ecological values.

#### **Environment Protection and Biodiversity Conservation Act 1999**

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Australian Government's key piece of environmental legislation. The EPBC Act applies to developments and associated activities that have the potential to significantly impact on Matters of National Environmental Significance (NES) protected under the Act. Under the EPBC Act, activities that have potential to result in significant impacts on Matters of NES must be referred to the Commonwealth Minister for the Environment and Energy for assessment.

No threatened ecological communities or threatened species listed under the EPBC Act were recorded or assessed to have a medium or greater potential to occur within the study area.

#### State Environmental Planning Policy (Biodiversity and Conservation) 2021

The SEPP (Biodiversity and Conservation) 2021 consolidates, transfers and repeals provisions of the following 11 SEPPs (or deemed SEPPs) as per the following:

- Chapter 6 Bushland in urban areas (prior SEPP No 19—Bushland in Urban Areas), contains the provisions from SEPP 19, which seeks to protect and preserve bushland within public open space zones and reservations.
- Chapter 9– Hawkesbury–Nepean River (prior Sydney Regional Environmental Plan No 20 Hawkesbury – Nepean River (No 2 – 1997)), contains the provisions from the Hawkesbury– Nepean River REP to protect the environment of this river system.

The SEPP consolidation does not change the legal effect of the existing SEPPs, with section 30A of the *Interpretation Act 1987* applying to the transferred provisions. The SEPP consolidation is administrative. It has been undertaken in accordance with section 3.22 of the *Environmental Planning and Assessment Act 1979*. Following the results and recommendations provided within this report it is unlikely the proposed works will be adverse to the aims stated in the SEPP.



#### **Biodiversity Conservation Act 2016**

One Threatened ecological community listed under the BC Act occurs within the study area. Tests of Significance have been prepared for threatened biota that are deemed likely to be subject to negative impacts (Appendix 3) and concluded that a significant impact was not likely to result from the project, due to the minimal amount of clearing required in an area of already degraded vegetation.

Tests of Significance indicate that a significant effect is not likely to result from the proposal. A Species Impact Statement is therefore not required.

#### Recommendations

Assessment of the impacts of the project on the Cumberland Plain Woodland CEEC determined that the proposal is unlikely to result in a significant impact to the community. Given there are requirements for removal of vegetation which forms part of a CEEC for the project, the focus of the recommendations is to minimise disturbance to any surrounding native vegetation and fauna habitat. These recommendations are:

- To the fullest extent practicable, minimise disturbance to any native vegetation surrounding the study area.
- Trees to be retained should be protected in accordance with Australian Standard AS4970 2009 Protection of trees on development sites, during construction, operation and decommissioning of the site compound.
- In the unlikely event that unexpected threatened species are identified during the project, works should cease and an ecologist contacted.
- Soil transportation should be minimised within, into or out of the study area to reduce the spread of weeds.
- Two priority weeds within the Wollondilly Council LGA were identified within the study area. Appropriate measures should be implemented to minimise the spread of these species.
- Appropriate erosion and sediment control measures should be installed at all sites to avoid sedimentation of receiving water bodies or other indirect impacts to surrounding biodiversity values.

I trust that this advice is of assistance to you however please contact me if you would like to discuss any elements of this ecological advice further.

Yours sincerely

#### Sarah Allison

**Project Zoologist** 



## References

Commonwealth of Australia 2021. *Protected Matters Search Tool, Australian Government Department of the Environment, Water, Heritage & the Arts, Canberra*, https://www.environment.gov.au/epbc/protected-matters-search-tool.

Cropper S 1993. Management of Endangered Plants, CSIRO Publications Victoria, Melbourne, Victoria.

DECCW 2010. Cumberland Plain Recovery Plan, Department of Environment, Climate Change and Water (NSW), Sydney.

DPIE 2020. *Biodiversity Assessment Method (BAM)*, Department of Planning, Industry & Environment, https://www.environment.nsw.gov.au/research-and-publications/publications-search/biodiversity-assessment-method-2020.

EES 2021. BioNet the website for the Atlas of NSW Wildlife, http://www.bionet.nsw.gov.au/.

OEH 2016. Cumberland Plain Woodland in the Sydney Basin Bioregion - proposed critically endangered ecological community listing: NSW Scientific Committee - preliminary determination.

Tozer M 2003. 'The native vegetation of the Cumberland Plain, western Sydney: systematic classification and field identification of communities', *Cunninghamia*, 8, 1: 1–75.



