



AEP

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Transnational Pastoral Pty Ltd and The Stevens Group
Attention: Lin Armstrong

Via Email: lin@stevensgroup.com.au

Our Ref: 1910.10

23 August 2021

Dear Lin,

EPBC Referral 2021/8968 – Additional Information Required for Preliminary Documentation

414 Old Maitland Road Residential Subdivision, Mardi, NSW.

As requested, Anderson Environment & Planning (AEP) herewith provide a letter of response with the Additional Information Required for Preliminary Documentation to accompany the assessment of the controlled action associated with the proposed residential subdivision at 414 Old Maitland Road, Mardi, NSW.

The information provided in this document have been compiled using the relevant information including;

- Supporting documentation provided from The Stevens Group and the Australian Government Department of Agriculture, Water and Environment that relates directly to the Additional Information Required as part of the referral process; and
- The original referral (refer **Appendix A**);
- Associated reports including the BDAR and BSSAR that were completed for the Mardi Residential Subdivision by AEP.

Study Certification and Licensing

The information provided in this letter has been prepared and reviewed by staff identified in below from Anderson Environment & Planning.

Staff	Title / Qualification
Craig Anderson	Managing Director; Principal Ecologist BAppSc (EAM) BAAS: 17002
Ian Benson	Business Manager; Principal Ecologist BEng (Civil) GradDipSc (Ecology) BAAS: 18147
Natalie Black	Senior Environmental Manager B.Sc. (Hons), Master Planning BAAS: 19076
Simon Purcell	Senior Ecologist BAppSc (Wildlife Science); Cert III Animal Care and Management
Tim Mouton	Senior Ecologist BEnvSc MEnvSc BAAS: 19083

1.0 Controlling Provision - Listed Threatened Species and Communities

Under the controlling provision, any listed threatened species or community are potentially relevant to the assessment. However, based on the information provided in the original referral, and the available information, the Department has requested detailed consideration for the species and communities listed below.

Threatened Ecological Community:

- *River-flat Eucalypt Forest on coastal floodplains of southern New South Wales and eastern Victoria (River-flat Eucalypt Forest) – Critically Endangered*

Threatened Species:

- *Biconvex Paperbark (Melaleuca biconvexa) – Vulnerable*

For the threatened ecological community and threatened species listed above further evidence and / or a more detailed argument is required to satisfy the Department of claims and conclusions made in the referral documentation.

1.1 River-flat Eucalypt Forest on coastal floodplains of southern New South Wales and eastern Victoria (River-flat Eucalypt Forest) – Critically Endangered

The Department considers that the proposed action will result in the removal of approximately 8.04 ha of River-Flat Eucalypt Forest in the proposed action area and is likely to have a significant impact on the ecological community. Please provide:

1.1.1 Evidence that offset credits for PCT 1720 as outlined in the BDAR will offset impacts to the EPBC listed River-flat Eucalypt Forest critically endangered ecological community.

The patch size of Plant Community Type (PCT) 1720 within the residential subdivision footprint is 8.38ha. Out of this 8.38ha a total of 0.34ha has been proposed to be retained in the north east corner of the proposed residential subdivision (refer **Table 1**). The Stewardship Site proposes to retain 3.37ha of PCT 1720 (refer **Table 3**). Therefore, offset credits outlined in the Biodiversity Development Assessment Report (BDAR) have been assessed against the total area of PCT 1720 that is to be removed as per the staged development 8.04ha (refer **Table 2**).

Table 1 – Residential Subdivision Development Areas

Retained Vegetation and Residential Subdivision Development Area	PCT	Area
Retained Vegetation in Residential Land	1720	0.34
Total of PCT 1720 Proposed to be Retained as Part of the Residential Subdivision		0.34
Residential Subdivision Development Area	1720	8.04
Total of PCT 1720 Proposed to be Removed as Part of the Residential Subdivision		8.04
Total PCT Patch Size within Residential Subdivision Area		8.38

As per section 2.3.2.1 **Ecosystem Credits**; **Table 22 – Ecosystem Credit Requirements** within the BDAR the impact area for PCT 1720 has been calculated as 8.04 ha with a total credit requirement to offset the impacts of 304 credits.

Table 2 – Ecosystem Credit Requirements Appended from the BDAR

Vegetation Zone (PCT)	Impact Area (ha)	Future VIS	Vegetation Integrity Score Loss	Biodiversity Risk Weighting	Total Credits Requirements
684 (Moderate)	6.38	0	57.1	1.5	137
1071 (Good)	0.19	0	80.5	2	8
1568 (Moderate)	3.99	0	59.9	1.5	90
1718 (Good)	1.40	0	90.7	2	63
1720 (Good)	8.04	0	75.5	2	304

Vegetation Zone (PCT)	Impact Area (ha)	Future VIS	Vegetation Integrity Score Loss	Biodiversity Risk Weighting	Total Credits Requirements
1723 (Moderate)	4.80	0	54.1	2	130
Total	25 ha	-	-	-	732

1.1.2 Otherwise, provide a proposal to offset residual significant impacts to River-flat Eucalypt Forest through a land-based offset in accordance with the Department's EPBC Act Environmental Offsets Policy or through an endorsed offsetting policy.

In addition to offsetting the impacts within the BDAR. In-line with the Commonwealth endorsing the NSW Biodiversity Offsets Scheme (BOS) for all controlled actions under the EPBC Act. Proponents are able to meet their offset obligations in accordance with the BOS.

To satisfy the above requirement, the proponent has undertaken a Biodiversity Stewardship Site Assessment Report (BSSAR) in lands directly adjoining the residential subdivision to contribute to offsetting the impacts associated with the residential subdivision. Within the BSSAR it has been identified that 3.37ha of PCT 1720 occur within the Stewardship Site (refer **Table 3**). The Biodiversity Conservation Trust (BCT) is currently processing the Biodiversity Stewardship Application (BSA).

Table 3 – Vegetation Zones Appended from the BSSAR

Zone	PCT	Vegetation Type	Condition	Area (ha)
1	684	Blackbutt - Narrow-leaved White Mahogany shrubby tall open forest, northern Sydney Basin Bioregion (Shrubby sub-formation).	Good	51.1
2	1723	<i>Melaleuca biconvexa</i> - Swamp Mahogany - Cabbage Palm swamp forest of the Central Coast (Coastal Swamp Forests).	Good	15.12
3	1568	Blackbutt - Turpentine - Sydney Blue Gum mesic tall open forest on ranges of the Central Coast (Shrubby sub-formation).	Good	30.66
4	1720	Cabbage Gum - Forest Red Gum - Flax-leaved Paperbark Floodplain Forest of the Central Coast (Coastal Floodplains Forest).	Good	3.37
5	1590	Spotted Gum - Broad-leaved Mahogany - Red Ironbark shrubby open forest (shrub/grass sub-formation).	Good	29.37
6	1718	Swamp Mahogany - Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast (Coastal Swamp Forests).	Good	11.93
Total – Remnant Vegetation (Stewardship Site)				141.55

As per section **2.0 Conclusion; Table 11 – Summary of Ecosystem Credits** within the BSSAR the area for PCT 1720 that has been used to calculate the ecosystem credits within the Stewardship Site is 3.37ha. This area will generate a total of 16 ecosystem credit will be available to offset the impacts of PCT 1720 within the residential subdivision (refer **Table 4**).

Table 4 – Summary of Ecosystem Credits Appended from the BSSAR

PCT	Community	Threatened Ecological Community (TEC)	Ecosystem Credits
684	Blackbutt - Narrow-leaved White Mahogany shrubby tall open forest of coastal ranges.	Not a TEC	288
1723	<i>Melaleuca biconvexa</i> - Swamp Mahogany - Cabbage Palm swamp forest.	Swamp Sclerophyll Forest	80
1568	Blackbutt - Turpentine - Sydney Blue Gum mesic tall open forest.	Not a TEC	162
1720	Cabbage Gum - Forest Red Gum - Flax-leaved Paperbark Floodplain Forest.	River-Flat Eucalypt Forest	16
1590	Spotted Gum - Broad-leaved Mahogany - Red Ironbark shrubby open forest.	Lower Hunter Spotted Gum Ironbark Forest	184
1718	Swamp Mahogany - Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast.	Swamp Sclerophyll Forest	45
Total – Ecosystem Credits			775

1.1.3 Summary of further information required for River-flat Eucalypt Forest

The above information has been provided to demonstrate that the area of PCT 1720 associated with the development of the residential subdivision will offset the impacts to the EPBC listed Critically Endangered River-flat Eucalyptus Forest, ecological community. A summary of the areas and offset requirements are provided below.

- There is a total of 8.38ha of PCT 1720 located within the residential subdivision footprint.
- A total of 8.04ha of PCT 1720 is proposed to be impacted as a result of the residential subdivision.
- A total of 0.34ha of PCT 1720 is proposed to be retained and managed under a Vegetation Management Plan within the residential subdivision footprint.
- Biodiversity Offset Calculations have identified that 304 credits will be required to be retired to offset the impacts to PCT 1720 within the residential subdivision footprint.
- The proponent has acquired land directly adjacent to the residential subdivision and is proposing to establish a Stewardship Site to Offset some of the impacts within the residential subdivision. The BSA is currently being assessed by the BCT.

- A total of 3.37ha of PCT 1720 is proposed to be managed under the Stewardship Site and will contribute to offsetting the impacts to PCT 1720 within the residential subdivision.
- On approval of the BSA a total of 16 ecosystem credits will be available to offset the impacts of PCT 1720 within the residential subdivision.

1.2 Biconvex Paperbark (*Melaleuca biconvexa*) – Vulnerable

The Department considers that there are uncertainties regarding the assessment of Biconvex Paperbark in the proposed action area and adequacy of surveys for the species. Please provide:

1.2.1 The number of Biconvex Paperbark specimens and description of the extent of impact on this species within the proposed action area.

As per the Department of Planning, Industry and Environment Surveying Threatened Plants and Their Habitats, NSW Survey Guide for the Biodiversity Assessment Method; surveys for *Melaleuca biconvexa* includes;

- Carrying out parallel transects ranging between 10 – 20 m apart (depending on density of vegetation) searching for the targeted species.

As per the Threatened Biodiversity Data Collection, *Melaleuca biconvexa* is assessed based on area rather than a species count. When using areas to determine impacts associated with the species a species polygon is used to measure the area of the suitable habitat within the survey location.

Species that are typically assessed by area are either classed as being cryptic, clonal, logistically difficult to survey or cannot be reliably counted because abundance above ground fluctuates by an order of magnitude in response to environmental conditions and/or disturbance regimes.

The species polygon determined for this species within the BDAR comprised a total of 1.84ha of native vegetation. **Table 5** shows the *Melaleuca biconvexa* species polygons breakdown per Plant Community Type (PCT) and associated credits for each PCT.

Table 5 – *Melaleuca biconvexa* area and species credit breakdown per PCT.

PCT	Area (ha)	Credits
684	0.09	3
1071	0.00	0
1568	0.19	6
1718	0.00	0
1720	0.26	10
1723	1.30	34
Total Area (ha) and Species Credits	1.84	53

As per section 3.0 Conclusion; **Table 24 – Species Credit Requirements** within the BDAR the impact area for *Melaleuca biconvexa* has been calculated as 1.84ha with a total credit requirement to offset the impacts of 53 credits.

1.2.2 If significant impacts to Biconvex Paperbark are likely, an outline of proposed avoidance and mitigation measures for this species.

In addition to offsetting the impacts within the BDAR. In-line with the Commonwealth endorsing the NSW Biodiversity Offsets Scheme (BOS) for all controlled actions under the EPBC Act. Proponents are able to meet their offset obligations in accordance with the BOS.

To satisfy the above requirement, The proponent has undertaken a Biodiversity Stewardship Site Assessment Report (BSSAR) in lands directly adjoining the residential subdivision to contribute to offsetting the impacts associated with the residential subdivision. Within the BSSAR it has been identified that 12.6ha of *Melaleuca biconvexa* species buffers occur within the Stewardship Site (refer **Table 6**) which equates to a total of 63 species credits. The Biodiversity Conservation Trust (BCT) is currently processing the Biodiversity Stewardship Application (BSA).

Table 6 – Species Credits Generated from the Stewardship Site – Appended from the BSSAR.

Common Name	Scientific Name	Species Buffer	Species Count	Species Credits
Glossy Black-Cockatoo	<i>Calyptorhynchus lathami</i>	9.3	N/A	43
Large-eared Pied Bat	<i>Chalinolobus dwyeri</i>	141.6	N/A	775
Green-thighed Frog	<i>Litoria brevipalmata</i>	60.3	N/A	297
Biconvex Paperbark	<i>Melaleuca biconvexa</i>	12.6	N/A	63
Southern Myotis	<i>Myotis macropus</i>	73.9	N/A	431
Scrub Turpentine	<i>Rhodamnia rubescens</i>	N/A	319	265
Magenta Lilly Pilly	<i>Syzygium paniculatum</i>	N/A	4	3

The proposed Biodiversity Stewardship Agreement will capture a diversity of ecosystem types, flora and fauna species, habitat niches and landscapes, to benefit from long term conservation and management. *Melaleuca biconvexa* has been recorded within the Stewardship Site and will generate Credits under the Biodiversity Offset Scheme (BOS) upon approval of the Biodiversity Stewardship Site Application (BSA).

Melaleuca biconvexa will be actively managed across the Stewardship Site with a goal to improve vegetation integrity and threatened species habitat values within the Central Coast LGA.

Table 7 – EPBC – Additional Information Required PCT 1720

EPBC - Additional Information Required		PCT 1720 - River-flat Eucalypt Forest on coastal floodplains of southern New South Wales and eastern Victoria (River-flat Eucalypt Forest) – Critically Endangered	Relevant Sections of BDAR	Relevant Sections of BSSAR
Occurrence at the site of the proposed action	Survey methodology must be described	<p>Residential Subdivision Site Flora surveys were undertaken to produce a flora species list for the study area, to search specifically for threatened flora species known from the wider area, and to gather data necessary to both derive vegetation community type(s) and meet relevant survey guidelines. Such works included:</p> <p>Identification of all vascular plant species encountered during fieldwork. Study area coverage was both systematic to ensure all key points of the study area were checked, and therein the Random Meander Technique (Cropper, 1993) was utilised to maximise species encountered.</p> <p>Nineteen (19) BAM plots including 31 additional plots within the Stewardship Site which has assisted with identifying PCT's within the Subject Site. A copy of the plot field sheets and data is provided in Appendix D and E of the BDAR respectively.</p> <p>Stewardship Site Flora surveys were undertaken to produce a flora species list for the study area, to search specifically for threatened flora species known from the wider area, and to gather data necessary to both derive vegetation community type(s) and meet relevant survey guidelines. Such works included:</p> <p>Identification of all vascular plant species encountered during fieldwork. Study area coverage was both systematic to ensure all key points of the study area were checked, and therein the Random Meander Technique (Cropper, 1993) was utilised to maximise species encountered.</p> <p>Thirty-one (31) plots were completed within the Stewardship Site between May and June 2018 within each vegetation zone as per requirements within Table 4 of the BAM (see Figure 4). Plot data was used to determine the composition, structure and function condition score for each zone, which together comprise the vegetation integrity score. Plot data has been tabulated below in Table 5 and includes corresponding condition scores along with the overall vegetation integrity score for each zone.</p>	<p>Section 1.3.1.1 Plant Community Types</p> <p>Section 1.3.1.2 PCT Selection Justification</p> <p>Table 3 – PCT Determination Table PCT 1718, 1720, 1723</p> <p>Section 1.3.1.3 Patch Size</p> <p>Section 1.3.1.4 Vegetation Zones</p> <p>Table 4 – Vegetation Zones</p> <p>Zone 3 (Page 25 of the BDAR)</p> <p>Figure 5 – Ground-truthed Vegetation Communities and BAM Plots</p> <p>Section 1.3.3 Flora Survey Effort</p>	<p>Section 1.4.4 Zone 4 (PCT 1720) - Cabbage Gum - Forest Red Gum - Flax-leaved Paperbark Floodplain Forest of the Central Coast (Coastal Floodplains Forest).</p> <p>Table 2 – Vegetation Zones</p> <p>Section – Study Certificate and Licensing</p> <p>Section 1.3.1 Assessment Method</p> <p>Section 1.4 Vegetation Zones</p> <p>Section 1.5 Plant Community Types</p> <p>Section 1.51. Plant Community types Considered</p> <p>Table 3 – PCT Determination</p> <p>Section 1.5.3 Patch Size</p> <p>Section 1.5.4 Vegetation Integrity Score</p> <p>Table 5 – Vegetation Integrity Score</p> <p>Figure 4 – Vegetation Zones and BAM Plot Locations</p> <p>Figure 5 - Survey Effort by Travers Bushfire & Ecology (2020)</p> <p>Figure 6– Survey Effort by AEP (2021)</p>
	Survey results (results must be appended to the preliminary documentation)	<p>A total of Five (5) BAM plots undertaken within PCT 1720 in the subdivision area and Three (3) BAM plots were undertaken in the Stewardship Site.</p> <p>Plot data was used to determine the composition, structure and function condition score the vegetation zones within the Subject Site, which informed the vegetation integrity score. Plot data has been tabulated (refer Table 7 in the BDAR) and includes corresponding condition scores along with the overall vegetation integrity score. Vegetation Condition Class has been rated using the following percentage bands associated with the Vegetation Integrity Scores 70 – 100% Good; 50 – 69 % Moderate; 35 – 49% poor; 35 % highly disturbed.</p>	<p>Executive Summary</p> <p>Section 1.3.1.1 Plant Community Types</p> <p>Section 1.3.1.2 PCT Selection Justification</p> <p>Table 3 – PCT Determination Table PCT 1718, 1720, 1723</p> <p>Section 1.3.1.3 Patch Size</p> <p>Section 1.3.1.4 Vegetation Zones</p> <p>Table 4 – Vegetation Zones</p> <p>Zone 3 (Page 25 of the BDAR)</p>	<p>Section 1.4.4 Zone 4 (PCT 1720) - Cabbage Gum - Forest Red Gum - Flax-leaved Paperbark Floodplain Forest of the Central Coast (Coastal Floodplains Forest).</p> <p>Table 2 – Vegetation Zones</p> <p>Section 1.5 Plant Community Types</p> <p>Section 1.51. Plant Community types Considered</p> <p>Table 3 – PCT Determination</p> <p>Section 1.5.3 Patch Size</p> <p>Section 1.5.4 Vegetation Integrity Score</p>

EPBC - Additional Information Required	PCT 1720 - River-flat Eucalypt Forest on coastal floodplains of southern New South Wales and eastern Victoria (River-flat Eucalypt Forest) – Critically Endangered	Relevant Sections of BDAR	Relevant Sections of BSSAR
		Figure 5 – Ground-truthed Vegetation Communities and BAM Plots Section 1.3.3 Flora Survey Effort Table 7 Vegetation Integrity Score Table PCT 1568, 1718 and PCT 1720 Section 1.41. Flora Field Surveys Table 10 – Field Survey Period Section 1.4.8 Summary Survey Results (Page 72 - 73) Appendix D – BAM Plot Field Sheets Appendix E – BAM Plot Data	Table 5 – Vegetation Integrity Score Figure 4 – Vegetation Zones and BAM Plot Locations Figure 5 - Survey Effort by Travers Bushfire & Ecology (2020) Figure 6– Survey Effort by AEP (2021)
Consideration must be given to occupancy trends relating to season and time of day. Longer term trends including climate change may also be relevant.	Not Applicable	Not Applicable	Not Applicable
In relation to habitat for listed threatened species, the type of habitat (e.g., foraging, breeding, dispersal etc.) must also be considered.	All listed species for PCT 1720 were assess at desktop level and surveyed for within the development area and Stewardship Site. Surveys for each species were undertaken in accordance with the local, state and federal survey guidelines. For instance: <ul style="list-style-type: none"> • BAM Plots; • Flora transects were undertaken at 5m, 10m and 20m; • Diurnal and nocturnal fauna surveys were undertaken; • Equipment such as Camera Traps, songmeter, Anabat and harp traps were deployed. • Habitat assessment including but not limited to hollow bearing tree assessment; and • General incidental records of both flora and fauna. 	Executive Summary Section 1.3.1.1 Plant Community Types Section 1.3.1.2 PCT Selection Justification Table 3 – PCT Determination Table PCT 1718, 1720 , 1723 Section 1.3.1.4 Vegetation Zones Table 4 – Vegetation Zones Zone 3 (Page 25 of the BDAR) Figure 5 – Ground-truthed Vegetation Communities and BAM Plots Section 1.3.3 Flora Survey Effort Table 7 Vegetation Integrity Score Table PCT 1568, 1718 and PCT 1720 Section 1.41. Flora Field Surveys Table 10 – Field Survey Period Section 1.4.8 Summary Survey Results (Page	Section 1.4.4 Zone 4 (PCT 1720) - Cabbage Gum - Forest Red Gum - Flax-leaved Paperbark Floodplain Forest of the Central Coast (Coastal Floodplains Forest). Table 2 – Vegetation Zones Section 1.5 Plant Community Types Section 1.51. Plant Community types Considered Table 3 – PCT Determination Section 1.5.3 Patch Size Section 1.5.4 Vegetation Integrity Score Table 5 – Vegetation Integrity Score Figure 4 – Vegetation Zones and BAM Plot Locations Figure 5 - Survey Effort by Travers Bushfire & Ecology (2020) Figure 6– Survey Effort by AEP (2021)

EPBC - Additional Information Required		PCT 1720 - River-flat Eucalypt Forest on coastal floodplains of southern New South Wales and eastern Victoria (River-flat Eucalypt Forest) – Critically Endangered	Relevant Sections of BDAR	Relevant Sections of BSSAR
			72 - 73) Appendix D – BAM Plot Field Sheets Appendix E – BAM Plot Data	
Potential to be impacted by the proposed action Direct and indirect impacts of the proposed action must be considered, in relation to the specific needs and characteristics of the above listed threatened species. The Department has identified the following types of impacts as being particularly relevant to your proposed action:	Clearing and habitat loss (direct impact) associated with the development of residential lots and construction of associated infrastructure	There is a total of 8.38ha of PCT 1720 located within the residential subdivision footprint. A total of 8.04ha of PCT 1720 is proposed to be impacted as a result of the residential subdivision. A total of 3.37ha of PCT 1720 is proposed to be retained as a result of the Stewardship Site.	Figure 5 – Ground-truthed Vegetation Communities and BAM Plots Figure 8 – Retained Vegetation Section 2.3.2 Impacts Requiring Offset Section 2.3.2.1 Ecosystem Credits Table 22 – Ecosystem Credit Requirements Appendix F – Biodiversity Credit Report	Figure 4 – Vegetation Zones and BAM Plot Locations Section 1.10 Ecosystem Credits Generated Table 2 – Vegetation Zones Table 9 Ecosystem Credits Generated Appendix D – Biodiversity Credit Report
	Edge effects (indirect impacts) on retained listed threatened species habitat arising from adjacent suburban activities, including but not necessarily limited to noise and light disturbance, roadkill, trampling, littering, weed invasion, predation by pets, altered fire regime and altered hydrology (in terms of quality and quantity)	A total of 0.34ha of PCT 1720 is proposed to be retained and managed under a Vegetation Management Plan within the residential subdivision footprint. Management of this land will work towards preventing impacts such as weed invasion, altered fire regime and hydrology. A total of 3.37ha of PCT 1720 is proposed to be retained as a result of the Stewardship Site and will be managed under the Stewardship Site Management Plan. PCT 1720 within the Stewardship Site does not directly adjoin the proposed residential development. The proposed perimeter road will act as a barrier to the retained land the urban development, reducing the edge effect. Garden waste and weeds are not as likely to be dumped when the residents have to walk across a 15-20m wide road, garden escapees are again less likely to invade the retained land and tramping of the edge vegetation is also less likely to occur. Additionally, no landscaping is to occur within the Stewardship Site lands, limiting the movement of people into and out of the land. All measures outlined in Section 2.1.3 General Project Design, Construction & Operation, have been provided to help mitigate impacts of the construction and ongoing operation of the proposed development on the biodiversity values identified within the Subject Site and surrounds	Section 2.1.2 Management of Environmental Protection Zone (E3 Lands) Section 2.1.3 General Project Design, Construction & Operation Table 17 Indirect Impact Assessment	Stage 2 Improving Biodiversity Values Section 1.8 Management Actions to Improve Biodiversity Values Appendix C Management Plan
	Consideration must also be given to cumulative impacts of the proposed action when considered in conjunction with concurrent and expected future developments. Note that cumulative impacts may include interactive and / or compounding impacts as well as additive impacts.	All of PCT 1720 (3.37ha) that is located within the Stewardship Site adjacent to the residential subdivision footprint is going to be managed as a Stewardship Site with a further 0.34 ha within the residential subdivision will be managed under a VMP. The proposal to remove 8.04ha is a direct impact to this community, assessment of the impact such removal would have on the entirety of the community at a local, state and federal has also been assessed on both the BDAR and BSSAR. An assessment of the indirect / direct and cumulative impacts across all levels (locally, state and federally) has been undertaken in the BDAR and BSSAR. The	Section 2.1.2 Management of Environmental Protection Zone (E3 Lands) Section 2.1.3 General Project Design, Construction & Operation. Table 13 Impact Avoidance and Minimisation Table 14 Prescribed Impact Avoidance and Minimisation	Stage 2 Improving Biodiversity Values Section 1.8 Management Actions to Improve Biodiversity Values Appendix C Management Plan

EPBC - Additional Information Required	PCT 1720 - River-flat Eucalypt Forest on coastal floodplains of southern New South Wales and eastern Victoria (River-flat Eucalypt Forest) – Critically Endangered	Relevant Sections of BDAR	Relevant Sections of BSSAR
	<p>assessment determined that the community within the Development area is in poor to moderate condition, grazed, infested with weeds and limited potential to naturally regenerate to benchmark levels if existing land use practices were to continue. As a result of the condition of the community within the development footprint, level of exposed soils is high, erosion is present, the water quality in Deep Creek is low providing limit to no habitat for aquatic flora and fauna. Therefore, the community is providing limited habitat and foraging and protection of soils and water within the local area. It was also determined that PCT 1720 is unlikely to recover within the Site and due to land use practices and the high levels of weed infestation.</p> <p>The assessment has considered the proposed regeneration (aiming for approx. 80% of benchmark) in the proposed 3.71ha of retained PCT 1720 within the Site to be a significant improvement for community locally and regionally.</p> <p>There is proven links to overall ecosystem health when there is a greater diversity of native flora within a community. Therefore, it has been determined that the overall benefits from the proposed regeneration and management of the 3.71ha of PCT 1720 will significantly improve habitat and foraging for fauna, reduce compaction of soils and erosions and improve water quality within the region</p> <p>All proposed works within the Development Area and Stewardship site will follow best practices protocols for al regeneration works such as:</p> <ul style="list-style-type: none"> • Implement hygiene protocols for machinery to prevent the spread of weeds outside the development site. • Best practice erosion and sedimentation (ERSED) and dust suppression control methods are to be adopted, enforced and maintained throughout any vegetation clearing works, particularly for downstream areas (neighbouring dwellings located downhill to the west). Such are to be in accordance with “Managing Urban Stormwater, 3rd Edition (1998)” published by NSW Department of Housing, and Ku-ring-gai Council requirements. • Incorporation of Water Sensitive Urban Design (WSUD) principles within stormwater infrastructure is to occur to minimise downstream hydrology changes. • Where possible landscaping is to occur in conjunction with the proposed development and provide some future resources for native fauna in the area. • Bushfire protection measures in the form of Asset Protection Zones (APZs) will be incorporated within the Subject Site to avoid requirements for additional vegetation removal in surrounding areas. • Retained vegetation to the south of the Subject Site is to be managed for weeds to improve the condition of this vegetation, and enhance natural regeneration. In addition, the Study Area should be fenced to prevent unauthorised access and potential disturbance/rubbish dumping. • Development of Construction Environmental Management Plan (CEMP) that incorporates pre, during and post construction mitigation measure to reduce both direct and indirect impacts, such as lighting, vehicle strike, runoff etc. 	<p>Table 15 Direct Impacts</p> <p>Table 16 Prescribed Impacts</p>	

EPBC - Additional Information Required		PCT 1720 - River-flat Eucalypt Forest on coastal floodplains of southern New South Wales and eastern Victoria (River-flat Eucalypt Forest) – Critically Endangered	Relevant Sections of BDAR	Relevant Sections of BSSAR
		<ul style="list-style-type: none"> No further impacts are to occur to this community within the residential subdivision as outlined above. The Stewardship Site and VMP lands will improve and maintain the quality of this PCT in the general locale. <p>All measures outlined in Section 2.1.3 General Project Design, Construction & Operation, have been provided to help mitigate impacts of the construction and ongoing operation of the proposed development on the biodiversity values identified within the Subject Site and surrounds</p>		
<p>Measures proposed to avoid or mitigate potential impacts.</p> <p>Proposed avoidance and mitigation measures must be discussed in terms of their expected effectiveness and cost. Note that in deciding whether to approve the proposed action, the Minister is required to consider whether (as far as possible) any condition is a cost-effective means for achieving its intended objective.</p>	<p>Management commitments by the person proposing to take the action must be clearly distinguished from recommendations or statements of best practice made by the author or other technical expert.</p> <p>It is preferable to provide a consolidated table of management commitments, including details on funding, roles and responsibilities and measurable performance criteria.</p>	<p>A total of 0.34ha of PCT 1720 is proposed to be retained and managed under a Vegetation Management Plan within the residential subdivision footprint.</p> <p>Biodiversity Offset Calculations have identified that 304 credits will be required to be retired to offset the impacts to PCT 1720 within the residential subdivision footprint.</p> <p>The proponent has acquired land directly adjacent to the residential subdivision and is proposing to establish a Stewardship Site to Offset some of the impacts within the residential subdivision. The BSA is currently being assessed by the BCT.</p> <p>A total of 3.37ha of PCT 1720 is proposed to be managed under the Stewardship Site and will contribute to offsetting the impacts to PCT 1720 within the residential subdivision.</p> <p>On approval of the BSA a total of 16 ecosystem credits will be available to offset the impacts of PCT 1720 within the residential subdivision</p>	Refer Section 2.1 Avoid and Minimise Impacts	<p>Stage 2 Improving Biodiversity Values</p> <p>Section 1.8 Management Actions to Improve Biodiversity Values</p> <p>Appendix C Management Plan</p>
Compensation	Offsets proposed for any residual significant impacts (i.e., impacts that cannot be avoided or mitigated)	<p>A total of 0.34ha of PCT 1720 is proposed to be retained and managed under a Vegetation Management Plan within the residential subdivision footprint.</p> <p>Biodiversity Offset Calculations have identified that 304 credits will be required to be retired to offset the impacts to PCT 1720 within the residential subdivision footprint.</p> <p>The proponent has acquired land directly adjacent to the residential subdivision and is proposing to establish a Stewardship Site to Offset some of the impacts within the residential subdivision. The BSA is currently being assessed by the BCT.</p> <p>A total of 3.37ha of PCT 1720 is proposed to be managed under the Stewardship Site and will contribute to offsetting the impacts to PCT 1720 within the residential subdivision.</p> <p>On approval of the BSA a total of 16 ecosystem credits will be available to offset the impacts of PCT 1720 within the residential subdivision</p>	<p>Table 18 Residual Impact Assessment</p> <p>Figure 5 – Ground-truthed Vegetation Communities and BAM Plots</p> <p>Figure 8 – Retained Vegetation</p> <p>Section 2.3.2 Impacts Requiring Offset</p> <p>Section 2.3.2.1 Ecosystem Credits</p> <p>Table 22 – Ecosystem Credit Requirements</p> <p>Appendix F – Biodiversity Credit Report</p>	<p>Stage 2 Improving Biodiversity Values</p> <p>Section 1.8 Management Actions to Improve Biodiversity Values</p> <p>Appendix C Management Plan</p> <p>Figure 4 – Vegetation Zones and BAM Plot Locations</p> <p>Section 1.10 Ecosystem Credits Generated</p> <p>Table 2 – Vegetation Zones</p> <p>Table 9 Ecosystem Credits Generated</p> <p>Appendix D – Biodiversity Credit Report</p>
Economic and Social Matters	<p>consideration of both costs (e.g., disruption to existing community infrastructure or environmental features) and benefits (e.g., increased housing or employment)</p> <p>consideration of different scales of impact where relevant (e.g., local versus national)</p> <p>specific dollar or other numerical values</p>	<p>Transnational Pastoral Pty Ltd, undertook a rezoning of Lot 1 in DP 120512, Lot A in DP 396415, Lot 1 in DP 554423, Lot 101 in DP 604655, Lot 1 in DP 229970, Lot 1 in DP 229971, Lot 41 in DP 123953 and Lot 36 in DP755249 in order to be able to develop the lands into a residential subdivision. As part of the rezoning, a Voluntary Planning Agreement (VPA) between Central Coast Council and Transnational Pastoral Pty Ltd was executed. A key obligation within the VPA was that Transnational Pastoral Pty Ltd, agreed to securing 120ha of land to offset the impacts that would be associated with the rezoning of the land and subsequent</p>	Mardi Cover Letter	Mardi Cover Letter