# Appendices



Appendix 1 Figure 1





## Appendix 2 Photos





Plate 1 South-eastern corner of Stevens Rd showing low condition Cumberland Plain Woodland looking north



Plate 2 Urban Native/Exotic alonmg northern side of bridge looking west



## Appendix 3 Tests of Significance

#### **Cumberland Plain Woodland**

The Cumberland Plain Woodland is listed as a CEEC under the BC Act. This community occurs on soils derived from Wianamatta Shale, throughout the driest part of the Sydney Basin. It is well adapted to drought and fire and is typically found on heavy clay soils (OEH 2016). This community has undergone significant declines since European settlement with the expansion of Sydney and the outlying regional centres. Only 9 % of the original extent of this community now remains in-tact (OEH 2016) with around 12 % occurring as scattered remnants (DECCW 2010).

Threats to the Cumberland Plain Woodland include:

- Inappropriate fire regimes.
- Clearing for urban or rural development.
- Fragmentation.
- Invasion by weeds and foreign plants.
- Tree death caused by fungus following borers.
- Bell miner associated dieback.
- Disturbance and damage by recreational users (including litter, creation of trails for motorbikes and four wheel drives, firewood collection and removal of woody debris).
- Inappropriate water run-off leading to increased nutrients and sedimentation.

The current proposal will require the removal of 150 square metres of Cumberland Plain Woodland in the impact area which occurs as two juvenile Narrow-leave Ironbark individuals overlying exotic species.

For this assessment, the local occurrence of Cumberland Plain Woodland comprises all PCT 849 mapped within the study area and any patches that occur in the vicinity up to 100 – 200 metres across the largely cleared agricultural landscape that could be subject to indirect impacts associated with loss of connectivity.

The following is to be taken into account for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats.

# (a) In the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

Not applicable.

(b) In the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

(i) Is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) Is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.



The local occurrence of Cumberland Plain Woodland is considered to comprise the areas directly impacted by the project, and the areas likely to be indirectly impacted through increased fragmentation and isolation. These areas include the contiguous areas of the CEEC extending to the east of the study area which contains and the scattered Forest Red Gum *Eucalyptus tereticornis* trees that occur in the vicinity up to 100 – 200 metres of the study area, as these patches are considered to be connected via close proximity and lack of barriers to movement of genetic material.

The local occurrence of the CEEC is generally present in low condition with limited native midstorey species and a high level of exotic species in the lower strata. The removal of 150 square metres, which occurs as two trees forming Cumberland Plain Woodland and is not likely to have an adverse effect on the extent of the community such that it is at risk of extinction. The Cumberland Plain Woodland within the study area already occurs in a patchy and edge affected state, and the project will not result in a substantial increase to these negative pressures. Overall, the vegetation that will be removed does not comprise any ecological components critical to the survival of the TEC in the locality.

#### (c) In relation to the habitat of a threatened species or ecological community:

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

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

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

The habitat supporting the local occurrence of the TEC comprises small fragmented areas where canopy trees and/or midstorey shrubs have been able to persist, and long linear strips along road verges where canopy trees have been retained. These areas of habitat occur with a patchy distribution between land used for infrastructure and agriculture.

The project will result in the removal of 150 square metres of habitat for the CEEC, however areas contiguous to that being removed will be retained, and areas considered subject to some level of connectivity within 100 – 200 metres will also remain present. These areas are already subject to edge effects resulting from the fragmented and patchy landscape within which they occur, however the project is not considered likely to increase the level to which these negative pressures occur.

The area of habitat to be directly and indirectly impacted by the project is not considered important to the long term survival of the community in the locality.

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

The proposed work does not impact on any area of outstanding biodiversity value (either directly or indirectly).

# (e) Whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

The proposed works have the potential to result in the following key threatening process which is listed under the Schedule 4 of the BC Act, and to which are considered relevant to Cumberland Plain Woodland:

• Clearing of native vegetation.



The proposed pedestrian path requires clearing of land where this community occurs, resulting in the removal 150 metres square of the CEEC comprised of two trees.

#### Conclusion

The proposed works are unlikely to significantly impact Cumberland Plain Woodland for the following reasons:

- The proposed works are localised and small-scale, and the study area has already been exposed to a number of disturbances which are unlikely to be further exacerbated by the proposed works.
- The proposed works are unlikely to significantly alter floristic or structural diversity of the CEEC within the study area, particularly given the impacts are limited to 150 square metres.
- The localised nature of the proposed works will not significantly trigger or exacerbate any key threatening processes.

Therefore, no further assessment is required and a SIS or BDAR is not required.