EPBC - Additional Information Required		PCT 1720 - River-flat Eucalypt Forest on coastal floodplains of southern New South Wales and eastern Victoria (River-flat Eucalypt Forest) – Critically Endangered	Relevant Sections of BDAR	Relevant Sections of BSSAR
include, but not necessarily be limited to, the following:	where relevant.	<p>residential subdivision.</p> <p>Transnational Pty Ltd, secured 142ha of residual land adjoining the proposed residential subdivision area to form the Stewardship Site as part of the commitment within the VPA. The Stewardship Site lands have been identified to provide a substantial portion of Like for Like habitat required to offset the impacts of the residential subdivision. Additionally, the Avoid and Minimise measures proposed for the residential subdivision that includes; retention of lands, rehabilitation of riparian corridors, within the residential subdivision, and native landscape planting within the proposed residential subdivision footprint addresses the Avoid and Minimise requirements of the Biodiversity Assessment. Further to this, the proposed Avoid and Minimise measures will contribute to the broader conservation of remnant native vegetation within the Central Coast region whilst assisting with the economic growth and development of the region.</p> <p>It is anticipated that there will be reduced movement of traffic along Old Maitland Road and an increase in machinery in the area as part of the residential subdivision. This will be managed as per construction operational requirements.</p>		
Environmental history of the person proposing to take the action	<p>Your preliminary documentation must provide details of any proceedings under a Commonwealth, state or territory law for the protection of the environment, or the conservation and sustainable use of natural resources, against the person proposing to take the action (or if the person is a corporation, its executive officers).</p> <p>Your preliminary documentation must also provide the environmental history of any parent body or bodies of which the person proposing to take the action is a subsidiary (and the executive officers of this parent body).</p> <p>If the person proposing to take the action is a corporation, details of the corporation's environmental policy and planning framework must be provided.</p>	Refer BSSAR Application Documents		
Endorsed offsetting frameworks	<p>In March 2020, the Commonwealth endorsed the NSW Biodiversity Offsets Scheme (BOS) for all controlled actions under the EPBC Act (i.e., including those outside of the amending agreement). As such, for EPBC Act approvals that are made on or after 24 March 2020, proponents can meet their offset obligations in accordance with the BOS including:</p> <p>a) Purchasing and retiring like-for-</p>	<p>A total of 0.34ha of PCT 1720 is proposed to be retained and managed under a Vegetation Management Plan within the residential subdivision footprint.</p> <p>Biodiversity Offset Calculations have identified that 304 credits will be required to be retired to offset the impacts to PCT 1720 within the residential subdivision footprint.</p> <p>The proponent has acquired land directly adjacent to the residential subdivision and is proposing to establish a Stewardship Site to Offset some of the impacts within the residential subdivision. The BSA is currently being assessed by the BCT.</p> <p>A total of 3.37ha of PCT 1720 is proposed to be managed under the Stewardship</p>	<p>biodiversity development assessment report (BDAR)</p> <p>Section 2.3.2 Impacts Requiring Offset</p> <p>Section 2.3.2.1 Ecosystem Credits</p> <p>Table 22 – Ecosystem Credit Requirements</p> <p>Appendix F – Biodiversity Credit Report</p>	<p>Biodiversity stewardship site assessment report (BSSAR)</p> <p>Section 1.10 Ecosystem Credits Generated</p> <p>Table 2 – Vegetation Zones</p> <p>Table 9 Ecosystem Credits Generated</p> <p>Appendix D – Biodiversity Credit Report</p>

EPBC - Additional Information Required		PCT 1720 - River-flat Eucalypt Forest on coastal floodplains of southern New South Wales and eastern Victoria (River-flat Eucalypt Forest) – Critically Endangered	Relevant Sections of BDAR	Relevant Sections of BSSAR
	<p>like ecosystem or species credits from the Biodiversity Credits Register;</p> <p>b) Funding a Biodiversity Conservation Action, and</p> <p>c) Paying an amount equivalent to the cost of acquiring like-for-like ecosystem credits into the Biodiversity Conservation Fund (BCF).</p> <p>If you are proposing offsets developed using the BOS, you should append all relevant documentation to your preliminary documentation – this would generally include a biodiversity development assessment report (BDAR) and possibly a biodiversity stewardship site assessment report (BSSAR).</p>	<p>Site and will contribute to offsetting the impacts to PCT 1720 within the residential subdivision.</p> <p>On approval of the BSA a total of 16 ecosystem credits will be available to offset the impacts of PCT 1720 within the residential subdivision</p>		
Buffer Zones	<p>A buffer zone is an area adjacent to a patch of an ecological community or species habitat that is important for protecting the integrity of the ecological community. The purpose of a buffer zone is to minimise the risk of indirect impact by physically separating the patch from direct impacts and by identifying it to land managers. For instance, a buffer zone will help protect the root zone of edge trees and other components of the ecological community from spray drift (fertiliser, pesticide or herbicide sprayed in adjacent land), weed invasion, polluted water runoff and other damage. The best buffer zones are typically comprised of native vegetation.</p> <p>The Department may not consider that a retained patch of an ecological community or species habitat has been effectively avoided if the design of a development does not include a buffer zone. In these cases, the Department will generally consider the outer edge of the patch of an ecological community or species habitat (typically up to 30 m) to have been impacted or partially impacted, requiring an appropriate offset.</p>	<p>As part of the bushfire requirements for a residential subdivision, a perimeter road is required around the residential subdivision.</p> <p>This perimeter road will act as a buffer that is adjacent to the Stewardship Site and Retained Lands within the residential subdivision.</p> <p>The perimeter road (approximately 15 – 25 m) will act as a buffer to help protect the root zone of edge trees and other components of the ecological community from spray drift (fertiliser, pesticide or herbicide sprayed in adjacent land), weed invasion, polluted water runoff and other damage.</p> <p>All works are retained within the residential subdivision and the following measures have been provided to manage impacts to the surrounding Stewardship Site Lands and retained vegetation.</p> <p>If practical, all cleared vegetation is to be mulched on site and spread to help stabilise any exposed soil and minimise offsite movement of biomass.</p> <p>Implement hygiene protocols for machinery to prevent the spread of weeds outside the development site.</p> <p>Best practice erosion and sedimentation (ERSED) and dust suppression control methods are to be adopted, enforced and maintained throughout any vegetation clearing works, particularly for downstream areas (neighbouring dwellings located downhill to the west). Such are to be in accordance with “Managing Urban Stormwater, 3rd Edition (1998)” published by NSW Department of Housing, and Kuring-gai Council requirements.</p> <p>Incorporation of Water Sensitive Urban Design (WSUD) principles within stormwater infrastructure is to occur to minimise downstream hydrology changes.</p> <p>Where possible landscaping is to occur in conjunction with the proposed development and provide some future resources for native fauna in the area.</p>	<p>Section 2.1.3 General Project Design, Construction and Operation</p>	<p>Section 1.8 Management Actions to Improve Biodiversity Values</p> <p>Appendix C Management Plan</p>

EPBC - Additional Information Required		PCT 1720 - River-flat Eucalypt Forest on coastal floodplains of southern New South Wales and eastern Victoria (River-flat Eucalypt Forest) – Critically Endangered	Relevant Sections of BDAR	Relevant Sections of BSSAR
		<p>Bushfire protection measures in the form of Asset Protection Zones (APZs) will be incorporated within the Subject Site to avoid requirements for additional vegetation removal in surrounding areas.</p> <p>Retained vegetation to the south of the Subject Site is to be managed for weeds to improve the condition of this vegetation, and enhance natural regeneration. In addition, the Study Area should be fenced to prevent unauthorised access and potential disturbance/rubbish dumping; and</p> <p>Development of Construction Environmental Management Plan (CEMP) that incorporates pre, during and post construction mitigation measure to reduce both direct and indirect impacts, such as lighting, vehicle strike, runoff etc.</p>		
<p>Outcome based conditions</p> <p>Outcomes-based conditions can provide approval holders with greater flexibility and autonomy while still holding them accountable for achieving sound environmental outcomes. The Department promotes the use of outcomes-based conditions where possible, in accordance with its Outcomes-based Conditions Policy 2016. However, outcomes-based conditions are generally only appropriate where the person proposing to take the action has a good environmental record and the baseline condition of a site is well understood and documented. Please advise your Assessment Officer if you would like to pursue this approach. Your preliminary documentation would need to:</p>	<p>Thoroughly document the baseline condition of the relevant impacted matter(s)</p> <p>Identify conservation objectives (outcomes) for the relevant impacted matters, preferably with reference to any applicable conservation advices, recovery plans and threat abatement plans</p>	<p>BAM survey methodology (BAM Plots) has been utilised to identify Plant Community Types within the residential subdivision and Stewardship Sites.</p> <p>Baseline surveys will be implemented as part of the VMP for retained vegetation within the residential subdivision and Stewardship Site Lands to ensure that the management of the vegetation work towards improving and conserving the residual lands associated with the residential subdivision.</p> <p>Conservation Advice objective for this community is to mitigate the risk of extinction of the River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria, and help recover its biodiversity and function through protecting it from significant impacts as a Matter of National Environmental Significance under national environmental law, and by guiding implementation of management and recovery, consistent with the recommended priority conservation and research actions set out in the conservation advice.</p> <p>A total of 0.34ha of PCT 1720 is proposed to be retained and managed under a Vegetation Management Plan within the residential subdivision footprint.</p> <p>Biodiversity Offset Calculations have identified that 304 credits will be required to be retired to offset the impacts to PCT 1720 within the residential subdivision footprint.</p> <p>The proponent has acquired land directly adjacent to the residential subdivision and is proposing to establish a Stewardship Site to Offset some of the impacts within the residential subdivision. The BSA is currently being assessed by the BCT.</p> <p>A total of 3.37ha of PCT 1720 is proposed to be managed under the Stewardship Site and will contribute to offsetting the impacts to PCT 1720 within the residential subdivision.</p> <p>On approval of the BSA a total of 16 ecosystem credits will be available to offset the impacts of PCT 1720 within the residential subdivision</p> <p>The areas proposed to be retained and managed will ensure that for removal of</p>	<p>Not Available</p> <p>Biodiversity development assessment report (BDAR)</p> <p>Section 2.3.2 Impacts Requiring Offset</p> <p>Section 2.3.2.1 Ecosystem Credits</p> <p>Table 22 – Ecosystem Credit Requirements</p> <p>Appendix F – Biodiversity Credit Report</p>	<p>Section 1.9 Future Vegetation Integrity Scores (with and without management)</p> <p>Table 8 Future Vegetation Integrity Scores</p> <p>Section 1.8 Management Actions to Improve Biodiversity Values</p> <p>Appendix C Management Plan</p> <p>Appendix D Biodiversity Credit Report</p> <p>Section 1.8 Management Actions to Improve Biodiversity Values</p> <p>Appendix C Management Plan</p> <p>Section 1.10 Ecosystem Credits Generated</p> <p>Table 2 – Vegetation Zones</p> <p>Table 9 Ecosystem Credits Generated</p> <p>Appendix D – Biodiversity Credit Report</p>

EPBC - Additional Information Required		PCT 1720 - River-flat Eucalypt Forest on coastal floodplains of southern New South Wales and eastern Victoria (River-flat Eucalypt Forest) – Critically Endangered	Relevant Sections of BDAR	Relevant Sections of BSSAR
		8.04ha of PCT 1720, a total of 3.71ha will be retained, managed and improved, conserving this area to prevent extinction of this community.		
	outline how performance against specified objectives will be measured and reported.	<p>BAM survey methodology (BAM Plots) has been utilised to identify Plant Community Types within the residential subdivision and Stewardship Sites.</p> <p>Baseline surveys will be implemented as part of the VMP for retained vegetation within the residential subdivision and Stewardship Site Lands to ensure that the management of the vegetation work towards improving and conserving the residual lands associated with the residential subdivision.</p> <p>VMP Land data will be monitored by the Local Council, ensuring that all relevant conditions are met within the VMP.</p> <p>Stewardship Site Monitoring Data will be assessed by the Biodiversity Conservation Trust (BCT) throughout the 20 year management program of the Stewardship Site.</p>	<p>Biodiversity development assessment report (BDAR)</p> <p>Section 2.1.2 Management of Environmental Protection Zone (E3 Lands)</p>	<p>Biodiversity stewardship site assessment report (BSSAR)</p> <p>Section 1.8 Management Actions to Improve Biodiversity Values</p> <p>Appendix C Management Plan</p>

Table 8 – EPBC – Additional Information Required *Melaleuca biconvexa*

EPBC - Additional Information Required	<i>Melaleuca biconvexa</i> (Biconvex Paperbark)	Relevant Sections of BDAR	Relevant Sections of BSSAR
Occurrence at the site of the proposed action	<p>Residential Subdivision</p> <p>The flora survey effort has been guided by the following:</p> <ul style="list-style-type: none"> The predicted and candidate threatened species from within the Biodiversity Assessment Method Calculator (BAM-C); and Conducted using relevant guidelines, in particular OEH survey guidelines for plants (2020), along with applicable EPBC guidelines (2010; 2011). Targeted searches for threatened species were undertaken within the proposed development area on 11 September and 8 October 2014, involving parallel field traverses in potential habitat. Threatened species targeted included <i>Melaleuca biconvexa</i>, <i>Syzygium paniculatum</i>, <i>Diuris praecox</i>, <i>Diuris bracteata</i>, <i>Caladenia tessellata</i>, <i>Caladenia porphyrea</i>, <i>Thelymitra adorata</i> and <i>Thelymitra branwhiteii</i>. May and June 2018: Travers Bushfire and Ecology carried out: <ul style="list-style-type: none"> Floristic surveys within the Stewardship Site using the BAM plot method and revised the vegetation mapping produced by Biosis. Threatened flora searches were undertaken during 2018. 2019: Travers Bushfire and Ecology carried out; <ul style="list-style-type: none"> Additional BAM plots within the development area during May and June. Threatened flora searches were undertaken during 2019. 2020: Travers Bushfire and Ecology carried out; <ul style="list-style-type: none"> Threatened flora searches were undertaken during 2020. AEP 2020/2021 At the end of 2020 / 2021, AEP carried out additional threatened flora searches including; <ul style="list-style-type: none"> Threatened flora searches were undertaken during December 2020 Threatened flora searches within the Subject Site and within the Stewardship Site to confirm locations and current condition of <i>Rhodamnia rubescens</i>, <i>Melaleuca biconvexa</i> and <i>Syzygium paniculatum</i> during January and February 2021. 	<p>Section 1.4 Threatened Species</p> <p>Section 1.4.1 Flora Field Surveys</p> <p>Section 1.4.3 Incidental Observations & Secondary Indications</p> <p>Section 1.4.6 Threatened Species Survey Efforts</p> <p>Table 10 Field Survey Periods</p>	<p>Section 1.4.2 Zone 2 (PCT 1723) - <i>Melaleuca biconvexa</i> - Swamp Mahogany - Cabbage Palm swamp forest of the Central Coast (Coastal Swamp Forests).</p> <p>Section 1.4.6 Zone 6 (PCT 1718) Swamp Mahogany - Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast (Coastal Swamp Forests).</p> <p>Table 2 Vegetation Zones</p> <p>Table 3 PCT Determination</p> <p>1.5.2 Vegetation Information System (VIS) Characteristics</p> <p>Table 4 VIS Classification</p> <p>Figure 4 PCTs and BAM Plot Locations</p> <p>Figure 8 Threatened Flora Locations</p> <p>Table 7 Species Credit Species</p> <p>Figure 9 Threatened Species Polygons</p> <p>Appendix A Plot Data</p>
Survey results (results must be appended to the preliminary documentation)	<p>A total of 1.84ha of <i>Melaleuca biconvexa</i> has been mapped within the residential subdivision.</p> <p>Biconvex Paperbark (<i>Melaleuca biconvexa</i>) - There are four-hundred and fifty-four (454) BioNet records of the Biconvex Paperbark within a 10 km search of the general study area within the last twenty years. Some of the records are in close proximity to the Subject Site located along Old Maitland Road and further east towards the Central Coast. The species was detected during field surveys within the Subject Site and within the Stewardship Site lands. This species is classed as Species Credit Species.</p> <p>Within the Stewardship Site <i>Melaleuca biconvexa</i> was identified within PCT 1723 (15.12ha) and PCT 1718 (11.93ha) as part of BAM plot surveys.</p>	<p>Table 11 – Species Credit Species</p> <p>Section 1.4.8 Summary Survey Results</p> <p>Figure 15 – <i>Melaleuca biconvexa</i> Species Polygon</p>	<p>Section 1.4.2 Zone 2 (PCT 1723) - <i>Melaleuca biconvexa</i> - Swamp Mahogany - Cabbage Palm swamp forest of the Central Coast (Coastal Swamp Forests).</p> <p>Section 1.4.6 Zone 6 (PCT 1718) Swamp Mahogany - Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast (Coastal Swamp Forests).</p> <p>Table 2 Vegetation Zones</p> <p>Table 3 PCT Determination</p> <p>1.5.2 Vegetation Information System (VIS)</p>

EPBC - Additional Information Required		<i>Melaleuca biconvexa</i> (Biconvex Paperbark)	Relevant Sections of BDAR	Relevant Sections of BSSAR
				Characteristics Table 4 VIS Classification Figure 4 PCTs and BAM Plot Locations Figure 8 Threatened Flora Locations Table 7 Species Credit Species Figure 9 Threatened Species Polygons Appendix A Plot Data
	Consideration must be given to occupancy trends relating to season and time of day. Longer term trends including climate change may also be relevant.	Not Applicable	Not Applicable	Not Applicable
	In relation to habitat for listed threatened species, the type of habitat (e.g., foraging, breeding, dispersal etc.) must also be considered.	All vegetation types were assessed for this species in both the residential subdivision area and the Stewardship Site. PCT 1723 and PCT 1718 were the two main PCTs where this species occurred. Targeted surveys carried out within both the residential subdivision area and Stewardship Site mapped the extent of <i>Melaleuca biconvexa</i> in these areas.	Section 1.4 Threatened Species Section 1.4.1 Flora Field Surveys Section 1.4.3 Incidental Observations & Secondary Indications Section 1.4.6 Threatened Species Survey Efforts Table 10 Field Survey Periods Table 11 – Species Credit Species Section 1.4.8 Summary Survey Results Figure 15 – <i>Melaleuca biconvexa</i> Species Polygon	Section 1.4.2 Zone 2 (PCT 1723) - <i>Melaleuca biconvexa</i> - Swamp Mahogany - Cabbage Palm swamp forest of the Central Coast (Coastal Swamp Forests). Section 1.4.6 Zone 6 (PCT 1718) Swamp Mahogany - Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast (Coastal Swamp Forests). Table 2 Vegetation Zones Table 3 PCT Determination 1.5.2 Vegetation Information System (VIS) Characteristics Table 4 VIS Classification Figure 4 PCTs and BAM Plot Locations Figure 8 Threatened Flora Locations Table 7 Species Credit Species Figure 9 Threatened Species Polygons Appendix A Plot Data
Potential to be impacted by the proposed action Direct and indirect impacts of the proposed action must be considered, in relation to the	Clearing and habitat loss (direct impact) associated with the development of residential lots and construction of associated infrastructure	There is a total of 1.84ha of <i>Melaleuca biconvexa</i> located within the residential subdivision footprint, and is proposed to be impacted by the residential subdivision A total of 12.6ha of <i>Melaleuca biconvexa</i> has been identified and will be retained within the Stewardship Site. A total of 15.12ha of PCT 1723 <i>Melaleuca biconvexa</i> - Swamp Mahogany -	Section 1.4 Threatened Species Section 1.4.1 Flora Field Surveys Section 1.4.3 Incidental Observations & Secondary Indications	Section 1.4.2 Zone 2 (PCT 1723) - <i>Melaleuca biconvexa</i> - Swamp Mahogany - Cabbage Palm swamp forest of the Central Coast (Coastal Swamp Forests). Section 1.4.6 Zone 6 (PCT 1718) Swamp Mahogany - Flax-leaved Paperbark swamp

EPBC - Additional Information Required	<i>Melaleuca biconvexa</i> (Biconvex Paperbark)	Relevant Sections of BDAR	Relevant Sections of BSSAR
<p>specific needs and characteristics of the above listed threatened species. The Department has identified the following types of impacts as being particularly relevant to your proposed action:</p>	<p>Cabbage Palm swamp forest of the Central Coast (Coastal Swamp Forests) is proposed to be retained as a result of the Stewardship Site.</p> <p>A total of 11.93ha pf PCT 1718 Swamp Mahogany - Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast (Coastal Swamp Forests) is proposed to be retained as a result of the Stewardship Site.</p>	<p>Section 1.4.6 Threatened Species Survey Efforts</p> <p>Table 10 Field Survey Periods</p> <p>Table 11 – Species Credit Species</p> <p>Section 1.4.8 Summary Survey Results</p> <p>Figure 15 – <i>Melaleuca biconvexa</i> Species Polygon</p>	<p>forest on coastal lowlands of the Central Coast (Coastal Swamp Forests).</p> <p>Table 2 Vegetation Zones</p> <p>Table 3 PCT Determination</p> <p>1.5.2 Vegetation Information System (VIS) Characteristics</p> <p>Table 4 VIS Classification</p> <p>Figure 4 PCTs and BAM Plot Locations</p> <p>Figure 8 Threatened Flora Locations</p> <p>Table 7 Species Credit Species</p> <p>Figure 9 Threatened Species Polygons</p>
<p>Edge effects (indirect impacts) on retained listed threatened species habitat arising from adjacent suburban activities, including but not necessarily limited to noise and light disturbance, roadkill, trampling, littering, weed invasion, predation by pets, altered fire regime and altered hydrology (in terms of quality and quantity)</p>	<p>There is a total of 1.84ha of <i>Melaleuca biconvexa</i> located within the residential subdivision footprint, and is proposed to be impacted by the residential subdivision</p> <p>A total of 12.6ha of <i>Melaleuca biconvexa</i> has been identified and will be retained within the Stewardship Site.</p> <p>A total of 15.12ha of PCT 1723 <i>Melaleuca biconvexa</i> - Swamp Mahogany - Cabbage Palm swamp forest of the Central Coast (Coastal Swamp Forests) is proposed to be retained as a result of the Stewardship Site.</p> <p>A total of 11.93ha pf PCT 1718 Swamp Mahogany - Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast (Coastal Swamp Forests) is proposed to be retained as a result of the Stewardship Site.</p> <p>Additionally, vegetation within the Stewardship Site, will be protected from the perimeter road, that will function as a buffer to limit the movement of weeds into the site.</p> <p>No landscaping is to occur within the Stewardship Site lands, limiting the movement of people into and out of the land.</p> <p>All measures outlined in Section 2.1.3 General Project Design, Construction & Operation, have been provided to help mitigate impacts of the construction and ongoing operation of the proposed development on the biodiversity values identified within the Subject Site and surrounds.</p>	<p>Section 2.1.2 Management of Environmental Protection Zone (E3 Lands)</p> <p>Section 2.1.3 General Project Design, Construction & Operation.</p> <p>Table 13 Impact Avoidance and Minimisation</p> <p>Table 14 Prescribed Impact Avoidance and Minimisation</p> <p>Table 15 Direct Impacts</p> <p>Table 16 Prescribed Impacts</p>	<p>Stage 2 Improving Biodiversity Values</p> <p>Section 1.8 Management Actions to Improve Biodiversity Values</p> <p>Appendix C Management Plan</p>
<p>Consideration must also be given to cumulative impacts of the proposed action when considered in conjunction with concurrent and expected future developments.</p> <p>Note that cumulative impacts may include interactive and / or compounding impacts</p>	<p>An extensive amount of field survey has been carried out to identify populations of threatened flora species <i>Rhodamnia rubescens</i>, <i>Melaleuca biconvexa</i> and <i>Syzygium paniculatum</i> that have been identified to occur within the Subject Site.</p> <p>The species identified within the Subject Site will not be avoided but the impacts to these species will be offset within the Stewardship Site as field surveys have identified healthy populations of these species within the Stewardship Site.</p>	<p>Section 2.1.2 Management of Environmental Protection Zone (E3 Lands)</p> <p>Section 2.1.3 General Project Design, Construction & Operation.</p> <p>Table 13 Impact Avoidance and Minimisation</p>	<p>Stage 2 Improving Biodiversity Values</p> <p>Section 1.8 Management Actions to Improve Biodiversity Values</p> <p>Appendix C Management Plan</p>

EPBC - Additional Information Required	as well as additive impacts.	<i>Melaleuca biconvexa</i> (Biconvex Paperbark)	Relevant Sections of BDAR	Relevant Sections of BSSAR
		<p>A total of 12.6ha of <i>Melaleuca biconvexa</i> has been identified and will be retained within the Stewardship Site.</p> <p>A total of 15.12ha of PCT 1723 <i>Melaleuca biconvexa</i> - Swamp Mahogany - Cabbage Palm swamp forest of the Central Coast (Coastal Swamp Forests) is proposed to be retained as a result of the Stewardship Site.</p> <p>A total of 11.93ha pf PCT 1718 Swamp Mahogany - Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast (Coastal Swamp Forests) is proposed to be retained as a result of the Stewardship Site.</p> <p>The following measures have been provided to manage impacts to the surrounding Stewardship Site Lands and retained vegetation.</p> <p>If practical, all cleared vegetation is to be mulched on site and spread to help stabilise any exposed soil and minimise offsite movement of biomass.</p> <p>Implement hygiene protocols for machinery to prevent the spread of weeds outside the development site.</p> <p>Best practice erosion and sedimentation (ERSED) and dust suppression control methods are to be adopted, enforced and maintained throughout any vegetation clearing works, particularly for downstream areas (neighbouring dwellings located downhill to the west). Such are to be in accordance with "Managing Urban Stormwater, 3rd Edition (1998)" published by NSW Department of Housing, and Kuring-gai Council requirements.</p> <p>Incorporation of Water Sensitive Urban Design (WSUD) principles within stormwater infrastructure is to occur to minimise downstream hydrology changes.</p> <p>Where possible landscaping is to occur in conjunction with the proposed development and provide some future resources for native fauna in the area.</p> <p>Bushfire protection measures in the form of Asset Protection Zones (APZs) will be incorporated within the Subject Site to avoid requirements for additional vegetation removal in surrounding areas.</p> <p>Retained vegetation to the south of the Subject Site is to be managed for weeds to improve the condition of this vegetation, and enhance natural regeneration. In addition, the Study Area should be fenced to prevent unauthorised access and potential disturbance/rubbish dumping; and</p> <p>Development of Construction Environmental Management Plan (CEMP) that incorporates pre, during and post construction mitigation measure to reduce both direct and indirect impacts, such as lighting, vehicle strike, runoff etc.</p> <p>No further impacts are to occur to this community within the residential subdivision as outlined above.</p> <p>The Stewardship Site and VMP lands will improve and maintain the quality of this PCT in the general locale.</p> <p>All measures outlined in Section 2.1.3 General Project Design, Construction &</p>	<p>Table 14 Prescribed Impact Avoidance and Minimisation</p> <p>Table 15 Direct Impacts</p> <p>Table 16 Prescribed Impacts</p>	

EPBC - Additional Information Required		<i>Melaleuca biconvexa</i> (Biconvex Paperbark)	Relevant Sections of BDAR	Relevant Sections of BSSAR
		Operation, have been provided to help mitigate impacts of the construction and ongoing operation of the proposed development on the biodiversity values identified within the Subject Site and surrounds		
Measures proposed to avoid or mitigate potential impacts. Proposed avoidance and mitigation measures must be discussed in terms of their expected effectiveness and cost. Note that in deciding whether to approve the proposed action, the Minister is required to consider whether (as far as possible) any condition is a cost-effective means for achieving its intended objective.	Management commitments by the person proposing to take the action must be clearly distinguished from recommendations or statements of best practice made by the author or other technical expert. It is preferable to provide a consolidated table of management commitments, including details on funding, roles and responsibilities and measurable performance criteria.	A total of 12.6ha of <i>Melaleuca biconvexa</i> has been identified and will be retained within the Stewardship Site. A total of 15.12ha of PCT 1723 <i>Melaleuca biconvexa</i> - Swamp Mahogany - Cabbage Palm swamp forest of the Central Coast (Coastal Swamp Forests) is proposed to be retained as a result of the Stewardship Site. A total of 11.93ha pf PCT 1718 Swamp Mahogany - Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast (Coastal Swamp Forests) is proposed to be retained as a result of the Stewardship Site The proponent has acquired land directly adjacent to the residential subdivision and is proposing to establish a Stewardship Site to Offset some of the impacts within the residential subdivision. The BSA is currently being assessed by the BCT.	Refer Section 2.1 Avoid and Minimise Impacts	Stage 2 Improving Biodiversity Values Section 1.8 Management Actions to Improve Biodiversity Values Appendix C Management Plan
Compensation	Offsets proposed for any residual significant impacts (i.e., impacts that cannot be avoided or mitigated)	There is a total of 1.84ha of <i>Melaleuca biconvexa</i> located within the residential subdivision footprint, and is proposed to be impacted by the residential subdivision A total of 12.6ha of <i>Melaleuca biconvexa</i> has been identified and will be retained within the Stewardship Site. A total of 15.12ha of PCT 1723 <i>Melaleuca biconvexa</i> - Swamp Mahogany - Cabbage Palm swamp forest of the Central Coast (Coastal Swamp Forests) is proposed to be retained as a result of the Stewardship Site. A total of 11.93ha pf PCT 1718 Swamp Mahogany - Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast (Coastal Swamp Forests) is proposed to be retained as a result of the Stewardship Site.	Section 1.4 Threatened Species Section 1.4.1 Flora Field Surveys Section 1.4.3 Incidental Observations & Secondary Indications Section 1.4.6 Threatened Species Survey Efforts Table 10 Field Survey Periods Table 11 – Species Credit Species Section 1.4.8 Summary Survey Results Figure 15 – <i>Melaleuca biconvexa</i> Species Polygon	Section 1.4.2 Zone 2 (PCT 1723) - <i>Melaleuca biconvexa</i> - Swamp Mahogany - Cabbage Palm swamp forest of the Central Coast (Coastal Swamp Forests). Section 1.4.6 Zone 6 (PCT 1718) Swamp Mahogany - Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast (Coastal Swamp Forests). Table 2 Vegetation Zones Table 3 PCT Determination 1.5.2 Vegetation Information System (VIS) Characteristics Table 4 VIS Classification Figure 4 PCTs and BAM Plot Locations Figure 8 Threatened Flora Locations Table 7 Species Credit Species Figure 9 Threatened Species Polygons
Economic and Social Matters Your preliminary documentation must provide information about the expected economic and	consideration of both costs (e.g., disruption to existing community infrastructure or environmental features) and benefits (e.g., increased housing or employment) consideration of different scales of impact where relevant (e.g., local versus national)	Transnational Pastoral Pty Ltd, undertook a rezoning of Lot 1 in DP 120512, Lot A in DP 396415, Lot 1 in DP 554423, Lot 101 in DP 604655, Lot 1 in DP 229970, Lot 1 in DP 229971, Lot 41 in DP 123953 and Lot 36 in DP755249 in order to be able to develop the lands into a residential subdivision. As part of the rezoning, a Voluntary Planning Agreement (VPA) between Central Coast Council and Transnational Pastoral Pty Ltd was executed. A key obligation within the VPA was that Transnational Pastoral Pty Ltd, agreed to securing 120ha of land to offset the	Mardi Cover Letter	Mardi Cover Letter

EPBC - Additional Information Required		Melaleuca biconvexa (Biconvex Paperbark)	Relevant Sections of BDAR	Relevant Sections of BSSAR
social impacts of the proposed action. This should include, but not necessarily be limited to, the following:	specific dollar or other numerical values where relevant.	<p>impacts that would be associated with the rezoning of the land and subsequent residential subdivision.</p> <p>Transnational Pty Ltd, secured 142ha of residual land adjoining the proposed residential subdivision area to form the Stewardship Site as part of the commitment within the VPA. The Stewardship Site lands have been identified to provide a substantial portion of Like for Like habitat required to offset the impacts of the residential subdivision. Additionally, the Avoid and Minimise measures proposed for the residential subdivision that includes; retention of lands, rehabilitation of riparian corridors, within the residential subdivision, and native landscape planting within the proposed residential subdivision footprint addresses the Avoid and Minimise requirements of the Biodiversity Assessment. Further to this, the proposed Avoid and Minimise measures will contribute to the broader conservation of remnant native vegetation within the Central Coast region whilst assisting with the economic growth and development of the region.</p> <p>It is anticipated that there will be reduced movement of traffic along Old Maitland Road and an increase in machinery in the area as part of the residential subdivision. This will be managed as per construction operational requirements.</p>		
Environmental history of the person proposing to take the action	<p>Your preliminary documentation must provide details of any proceedings under a Commonwealth, state or territory law for the protection of the environment, or the conservation and sustainable use of natural resources, against the person proposing to take the action (or if the person is a corporation, its executive officers).</p> <p>Your preliminary documentation must also provide the environmental history of any parent body or bodies of which the person proposing to take the action is a subsidiary (and the executive officers of this parent body).</p> <p>If the person proposing to take the action is a corporation, details of the corporation's environmental policy and planning framework must be provided.</p>	Refer BSSAR Application Documents		
Endorsed offsetting frameworks	<p>In March 2020, the Commonwealth endorsed the NSW Biodiversity Offsets Scheme (BOS) for all controlled actions under the EPBC Act (i.e., including those outside of the amending agreement). As such, for EPBC Act approvals that are made on or after 24 March 2020, proponents can meet their offset obligations in accordance with the BOS including:</p> <p>a) Purchasing and retiring like-for-like ecosystem or species credits</p>	<p>Biodiversity Offset Calculations have identified that 53 credits will be required to be retired to offset the impacts to 1.84ha of <i>Melaleuca biconvexa</i> within the residential subdivision footprint.</p> <p>The proponent has acquired land directly adjacent to the residential subdivision and is proposing to establish a Stewardship Site to Offset some of the impacts within the residential subdivision. The BSA is currently being assessed by the BCT.</p> <p>A total of 12.6ha of <i>Melaleuca biconvexa</i> generating a total of 63 species credits has been identified and will be retained within the Stewardship Site. This will directly offset the credits incurred for the removal of <i>Melaleuca biconvexa</i> within the residential subdivision.</p>	<p>Biodiversity development assessment report (BDAR)</p> <p>Section 2.3.2 Impacts Requiring Offset</p> <p>Section 2.3.2.2 Species Credits</p> <p>Table 24 – Species Credit Requirements</p> <p>Appendix F – Biodiversity Credit Report</p>	<p>Biodiversity stewardship site assessment report (BSSAR)</p> <p>Section 1.10 Ecosystem Credits Generated</p> <p>Table 9 Ecosystem Credits Generated</p> <p>Table 10 Species Credits Generated</p> <p>Appendix D – Biodiversity Credit Report</p>

EPBC - Additional Information Required	<i>Melaleuca biconvexa</i> (Biconvex Paperbark)	Relevant Sections of BDAR	Relevant Sections of BSSAR
	<p>Further to this, the PCTs that contain <i>Melaleuca biconvexa</i> (PCT 1723 and PCT 1718) will also be retained and managed within the Stewardship Site.</p> <p>A total of 15.12ha of PCT 1723 <i>Melaleuca biconvexa</i> - Swamp Mahogany - Cabbage Palm swamp forest of the Central Coast (Coastal Swamp Forests) is proposed to be retained as a result of the Stewardship Site.</p> <p>A total of 11.93ha of PCT 1718 Swamp Mahogany - Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast (Coastal Swamp Forests) is proposed to be retained as a result of the Stewardship Site and will contribute to offsetting the impacts to <i>Melaleuca biconvexa</i> within the residential subdivision.</p>		
<p>Buffer Zones</p>	<p>A buffer zone is an area adjacent to a patch of an ecological community or species habitat that is important for protecting the integrity of the ecological community. The purpose of a buffer zone is to minimise the risk of indirect impact by physically separating the patch from direct impacts and by identifying it to land managers. For instance, a buffer zone will help protect the root zone of edge trees and other components of the ecological community from spray drift (fertiliser, pesticide or herbicide sprayed in adjacent land), weed invasion, polluted water runoff and other damage. The best buffer zones are typically comprised of native vegetation.</p> <p>The Department may not consider that a retained patch of an ecological community or species habitat has been effectively avoided if the design of a development does not include a buffer zone. In these cases, the Department will generally consider the outer edge of the patch of an ecological community or species habitat (typically up to 30 m) to have been impacted or partially impacted, requiring an appropriate offset.</p>	<p>Section 2.1.3 General Project Design, Construction and Operation</p>	<p>Section 1.8 Management Actions to Improve Biodiversity Values</p> <p>Appendix C Management Plan</p>

EPBC - Additional Information Required		Melaleuca biconvexa (Biconvex Paperbark)	Relevant Sections of BDAR	Relevant Sections of BSSAR
		<p>removal in surrounding areas.</p> <p>Retained vegetation to the south of the Subject Site is to be managed for weeds to improve the condition of this vegetation, and enhance natural regeneration. In addition, the Study Area should be fenced to prevent unauthorised access and potential disturbance/rubbish dumping; and</p> <p>Development of Construction Environmental Management Plan (CEMP) that incorporates pre, during and post construction mitigation measure to reduce both direct and indirect impacts, such as lighting, vehicle strike, runoff etc.</p>		
<p>Outcome based conditions</p> <p>Outcomes-based conditions can provide approval holders with greater flexibility and autonomy while still holding them accountable for achieving sound environmental outcomes. The Department promotes the use of outcomes-based conditions where possible, in accordance with its Outcomes-based Conditions Policy 2016. However, outcomes-based conditions are generally only appropriate where the person proposing to take the action has a good environmental record and the baseline condition of a site is well understood and documented. Please advise your Assessment Officer if you would like to pursue this approach. Your preliminary documentation would need to:</p>	<p>Thoroughly document the baseline condition of the relevant impacted matter(s)</p> <p>Identify conservation objectives (outcomes) for the relevant impacted matters, preferably with reference to any applicable conservation advices, recovery plans and threat abatement plans</p>	<p>BAM survey methodology (BAM Plots) has been utilised to identify Plant Community Types within the residential subdivision and Stewardship Sites.</p> <p>Baseline surveys will be implemented as part of the VMP for retained vegetation within the residential subdivision and Stewardship Site Lands to ensure that the management of the vegetation work towards improving and conserving the residual lands associated with the residential subdivision.</p> <p>Conservation Advice objective for this threatened species is to</p> <ul style="list-style-type: none"> Identify populations of high conservation priority. Manage threats to areas of vegetation that contain populations/occurrences of Biconvex Paperbark. Manage any changes to hydrology that may result in changes to the water table levels, increased run-off, sedimentation or pollution. Investigate formal conservation arrangements such as the use of covenants, conservation agreements or inclusion in reserve tenure. Develop and implement a stock management plan for roadside verges and travelling stock routes. Raise awareness of Biconvex Paperbark within the local community, particularly among landholders and local land managers who have the species on their properties. Investigate options for linking, enhancing or establishing additional populations Implement national translocation protocols (Vallee et al. 2004) if establishing additional populations is considered necessary and feasible. Undertake appropriate seed collection and storage. Undertake seed germination and/or vegetative propagation trials to determine the requirements for successful establishment. 	<p>Not Available</p>	<p>Section 1.9 Future Vegetation Integrity Scores (with and without management)</p> <p>Table 8 Future Vegetation Integrity Scores</p> <p>Section 1.8 Management Actions to Improve Biodiversity Values</p> <p>Appendix C Management Plan</p> <p>Appendix D Biodiversity Credit Report</p>
			<p>Biodiversity development assessment report (BDAR)</p> <p>Section 2.3.2 Impacts Requiring Offset</p> <p>Section 2.3.2.2 Species Credits</p> <p>Table 24 – Species Credit Requirements</p> <p>Appendix F – Biodiversity Credit Report</p>	<p>Biodiversity stewardship site assessment report (BSSAR)</p> <p>Section 1.10 Ecosystem Credits Generated</p> <p>Table 9 Ecosystem Credits Generated</p> <p>Table 10 Species Credits Generated</p> <p>Appendix D – Biodiversity Credit Report</p>

EPBC - Additional Information Required		<i>Melaleuca biconvexa</i> (Biconvex Paperbark)	Relevant Sections of BDAR	Relevant Sections of BSSAR
		<ul style="list-style-type: none"> Ensure construction and development activities in areas where Biconvex Paperbark occurs do not have a significant adverse impact on known populations. <p>Although the species is going to be impacted by this development, approval of the development and Stewardship Site will lead to the long-term conservation of this species in the Central Coast through management of the Stewardship Site and can contribute to achieving the objectives above.</p> <p>A total of 12.6ha of <i>Melaleuca biconvexa</i> generating a total of 63 species credits has been identified and will be retained within the Stewardship Site. This will directly offset the credits incurred for the removal of <i>Melaleuca biconvexa</i> within the residential subdivision.</p> <p>Further to this, the PCTs that contain <i>Melaleuca biconvexa</i> (PCT 1723 and PCT 1718) will also be retained and managed within the Stewardship Site.</p> <p>A total of 15.12ha of PCT 1723 <i>Melaleuca biconvexa</i> - Swamp Mahogany - Cabbage Palm swamp forest of the Central Coast (Coastal Swamp Forests) is proposed to be retained as a result of the Stewardship Site.</p> <p>A total of 11.93ha of PCT 1718 Swamp Mahogany - Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast (Coastal Swamp Forests) is proposed to be retained as a result of the Stewardship Site and will contribute to offsetting the impacts to <i>Melaleuca biconvexa</i> within the residential subdivision.</p>		
	Outline how performance against specified objectives will be measured and reported.	<p>BAM survey methodology (BAM Plots) has been utilised to identify Plant Community Types within the residential subdivision and Stewardship Sites.</p> <p>Baseline surveys will be implemented as part of the VMP for retained vegetation within the residential subdivision and Stewardship Site Lands to ensure that the management of the vegetation work towards improving and conserving the residual lands associated with the residential subdivision.</p> <p>VMP Land data will be monitored by the Local Council, ensuring that all relevant conditions are met within the VMP.</p> <p>Stewardship Site Monitoring Data will be assessed by the Biodiversity Conservation Trust (BCT) throughout the 20 year management program of the Stewardship Site.</p>	<p>Biodiversity development assessment report (BDAR)</p> <p>Section 2.1.2 Management of Environmental Protection Zone (E3 Lands)</p>	<p>Biodiversity stewardship site assessment report (BSSAR)</p> <p>Section 1.8 Management Actions to Improve Biodiversity Values</p> <p>Appendix C Management Plan</p>

Appendix A– EPBC Referral

EPBC Act referral



Australian Government
Department of Agriculture, Water and the Environment

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Title of proposal	2021/8968 - 414 Old Maitland Road Residential Subdivision 2021-05
Section 1	
Summary of your proposed action	
1.1 Project industry type	Residential Development
1.2 Provide a detailed description of the proposed action, including all proposed activities	<p>A residential subdivision is proposed within land known as 414 Old Maitland Road, Mardi NSW. The site encompasses nine (8) lots (Lot 1 DP 120512, Lot 1 DP 554423, Lot A DP 396415, Lot 1 DP 229970, Lot 1 DP 229971, Lot 101 DP 604655, Lot 36 DP 755249, Lot 41 DP 123953) totalling 224.08 ha. These lots are zoned E2 – Environmental Conservation, E3 – Environmental Management and R5 – Large Lot Residential. The proposed development is located within the Central Coast Council Local Government Area (LGA).</p> <p>The proposed residential subdivision is located within the central portion of the site, involving the establishment of approximately 246 Large Lot residential lots and associated civil works comprising 56.67ha involving three of the aforementioned lots (Lot 1 DP 120512, Lot 1 DP 554423, Lot A DP 396415). Surrounding the development area, approximately 143.05ha is proposed as a biodiversity Stewardship Site.</p> <p>Actions: Clearing of 24.81ha of native vegetation, removal of hollow bearing trees, regeneration of 0.76ha within the development footprint and regeneration and protection of 143.05ha the development of, protection and enhancement of habitat for threatened species within Stewardship lands. All clearing and regeneration will be undertaken in accordance with conditions of consent from Central Coast Council and General Terms of Approval from Biodiversity Conservation Trust.</p> <p>Construction will include roads, stormwater devices, excavation and fill, demolition of existing farmhouse and sheds, noise, vibration, dust, sedimentation, artificial light, installation of natural channel design, installation of culverts, detention basins, pathways, landscaping, retaining walls. All construction works will be undertaken in accordance with conditions of consent from Central Coast Council, General Terms of Approval from Natural Resource Access Regulator and General Terms of Approval from Department Primary Industries (Fisheries Unit).</p>
1.3 What is the extent and location of your proposed action?	See Appendix B
1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland)	<p>Approximately 56% of the Subject Site encompasses cleared land composed entirely of exotic plant species. These areas used primarily for grazing cattle and horses and a regularly maintained through slashing. There is one uninhabited dwelling onsite and farmers utility sheds and pens within the Subject Site. The dwelling in the east of the site is currently inhabited. Two dams occur within the allotment. The remainder of the Subject Site is composed of native vegetation present in different state of disturbance.</p> <p>The proposed development is approximately 2.6km from Wyong, 67km to Sydney CBD and 53km to Newcastle CBD.</p>
1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?	<p>A residential subdivision is proposed within land known as 414 Old Maitland Road, Mardi NSW. The site encompasses eight (8) lots (Lot 1 DP 120512, Lot 1 DP 554423, Lot A DP 396415, Lot 1 DP 229970, Lot 1 DP 229971, Lot 101 DP 604655, Lot 36 DP 755249, Lot 41 DP 123953) totalling 224.08ha. The proposed residential subdivision is located within the central portion of the site, involving the establishment of approximately 246 Large Lot residential lots and associated civil works comprising 56.67ha (inclusive of 0.76ha of retained native vegetation regeneration and 24.81ha of native vegetation to be removed, 31.09ha of cleared exotic non-native vegetation). The proposal also includes 143.05ha for conservation and regeneration within a Stewardship Site. The remaining 24.36ha within the site are legal easements within the Stewardship Site where no works are proposed.</p>
1.7 Proposed action location	Address - 414 Old Maitland Rd, Mardi, NSW, 2259, Australia



Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

1.8 Primary jurisdiction		New South Wales	
1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?			
<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> No	
1.10 Is the proposed action subject to local government planning approval?			
<input checked="" type="checkbox"/> Yes		<input type="checkbox"/> No	
1.10.1 Is there a local government area and council contact for the proposal?			
<input checked="" type="checkbox"/> Yes		<input type="checkbox"/> No	
1.10.1.0 Council contact officer details			
1.10.1.1 Name of relevant council contact officer	Danielle Allen		
1.10.1.2 E-mail	Danielle.Allen@centralcoast.nsw.gov.au		
1.10.1.3 Telephone Number	0438464239		
1.11 Provide an estimated start and estimated end date for the proposed action			
Start Date	01/01/2022		
End Date	01/01/2042		
1.12 Provide details of the context, planning framework and state and/or local Government requirements			
A Biodiversity Development Assessment Report for the Subdivision has been lodged with Central Coast Council.			
1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders			
A November 2016 Coastal News article (https://coastcommunitynews.com.au/central-coast/news/2016/11/rezoning-land-western-side-m1-motorway-supported-administrator/) states that public exhibition occurred with 118 submissions and 108 community member objections on their earlier rounds and mention of an ' Aboriginal Heritage Management Plan'. Included as an attachment.			
1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project			
A Biodiversity Development Assessment Report (BDAR) has been prepared by Anderson Environment & Planning for the proposed residential subdivision. The BDAR has been prepared in accordance with the Biodiversity Conservation Act 2016. The BDAR is divided into two stages which are: Stage 1 – Biodiversity Assessment and Stage 2 – Impact Assessment. Stage 1 – Biodiversity Assessment comprises of the mapping of remnant vegetation communities including Endangered Ecological Communities (EECs) within the site, the location of previously identified threatened species and their habitats, and potential contemporary occurrence of threatened species identified within the BAM Calculator. Stage 2 – Impact Assessment comprises of the identification of impact avoidance and mitigation measures, and the quantifying of offset requirements in the form of biodiversity credits based upon residual impacts of the proposal.			
1.15 Is this action part of a staged development (or a component of a larger project)?			
<input checked="" type="checkbox"/> Yes		<input type="checkbox"/> No	
1.15.1 Provide information about the larger action and details of any interdependency between the stages/components and the larger action			
<p>The proposed development involves a staged residential subdivision covering an area of approximately 56.67 ha and the proposed stewardship over the land surrounding the development are totalling approx. 142ha. The land clearing required for the proposed development involves the removal all native vegetation from the Subject Site with the exception of the E2 – Environmental Conservation Land.</p> <p>The proposal involves a number of stages that will ultimately result in the creation of 246 residential allotments under two Community Title schemes.</p> <p>The initial step in the process is the consolidation of eight (8) existing allotments into two Torrens Title lots, one containing all of the land zoned R5 Large Lot Residential and E3 Environmental Management and the remainder being all of the land zoned E2 Environmental Conservation. The E2 zoned land is to be the subject of a Biodiversity Stewardship Agreement under the Biodiversity Conservation Act.</p> <p>The R5 and E3 zoned land will be the subject of further subdivision with all of the E3 zoned land to be contained within Community Association Property as Lot 1 of a Community Scheme and six (6) development lots containing all of the residential land. Five (5) of the residential development lots will be stages in the first Community Scheme whilst Lot 6 will be the subject of a subsequent Neighbourhood Scheme with its own Neighbourhood Association Property.</p> <p>The eight (8) lots that are the subject of the application are:</p> <ul style="list-style-type: none"> • Lot 1 in DP 120512; • Lot A in DP 396415; 			



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- Lot 1 in DP 554423;
- Lot 101 in DP 604655;
- Lot 1 in DP 229970;
- Lot 1 in DP 229971;
- Lot 41 in DP 123953; and
- Lot 36 in DP755249.

1.16 Is the proposed action related to other actions or proposals in the region?

Yes

No



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Section 2

Matters of national environmental significance

2.1 Is the proposed action likely to have any direct or indirect impact on the values of any World Heritage properties?

Yes No

2.2 Is the proposed action likely to have any direct or indirect impact on the values of any National Heritage places?

Yes No

2.3 Is the proposed action likely to have any direct or indirect impact on the ecological character of a Ramsar wetland?

Yes No

2.4 Is the proposed action likely to have any direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?

Yes No

Species or threatened ecological community

One State and Federally Listed TEC was identified as potentially occurring within the Subject Site; River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions. As a result of this TEC being identified as likely to occur on site a thorough review of the Key Diagnostic Characteristics outlined in Section 5.1.1 of the Department of Agriculture, Water and Environments (2020) Conservation Advice for this community has been undertaken. The assessment identified that the TEC is commensurate with PCT 1720 - Cabbage Gum - Forest Red Gum - Flax-leaved Paperbark Floodplain Forest of the Central Coast (Coastal Floodplains Forest) which occurs on site.

As per the criteria the PCT has been determined as being commensurate with the EEC and is considered to form part of the above Commonwealth listed community in accordance with EPBC Act.

Appendix I - Other Legislation page in PDF 234 Table 1

Impact

The PCT 1720 that is commensurate with EEC River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions will have approximately 8.38ha removed within the proposed development area. A large portion of this PCT is highly fragmented within the Subject Site. The patch size within the Stewardship Site is 3.38ha and is to be retained and managed.

Species or threatened ecological community

Chalinolobus dwyeri - (Large -eared Pied Bat)

1910.02 - Mardi Subdivision BDAR Rev 01 2021-05-28 - Appendix I - Other Legislation page in PDF 236 Table 2, PDF Page 238 Table 3

Impact

This was identified by calls over the ultrasonic recording during the survey periods. It is likely that this species was foraging within the site and no breeding places are expected to be located within 100 m of the site. However, there is potential for small caves and crevices to be located within the Stewardship Site and further to the west outside of the broader Study Area along escarpments and steeper slopes.

The proposed development will not lead to long term decrease in population due to the high mobility of the species and



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proposed stewardship site, restoring foraging and connectivity habitat for the species. The proposed development is in area of fragmented habitat and is unlikely to have an adverse impact on this species. In addition to this, the proposal is not likely to increase invasive species or disease. Given that only a very small amount of marginal foraging habitat would be removed, this development is unlikely to significantly impact on the species or its recovery within the local area. Therefore, it has been determined that there is not a significant impact.

Species or threatened ecological community

Pteropus poliocephalus (Grey-headed Flying-fox)

1910.02 - Mardi Subdivision BDAR Rev 01 2021-05-28 - Appendix I - Other Legislation page in PDF 236 Table 2, PDF Page 238 & 239 Table 3

Impact

This was observed during nocturnal surveys feeding within the Subject Site. No maternity or roosting colony was observed within or near the Subject Site. Considering there is a substantial amount of remnant vegetation connected to the Subject Site and the remnant vegetation within the Subject Site is more confined to the edges, it is considered unlikely that the clearing of remnant vegetation within the Subject Site will impact significantly impact this highly mobile species.

The proposed development will not lead to long term decrease in population due to the high mobility of the species and proposed stewardship site, restoring foraging and preserving connectivity habitat for the species. The proposed development is in area of fragmented habitat and is unlikely to have an adverse impact to the population. The proposal is not likely to increase invasive species or disease. Given that only a very small amount of marginal foraging habitat would be removed, this development is unlikely to substantially impact on the species or its recovery within the local area.

Therefore, is has been determined that there is not a significant impact.

Species or threatened ecological community

Melaleuca biconvexa (Biconvex Paperbark)

1910.02 - Mardi Subdivision BDAR Rev 01 2021-05-28 - Appendix I - Other Legislation page in PDF 236 Table 2, PDF Page 238 Table 3

Impact

Multiple specimens have been recorded within the proposed area to be impacted by the proposal There is a substantial number of records in the wider locality (482) and there is a substantial amount of *Melaleuca biconvexa* proposed to be offset within the Stewardship Site. Considering the amount to be offset within the Stewardship Site and the number of species records within the broader locality, this development is unlikely to impact significantly on this species. Given the large seed bank within soils it has also been assumed that once construction is completed the species area likely to regenerate in areas that are less impacted from the development.

Therefore, is it has been determined that there is not a significant impact.

Species or threatened ecological community

Syzygium paniculatum (Magenta Lilly Pilly)

1910.02 - Mardi Subdivision BDAR Rev 01 2021-05-28 - Appendix I - Other Legislation page in PDF 236 & 237 Table 2, PDF Page 239 Table 3

Impact

This was identified during field surveys within the Study Area. Two records of this species has been recorded within the Subject Site. The impacts from the proposed development are considered not to substantially impact the broader population within the area. In addition to this there are three other records within the Stewardship Site that are proposed to be retained and managed. Thus, the management of the Stewardship Site should contribute to the preservation of this species within the area.

Therefore, it has been determined that there is not a significant impact.



Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Species or threatened ecological community

Rhodamnia rubescens (Scrub Turpentine)

1910.02 - Mardi Subdivision BDAR Rev 01 2021-05-28 - Appendix I - Other Legislation page in PDF 237 Table 2, PDF Page 239 Table 3

Impact

This was identified during targeted surveys within the Study Area and within the development footprint.

This species is listed within the EPBC Act and BC Act as 'Critically Endangered'. This was determined by the common assessment method and thus the NSW threatened species scientific committee conservation advice for listing as 'Critically endangered' currently applies to EPBC Act assessment.

Within this listing, an estimated 96-99% reduction in population within 3 generations across the species entire range is expected due to severe susceptibility to the fungal pathogen *Austropuccinia psidii* (Myrtle Rust). With no specific population data for the Central Coast LGA, the precautionary principle applies and thus a similar reduction is expected to occur within this area. This exceeds the minimum threshold of 80% reduction in population for a 'Critically Endangered' species and therefore it is considered likely that this species is critically endangered within the Central Coast LGA.

This species therefore meets the criteria for Critically Endangered within the Central Coast LGA and a Significant Impact is likely.

As stated above any impact on the species is considered significant, however, the proposed development is impacting on only 33 individuals while the proposed stewardship site is retaining 319 individuals and has prepared a plan of management for the species which should allow for a significant improvement in health and potentially further germination within the local region. Assisting in the recovery of the species. Therefore, it has been determined that the impact is being negated by the proposed management within the Stewardship site.

2.4.2 Do you consider this impact to be significant?

Yes No

2.5 Is the proposed action likely to have any direct or indirect impact on the members of any listed migratory species or their habitat?

Yes No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

Yes No

2.7 Is the proposed action likely to be taken on or near Commonwealth land?

Yes No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

Yes No

2.9 Is the proposed action likely to have any direct or indirect impact on a water resource from coal seam gas or large coal mining development?

Yes No

2.10 Is the proposed action a nuclear action?

Yes No

2.11 Is the proposed action to be taken by a Commonwealth agency?

Yes No



Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage place overseas?

Yes No

2.13 Is the proposed action likely to have any direct or indirect impact on any part of the environment in the Commonwealth marine area?

Yes No



Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 3

Description of the project area

3.1 Describe the flora and fauna relevant to the project area

Flora species recorded were typical of those expected in this locality and in this type of remnant habitat. The following species have been recorded within the Subject Site, and will generate Species Credits under the Biodiversity Offset Scheme (BOS); Scrub Turpentine (*Rhodmanian rubescens*), Biconvex Paperbark (*Melaleuca biconvexa*) and Magenta Lilly Pilly (*Syzygium paniculatum*). The *Rhodmanian rubescens* is required for SAI consideration, this species was also recently listed as Critically Endangered under the Environmental Protection and Biodiversity Conservation Act, 1999 (EPBC Act), thus, will require a referral to the Department of Agriculture, Water and the Environment (DAWE) Commonwealth.

Fauna species recorded were typical of those expected in this locality and in this type of habitat. There is a substantial amount of contiguous habitat that surrounds the Subject Site where the proposed Stewardship Site is located. This vast area of contiguous habitat provides a suitable habitat for numerous fauna species in the area. The following listed species have been recorded within the Subject Site, and will generate Credits under the Biodiversity Offset Scheme.; Green-thighed Frog (*Litoria brevipalmata*), Glossy Black-Cockatoo (*Calyptorhynchus lathami*), Large-eared Pied Bat (*Chalinolobus dwyeri*) and Southern Myotis (*Myotis macropus*).

The surveys also resulted in a number of other threatened species foraging within the Subject Site, with no available breeding habitat these species will be incorporated into Ecosystem Credits. These species include; Varied Sittella (*Daphoenositta chrysoptera*), Little Lorikeet (*Glossopsitta pusilla*), Flame Robin (*Petroica phoenicea*), White-bellied Sea Eagle (*Haliaeetus leucogaster*), Powerful Owl (*Ninox strenua*), Sooty Owl (*Tyto tenebricosa*), Yellow-bellied Glider (*Petaurus australis*), Eastern Falsistrelle (*Falsistrellus tasmaniensis*), Golden-tipped Bat (*Phoniscus papuensis*), Little Bent-winged Bat (*Miniopterus australis*) Large Bent-winged Bat (*Miniopterus orianae oceanensis*) Eastern Coastal Free-tail Bat (*Micronomus norfolkensis*), Greater Broad-nosed Bat (*Scoteanax rueppellii*), Yellow-bellied Sheath-tail-bat (*Saccolaimus flaviventris*), and Grey-headed Flying-fox (*Pteropus poliocephalus*).

1910.02 - Mardi Subdivision BDAR Rev 01 2021-05-28 - Appendix I PDF Pages

1910.02 - Mardi Subdivision BDAR Rev 01 2021-05-28 - Flora Descriptions - Sections 1.3 pages 12 -30, 33 - 37.

1910.02 - Mardi Subdivision BDAR Rev 01 2021-05-28 - Habitat Description - Sections 1.3 - Pages 31 - 32

1910.02 - Mardi Subdivision BDAR Rev 01 2021-05-28 - Fauna Description - Section 1.4 pages 40 - 76 (this also includes Flora species credit species assessment)

1910.02 - Mardi Subdivision BDAR Rev 01 2021-05-28 - Flora list present on site is Appendix B PDF page 131 - 141

1910.02 - Mardi Subdivision BDAR Rev 01 2021-05-28 - Expected Fauna list Appendix C - PDF page 142 - 156

1910.02 - Mardi Subdivision BDAR Rev 01 2021-05-28 - Field BAM Sheets - Appendix D - PDF page 157 - 200

3.2 Describe the hydrology relevant to the project area (including water flows)

See attached Flood Assessment Report, compiled by Northrop, NL193270 24/3/2021.

- Incorporation of Water Sensitive Urban Design (WSUD) principles within stormwater infrastructure is to occur to minimise downstream hydrology changes.
- The proposed development is located approximately 3km west of the Wyong township, and is bound by Old Maitland Road to the east, Mardi Dam to the south, Ourimbah State Forest to the west and undeveloped rural properties to the north. The site has an area of approximately 223 hectares and has historically been used for agricultural and rural residential purposes. The subject site locality is presented in Figure 1 overleaf. The site is situated within the base of a valley aligned northeast to southwest, with adjacent ridges to the north, west and south. The subject site is subject to flooding through two mechanisms namely, the regional Wyong River catchment and the local catchment. The local catchment consists of Deep Creek, a third order watercourse and tributary of Wyong River which flows in a westerly direction across the subject site at the base of the valley. A secondary watercourse also traverses the subject site which joins Deep Creek at the north-eastern corner of the site, herein referred to as "Creek B".
- Habitat within the study area transitions from open dry and moist sclerophyll forest to the north, west and south. This leads east down to open floodplain comprising of fragments of melaleuca forest within an already cleared landscape. The transition is also notable for aquatic habitat. Watercourses start in the upper valley with deep channelled seasonal streams running down to the lower valley where small oxbows then occur adjacent to the main channel, this then leads to an open highly fertile landscape with a portion of no defined streamline but rather swales, depressions and hummock areas. This transition provides varying riparian type habitats for a range of different frog species.

A Biodiversity Stewardship Agreement is proposed for approx. 148.2 ha within the site as shown in Figure 1. The agreement would see the long-term protection and conservation of land, which consists of remnant forest on low to upper slopes surrounding grazed floodplain areas. The proposal would also provide protection of approx. 2km of Deep Creek and tributaries.

3.3 Describe the soil and vegetation characteristics relevant to the project area

The development site occurs in the IBRA Bioregion of the Sydney Basin, Wyong, with two Mitchell landscapes identified;



Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Sydney – Newcastle Coastal Alluvial Plains in the eastern portion of the site; and Gosford – Cooranbong Coastal Slopes in the smaller western portion of the site. Approximately 56% of the Subject Site encompasses cleared land composed entirely of exotic plant species. These areas are used primarily for grazing cattle and horses and a regularly maintained through slashing. The remainder of the Subject Site is composed of native vegetation present in different states of disturbance and comprising of six native vegetation communities; PCT 684, PCT 1071, PCT 1568, PCT 1718, PCT 1720 and PCT 1723. The surrounding land directly east of the Study Area is zoned RU1- Primary Production. Land directly to the south of the Study Area is zoned SP2 – Infrastructure. Land directly to the west comprises Ourimbah State Forest. Land directly to the north comprises a small parcel of E3 – Environmental Management and RU1 – Primary Production that provides connectivity features.

The Subject Site does not possess any area of geological significance. The site is mapped as possessing Class 4 and 5 Acid Sulphate Soil under the Wyong LEP 2013.

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area

The development site occurs in the IBRA Bioregion of the Sydney Basin, Wyong, with two Mitchell landscapes identified; Sydney – Newcastle Coastal Alluvial Plains in the eastern portion of the site; and Gosford – Cooranbong Coastal Slopes in the smaller western portion of the site. Approximately 56% of the Subject Site encompasses cleared land composed entirely of exotic plant species. These areas are used primarily for grazing cattle and horses and a regularly maintained through slashing. The remainder of the Subject Site is composed of native vegetation present in different states of disturbance and comprising of six native vegetation communities; PCT 684, PCT 1071, PCT 1568, PCT 1718, PCT 1720 and PCT 1723. The surrounding land directly east of the Study Area is zoned RU1- Primary Production. Land directly to the south of the Study Area is zoned SP2 – Infrastructure. Land directly to the west comprises Ourimbah State Forest. Land directly to the north comprises a small parcel of E3 – Environmental Management and RU1 – Primary Production that provides connectivity features.

The Subject Site does not possess any area of geological significance. The site is mapped as possessing Class 4 and 5 Acid Sulphate Soil under the Wyong LEP 2013.

3.5 Describe the status of native vegetation relevant to the project area

Approximately 24.60ha of remnant native vegetation occurs within the Subject Site, identified as six (6) separate PCTs.

- PCT 684 - Blackbutt - Narrow-leaved White Mahogany shrubby tall open forest of coastal ranges, northern Sydney Basin Bioregion (6.66 ha), No Associated Threatened Ecological Community (TEC);
- PCT 1071- Phragmites australis and Typha orientalis coastal freshwater wetlands of the Sydney Basin Bioregion (0.19 ha), Associated TEC: State Listed Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions;
- PCT-1568 - Blackbutt - Turpentine - Sydney Blue Gum mesic tall open forest on ranges of the Central Coast (3.57 ha), No Associated Threatened Ecological Community (TEC);
- PCT 1718 - Swamp Mahogany - Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast (1.40), Associated TEC: State Listed Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions;
- PCT 1720 - Cabbage Gum - Forest Red Gum - Flax-leaved Paperbark Floodplain Forest of the Central Coast (8.38 ha), Associated TEC: State and Federally Listed TEC: River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions;
- PCT – 1723 - Melaleuca biconvexa - Swamp Mahogany - Cabbage Palm swamp forest of the Central Coast (4.80 ha), Associated TEC: State Listed Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions
- The remainder of the Subject Site comprises 31.25 ha of exotic vegetation / managed grazed paddocks, dams, an old dwelling and utility sheds.

3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area

Ranges between an upslope to 5 degrees.

3.7 Describe the current condition of the environment relevant to the project area

Approximately 56% of the Subject Site encompasses cleared land composed entirely of exotic plant species. These areas used primarily for grazing cattle and horses and a regularly maintained through slashing. There is one uninhabited dwelling onsite and farmers utility sheds and pens within the Subject Site. The dwelling in the east of the site is currently inhabited. Two dams occur within the allotment. The remainder of the Subject Site is composed of native vegetation present in different state of disturbance.

3.8 Describe any Commonwealth Heritage places or other places recognised as having heritage values relevant to the project

The summary of findings state that the survey taken on the 16th and 17th of August by Mary Dallas and Dominic Steele in



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consultation with the Darkinjung Local Aboriginal Land Council was represented throughout the course of the field survey by Mr Tony Donovan. The survey was fully comprehensive and included the relocation and additional recordings of three Aboriginal sites known to exist on or near the property. All likely site locations were investigated including all sandstone formations and elevated level ground for signs of Aboriginal occupation remains, and old timber for signs of scaring to which might be attributed an Aboriginal origin. No new sites were located by the survey. The report concluded that further archaeological survey or archaeological investigation is not warranted or required. Recorded Aboriginal sites include NPWS Site #4531102 A Shelter with Occupation Deposit located 500 metres to the west of the south western boundary of the property on a forestry road to the north of Fowlers Fire Tower that is not affected by the currently proposed development. NPWS Site #4531103 Shelter with Drawing was relocated to the south of the original recorded position in an overhang facing east within 50 metres of the northern boundary of the property. Two additional drawings of wombats were observed on the rear wall of an inner cave within the overhang, no evidence of occupation deposit was observed. Once again, this area is clear of the proposed development footprint. NPWS Site #4531104 Axe Grinding Groove was a single axe grinding groove at the location. The subsequent survey by Dallas found an additional set of grooves and this site is located within 80 metres of a transmission line easement running near the southern boundary of the property. Once again, this site is clear of the proposed development footprint.

3.9 Describe any Indigenous heritage values relevant to the project area

The summary of findings state that the survey taken on the 16th and 17th of August by Mary Dallas and Dominic Steele in consultation with the Darkinjung Local Aboriginal Land Council was represented throughout the course of the field survey by Mr Tony Donovan. The survey was fully comprehensive and included the relocation and additional recordings of three Aboriginal sites known to exist on or near the property. All likely site locations were investigated including all sandstone formations and elevated level ground for signs of Aboriginal occupation remains, and old timber for signs of scaring to which might be attributed an Aboriginal origin. No new sites were located by the survey. The report concluded that further archaeological survey or archaeological investigation is not warranted or required. Recorded Aboriginal sites include NPWS Site #4531102 A Shelter with Occupation Deposit located 500 metres to the west of the south western boundary of the property on a forestry road to the north of Fowlers Fire Tower that is not affected by the currently proposed development. NPWS Site #4531103 Shelter with Drawing was relocated to the south of the original recorded position in an overhang facing east within 50 metres of the northern boundary of the property. Two additional drawings of wombats were observed on the rear wall of an inner cave within the overhang, no evidence of occupation deposit was observed. Once again, this area is clear of the proposed development footprint. NPWS Site #4531104 Axe Grinding Groove was a single axe grinding groove at the location. The subsequent survey by Dallas found an additional set of grooves and this site is located within 80 metres of a transmission line easement running near the southern boundary of the property. Once again, this site is clear of the proposed development footprint.

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area

Freehold.

3.11 Describe any existing or any proposed uses relevant to the project area

Approximately 56% of the Subject Site encompasses cleared land composed entirely of exotic plant species. These areas used primarily for grazing cattle and horses and a regularly maintained through slashing. There is one uninhabited dwelling onsite and farmers utility sheds and pens within the Subject Site. The dwelling in the east of the site is currently inhabited. Two dams occur within the allotment. The remainder of the Subject Site is composed of native vegetation present in different state of disturbance.



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Section 4

Measures to avoid or reduce impacts

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action

Anderson Environment & Planning (AEP) was commissioned by Transitional Pastoral Pty Ltd & The Stevens Group to undertake a Biodiversity Stewardship Site Assessment Report (BSSAR - 00012633/BAAS17085/19/00014546) over land within Lot 1 DP 120512, Lot 1 DP554423, Lot 1 DP 229970, Lot 101 DP 604655, Lot 41 DP 123953 and Lot 36 DP 755249, at 414 Old Maitland Road, Mardi NSW.

The proposed Biodiversity Stewardship Agreement will capture a diversity of ecosystem types, flora and fauna species, habitat niches and landscapes, to benefit from long term conservation and management. The following communities and species have been recorded within the Study Area, which will generate Credits under the Biodiversity Offset Scheme (BOS);

- Six (6) plant communities types are captured within the Stewardship Site generating credits: PCT 684 - Blackbutt - Narrow-leaved White Mahogany shrubby tall open forest, northern Sydney Basin Bioregion (Shrubby sub-formation), PCT 1568 - Blackbutt - Turpentine - Sydney Blue Gum mesic tall open forest on ranges of the Central Coast (Shrubby sub-formation), PCT 1568 - Blackbutt - Turpentine - Sydney Blue Gum mesic tall open forest on ranges of the Central Coast (Shrubby sub-formation), PCT 1718 - Swamp Mahogany - Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast (Coastal Swamp Forests), PCT 1720 Cabbage Gum - Forest Red Gum - Flax-leaved Paperbark Floodplain Forest of the Central Coast (Coastal Floodplains Forest) and PCT 1723 - Melaleuca biconvexa - Swamp Mahogany - Cabbage Palm swamp forest of the Central (Coastal Swamp Forests).

- Three (3) the above communities are associated with threatened ecological communities (TECs): PCT 1718 and PCT 1723 Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregion, PCT 1590 - Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions and PCT 1720 River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions;

- Three (3) flora species: *Rhodamnia rubescens* (Scrub Turpentine), *Syzygium paniculatum* (Magenta Lilly Pilly), and *Melaleuca biconvexa* (Biconvex Paperbark); and

- Four (4) fauna species *Glossy Black-Cockatoo* (*Calyptorhynchus lathami*), *Chalinolobus dwyeri* (Large-eared Pied Bat), *Myotis Macropus* (Southern Myotis), and *Litoria brevipalmata* (Green-thighed Frog).

Active management across the Stewardship Site will improve vegetation integrity and threatened species habitat values within the Central Coast LGA.

4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved

The patch size of River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria within the Subject Site is 8.38ha. The patch size within the Stewardship Site is 3.38ha. The total area within the Study Area is 11.76 ha. Some of the individual patches (broken up by roads, cleared areas, patches of exotic vegetation) are less than 0.5ha however, there are a number of areas that are greater than 0.5ha and therefore can be considered reliable data to identify the community as the listed community under the EPBC Act. 3.38ha of this vegetation community will be offset within the Stewardship Site.

Chalinolobus dwyeri (Large -eared Pied Bat) – identified by calls over the ultrasonic recording during the survey periods. It is likely that this species was foraging within the site and no breeding places are expected to be located within 100 m of the site. However, there is potential for small caves and crevices to be located within the Stewardship Site and further to the west outside of the broader Study Area along escarpments and steeper slopes. Given that only a very small amount of marginal foraging habitat would be removed, this development is unlikely to impact significantly on this species.

Melaleuca biconvexa (Biconvex Paperbark); multiple targeted surveys. Multiple specimens recorded in within proposed to be impacted by the proposal, and the large number of records in the wider locality (482) and the amount of *Melaleuca biconvexa* proposed to be offset within the Stewardship Site, this development is unlikely to impact significantly on this species. Given the large seed bank within soils it has also been assumed that once construction is completed the species area likely to regenerate in areas that are less impacted from the development.

Pteropus poliocephalus (Grey-headed Flying-fox): Observed during nocturnal surveys feeding: within the Subject Site. No maternity or roosting colony was observed within or near the Subject Site. Considering there is a substantial amount of remnant vegetation connected to the Subject Site and the remnant vegetation within the Subject Site is more confined to the edges, it is considered unlikely that the clearing of remnant vegetation within the Subject Site will impact significantly impact this highly mobile species.

Syzygium paniculatum (Magenta Lilly Pilly): This was identified during field surveys within the Study Area. Only one record of this species has been recorded within the Subject Site. The impacts from the proposed development are considered not to substantially impact the broader population within the area. In addition to this there are two other records within the



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Stewardship Site that are proposed to be retained and managed. Thus, the management of the Stewardship Site should contribute to the preservation of this species within the area.

Rhodamnia rubescens (Scrub Turpentine): Identified during targeted surveys within the Study Area and as a result the development footprint was changed to avoid the species. and as such will be retained. This species is listed within the EPBC Act and BC Act as 'Critically Endangered'. This was determined by the common assessment method and thus the NSW threatened species scientific committee conservation advice for listing as 'Critically endangered' currently applies to EPBC Act assessment. Within this listing, an estimated 96-99% reduction in population within 3 generations across the species entire range is expected due to severe susceptibility to the fungal pathogen *Austropuccinia psidii* (Myrtle Rust). With no specific population data for the Central Coast LGA, the precautionary principle applies and thus a similar reduction is expected to occur within this area. This exceeds the minimum threshold of 80% reduction in population for a 'Critically Endangered' species and therefore it is considered likely that this species is critically endangered within the Central Coast LGA.



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Section 5

Conclusion on the likelihood of significant impacts

5.1 You indicated the below ticked items to be of significant impact and therefore you consider the action to be a controlled action

- World Heritage properties
- National Heritage places
- Wetlands of international importance (declared Ramsar wetlands)
- Listed threatened species or any threatened ecological community
- Listed migratory species
- Marine environment outside Commonwealth marine areas
- Protection of the environment from actions involving Commonwealth land
- Great Barrier Reef Marine Park
- A water resource, in relation to coal seam gas development and large coal mining development
- Protection of the environment from nuclear actions
- Protection of the environment from Commonwealth actions
- Commonwealth Heritage places overseas
- Commonwealth marine areas

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action

Chalinolobus dwyeri: The proposed development will not lead to long term decrease in population due to the high mobility of the species and proposed stewardship site, restoring foraging and connectivity habitat for the species. The proposed development is in area of fragmented habitat and is unlikely to have an adverse impact on this species. In addition to this, the proposal is not likely to increase invasive species or disease. Given that only a very small amount of marginal foraging habitat would be removed, this development is unlikely to significantly impact on the species or its recovery within the local area. Therefore, it has been determined that there is not a significant impact.

Melaleuca biconvexa: Multiple specimens have been recorded within the proposed area to be impacted by the proposal. There is a substantial number of records in the wider locality (482) and there is a substantial amount of *Melaleuca biconvexa* proposed to be offset within the Stewardship Site. Considering the amount to be offset within the Stewardship Site and the number of species records within the broader locality, this development is unlikely to impact significantly on this species. Given the large seed bank within soils it has also been assumed that once construction is completed the species area likely to regenerate in areas that are less impacted from the development.

Therefore, it has been determined that there is not a significant impact.

Pteropus poliocephalus: The proposed development will not lead to long term decrease in population due to the high mobility of the species and proposed stewardship site, restoring foraging and preserving connectivity habitat for the species. The proposed development is in area of fragmented habitat and is unlikely to have an adverse impact to the population. The proposal is not likely to increase invasive species or disease. Given that only a very small amount of marginal foraging habitat would be removed, this development is unlikely to substantially impact on the species or its recovery within the local area.

Therefore, it has been determined that there is not a significant impact.

Syzygium paniculatum: The proposed development will not lead to long term decrease in population due to the high mobility of the species and proposed stewardship site, restoring foraging and preserving connectivity habitat for the species. The proposed development is in area of fragmented habitat and is unlikely to have an adverse impact to the population. The proposal is not likely to increase invasive species or disease. Given that only a very small amount of marginal foraging habitat would be removed, this development is unlikely to substantially impact on the species or its recovery within the local area.

Therefore, it has been determined that there is not a significant impact.



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Section 6

Environmental record of the person proposing to take the action

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Explain in further detail

Yes. No proceedings to date.

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application

There are not currently any past or present proceedings against either the person proposing the action or the person making the application. Therefore this is not applicable.

6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation's environmental policy and framework?

Yes No

6.3.1 If the person taking the action is a corporation, provide details of the corporation's environmental policy and planning framework

The works will be undertaken in accordance with General Terms of Approval from all Department of Primary Industries (Fisheries Unit) (DPI), Natural Resources Access Regulator (NRAR) and Central Coast Council (CCC). A Construction Environmental Management Plan (CEMP) will be prepared and approved by CCC ensuring all works are undertaken in accordance with current best practice.

As the application has not been approved to date there are no General Terms of Approval or Conditions of Consent.

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

Yes No



Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 7

Information sources

Reference source

Cropper S.C. (1993) Management of Endangered Plants. CSIRO Publications Victoria.

Reliability

High

Uncertainties

N/A

Reference source

DECC (2009) Threatened Species Survey and Assessment Guidelines: Field Survey Methods for fauna – amphibians. NSW Department of Environment and Climate Change.

Reliability

High

Uncertainties

N/A

Reference source

DPI (2018) Guidelines for controlled activities on waterfront land—Riparian corridors
https://www.industry.nsw.gov.au/__data/assets/pdf_file/0004/156865/NRAR-Guidelines-for-controlled-activities-on-waterfront-land-Riparian-corridors.pdf

Reliability

High

Uncertainties

N/A

Reference source

Keith D (2004) Ocean Shores to Desert Dunes. DEC, Sydney.

Reliability

High

Uncertainties

N/A

Reference source

Eco Logical Australia (2016) Technical Report prepared for the Wyong Shire Council – Vegetation Mapping, Eco Logical and Fore Sense.

Reliability

High

Uncertainties

N/A



Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Reference source
Department of Environment and Conservation (2004) Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities. Working Draft, November 2004.
Reliability
High
Uncertainties
N/A
Reference source
DPIE (2020) Surveying threatened plants and their habitats, NSW survey guide for the Biodiversity Assessment Method. NSW Department of Planning, Industry and Environment.
Reliability
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Reference source
Department of Agriculture, Water and the Environment (2021) Protected Matters Search Tool, Accessed February 2021, https://www.environment.gov.au/epbc/protected-matters-search-tool
Reliability
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Reference source
OEH (2016a) NSW Guide to Surveying Threatened Plants. February 2016. NSW Office of Environment and Heritage.
Reliability
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N/A



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Section 8

Proposed alternatives

Do you have any feasible alternatives to taking the proposed action?

Yes



No



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Section 9

Person proposing the action

9.1.1 Is the person proposing the action an organisation or business?
 Yes No

Organisation

Organisation name (as registered for ABN/ACN)	STEVENS HOLDINGS PTY LIMITED
Business name	
ABN	14002386450
ACN	
Business address	Suite 6, 257-259 Central Coast Hwy, Erina, 2250, NSW, Australia
Postal address	
Main Phone number	0243653351
Fax	
Primary email address	planning@stevensgroup.com.au
Secondary email address	

9.1.2 I qualify for exemption from fees under Regulation 5.23(1)(ii) of the EPBC Regulations because I am:
 Small business
 Not applicable

9.1.2.2 I would like to apply for a waiver of full or partial fees under Regulation 5.21A of the EPBC Regulations
 Yes No

9.1.3 Contact (for an organisation - the contact details of the person authorised to sign on behalf of the organisation)

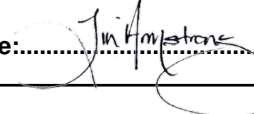
First name	Lin
Last name	Armstrong
Job title	Manager - Planning Services
Phone	
Mobile	0420973252
Fax	
Email	lin@stevensgroup.com.au
Primary address	Suite 6, 257-259 Central Coast Highway, Erina, 2250, NSW, Australia
Address	

Declaration: Person proposing the action (To be signed by the person at 9.1.3)

I, Lin Armstrong, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity.

Signature:  Date: 10/06/2021

I, Lin Armstrong, the person proposing the action, consent to the designation of Transnational Pastoral Pty Ltd as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature:  Date: 10/06/2021



Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Referring party (person preparing the information)	
9.3.1 Is the referring party an organisation or a business?	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Organisation	
Organisation name (as registered for ABN/ACN)	The Trustee for Timtobes Anderson Family Trust
Business name	Anderson Environment & Planning
ABN	27170660510
ACN	
Business address	PO Box 210, ADAMSTOWN, 2289, NSW, Australia
Postal address	
Main Phone number	0418681581
Fax	
Primary email address	craig@andersonep.com.au
Secondary email address	
9.3.2 Contact (for an organisation - the contact details of the person authorised to sign on behalf of the organisation)	
First name	Craig
Last name	Anderson
Job title	Director
Phone	0418681581
Mobile	
Fax	
Email	craig@andersonep.com.au
Primary address	PO BOX 210, ADAMSTOWN, 2289, NSW, Australia
Address	
Declaration: Referring party (person preparing the information)	
I, <u>Craig Anderson</u> ,	
declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence.	
Signature: <u><i>C.T. Anderson</i></u> Date: <u>11/06/2021</u>	



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Appendix A	
Attachment	
Document Type	File Name
action_area_images	Subject site.kml
action_area_images	Figure 3 - Subject Site.pdf
localgov_approval_consent	1910 Mardi CCC details.pdf
public_consultation_reports	1.13 EPBC - Mardi.pdf
supporting_tech_reports	1910.02 - Mardi Subdivision BDAR Rev 01 2021-05-28.pdf
hydro_investigation_files	Flood Assessment Report.pdf

Appendix B
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Appendix B - CVs

IAN BENSON

Curriculum Vitae

Ian works with AEP in the role of Principal Ecologist. He is an experienced field ecologist, bird watcher and a regular participant in wader surveys. Ian has previously had a successful career as a project manager with a local geotechnical engineering firm. His background in project management and soil sciences combined with his ecological knowledge is utilised in a diverse array of applications in his current role.

Qualifications

- Graduate Diploma in Science (Ecology) University of New England (2014)
- Bachelor Engineering (Civil) University of Newcastle (2008)

Further Education & Training (select summary)

- Biobank and Biocertification Assessors Training Course
- Advanced Plant Identification (University of New South Wales)
- NSW Class C Driver's Licence. Experienced 4WD operator
- Occupational Health & Safety Training
- Rail Industry Worker
- ARTC Safety Induction for Contractors (NSW)
- ARTC Hunter Bulk Terminal Induction

Fields of Special Competence

- Biobanking & Biodiversity Offset Commissions – initial scoping and feasibility, BAM impact assessments and BDAR reporting, biobank calculations, Stewardship site creation
- Detailed knowledge of environmental legislation and approval pathways
- Ecological field survey and habitat assessment covering terrestrial and aquatic flora and fauna. Experienced in camera trap methods particularly targeting cryptic and difficult to identify mammal species.
- Highly proficient at avifauna surveys, including challenging wetland and shorebird environs
- Project Management
- Soil science

Professional Affiliations / Memberships (past / present)

- Hunter Bird Observers Club (HBOC)
- Australasian Seabird Group
- Graduate Member of The Institution of Engineers Australia in the Civil College

Relevant Employment History

2019-Current **Principal Ecologist**
Anderson Environment & Planning, Newcastle

Currently employed by Anderson Environment & Planning in the role of Principal Ecologist overseeing a team of 15 professional ecology staff and all aspects of the business including training and management of field and office staff undertaking ecology and bushfire works to assist in the provision of consulting services to land, property, mining industry, legal and government sectors. Covering ecological, project management, environmental, planning services, advices, strategy and representation.

2018-2019 **Senior Ecologist**
Anderson Environment & Planning, Newcastle

2016-2018 **Ecologist**
Anderson Environment & Planning, Newcastle

2012-2016 **Project Manager**
Douglas Partners, Newcastle

As a project manager with Douglas Partners I was responsible for proposal and tender preparation, planning, implementation and reporting of geotechnical and geo-environmental investigations for a broad range of projects including site classification, foundations, pavements, bridges and slope stability. I was required to liaise with clients regarding project requirements, project goals and deadlines. I was responsible for the development and implementation of Work Health and Safety Plans as well as Environmental Plans and documentation. This included the development of safe work procedures, safety inspections on site and implementing improved safety procedures with staff. I was responsible for ensuring projects were completed on time and on budget whilst meeting the clients' expectations and achieving quality assurance standards.

2008-2012 **Geotechnical Engineer**
Douglas Partners, Newcastle

As a geotechnical engineer for Douglas Partners I was involved in the planning and implementation of geotechnical investigations for a wide range of development in the Hunter Valley area. I was primarily involved in site supervision of geotechnical investigations using drilling rigs for boreholes, truck mounted cone penetration testing and test pit excavations using excavators and backhoes. My role also included site inspections involving the assessment of conditions for piles, piers and shallow footings. I also undertook site walkovers for assessment of mine subsidence and slope stability.

2007-2008 **Undergraduate Geotechnical Engineer**
Douglas Partners, Newcastle

Whilst an undergraduate engineer with Douglas Partners I experienced a broad range of practice areas and developed a diverse range of engineering skills.

Relevant Ecological Experience

2013 - Current Bird Surveyor
Hunter Bird Observers Club

Volunteer survey work for Hunter Bird Observers Club for regular wader and water bird counts and Tomago and Kooragang Island.

2017 – Current Birdata Moderator
Birdlife Australia

Volunteer moderating and vetting bird surveys from *Birdata* which is the Birdlife Australia Atlas to ensure a robust database for both the Hunter Valley and Central Coast reporting areas totalling approximately 5000 surveys per year.

Natalie Black

Curriculum Vitae

Natalie works with AEP in the role of Senior Environmental Manager. She has extensive knowledge in environmental management, environmental planning, and report writing and assessment. With a detail understanding of planning, catchment management, coastal management and rehabilitation. Natalie has had a successful career with both state and local government in conservation, planning and field investigation roles. Natalie has also gained extensive communication skills and project management through her previous career in lecturing. Her background and experience in the ecological and planning fields is utilised in a diverse array of application in her current role.

Qualifications

- B.Sc (Hons), University of Newcastle, 2002 Sustainable Resource Management and Marine Science.
- Master Planning, University of Technology Sydney 2007.
- Certificate IV Training and Assessment at NSW TAFE 2012.
- BAM Assessor; accreditation number: BAAS19076.

Certification

- Evidence Gathering and Legal Process (Australian Institute of Environmental Health).
- Conflict Resolution Course (LGSA).
- Report Writing Course (LGSA).
- Powerful Presentation (LGSA).
- NSW Rural Fire Services Bush Fire Assessment
- Relocation of Threatened Species (Botanical Gardens Sydney).
- Sustainable Home Assessment Reduction Revolution.
- Flora and Fauna Survey Assessments Niche Environment and Heritage.
- First Aid TAFE.

Fields of Special Competence

- Environmental Planning
- Environmental Management and rehabilitation of catchments coastal waterways. Statement of Environmental Effects (preparation and assessing).
- Fish Passage
- Marine ecosystems including; mangroves, seagrasses, algae, Fauna and habitat assessment.
- vegetation.
- Communicating with a wide range of stakeholders.
- Development Application.
- Education in both Environmental and Planning industries.
- Koala Plans of Management.
- Policy Development.

Employment History

2019 to present AEP Senior Environmental Manager

2010 to 2019

Natalie Black is the Principal Environmental Planner for Black EARTH Environmental. Working a range of projects, Bush Fire Assessments, Landscaping, Development Applications, Statements of Environmental Effect's, Environmental Management Plans, Sustainability Assessment of both private and businesses, sustainable gardens, environmental assessments for proposed projects and environmental advice and volunteering for local Sustainable Community Group and Landcare. During this time Natalie also lectured at Hunter TAFE teaching a range of environmental units both face to face and on-line to a varying range of qualification and levels.

2003 to 2010

Natalie was the Natural Resource Manager and Development Assessment Officer at Lismore City Council working with diverse range of professions such as engineers, town planners, environmental health officer, accountants, building surveyors, arborists, councillors. During this time the main projects were grants application, restoration projects, flora and fauna assessments, environmental legal adviser, bush fire assessments, strategic work, development application assessment (ranging from sheds to Designated Developments) and council development application team for internal projects, Council's for climate change, water wise programs and others. During 2006 -2007 Natalie was the lead Environmental Officer and Development Planner for the development of Council Plans of Management (POM). The POMs were for each parcel of land owned and managed lands, by Council. The parcels of land ranged from easements, parks and recreation areas to urban bushland, each POM provided clear guidelines and procedures for all works including civil, maintenance and regeneration etc.

2002 to 2003 was a step into the Policy unit within DPI where Natalie was part of the team working on the Jervis Bay Indigenous Fishing Strategy, and the closure of Port Botany. Dealing with many stakeholders and running workshops with Ministers and community. During 2003 with Natalie was the North Coast Fish Passage Officer. Managing an Environmental Trust Grant of \$1 million to remove 50 structures that block fish passage within the catchments of the North Coast. This project had all 50 sites contracted by the end of the 12 months with 70% of these projects commenced. This role allowed for the development of field assessments, independent work and communication with a range of stakeholders.

2000 saw the commencement of Natalie's career with NSW Department of Primary Industries (Fisheries Unit) in the Office of Conservation in Sydney. Natalie was part of the Conservation team that reviewed integrated development applications in the Sydney Region, with a focus on the seagrasses present within the estuaries. The assessments ranged from jetties to the Lane Cove Tunnel, North West T-Way and the expansion of the M7 and fish ladders.

BSc Honours Project was research paper into the variations of *Zostera capricorni* wrack located within the Tuggerah Lakes system in comparison to Brisbane Waters and Lake Macquarie.

Simon Purcell

Curriculum Vitae

Simon works with AEP in the role of Senior Ecologist. Simon has over 7 years of professional experience managing projects in the fields of terrestrial ecology, mining and mine rehabilitation and environmental management.

Qualifications

- Bachelor of Applied Science, Major Wildlife Science, University of Queensland Gatton 2013
- Certificate III in Animal Care and Management, Companion Animal Services (2008)

Further Education & Training (select summary)

- Current NSW Class C Driver's Licence. Experienced 4WD operator.
- 2019 First AID, CPR and Remote First AID
- 2019 HLTAID001 Provide Cardiopulmonary Resuscitation
- 2019 HLTAID005 Provide First Aid in Remote Situations
- 2018 Bioacoustic Processing Workshop run by Ted Pedersen- Automated Signal Detection and Acoustic Remote Sensing
- 2017 Venomous Snake Handling
- 2015 Venomous Snake and Fauna Handling – Geckoes Wildlife

Fields of Special Competence

- Terrestrial Ecology field survey, covering terrestrial flora and fauna
- Project Management

Relevant Employment History

2020 (November) -present Senior Ecologist
Anderson Environment & Planning, Newcastle

- Currently employed by Anderson Environment & Planning to assist in the provision of consulting services to land, property, mining industry, legal and government sectors. Covering ecological, project management, environmental, planning services, advices, strategy and representation.

2018-2019 Team Leader / Ecologist
Ecotone Flora Fauna Consultants, Weipa, QLD

- Conducted client liaison meetings, providing ecological advice and recommendations for flora, fauna and land management, complying with Queensland state and Commonwealth environmental legislation.
- Wrote proposal and executed surveys for Prefeasibility studies and EIS on Western Cape York for multi-national mining company complying with Commonwealth environmental legislation.

- Negotiated increases to budget and survey requirements with the client in relation to ongoing changes and project requirements
- Led high level discussions with the client to provide new services.
- Developed wide scale camera monitoring program to assess presence /absence of EVNT fauna within the survey site.
- Complex logistical planning for remote work
- Co-developed and implemented new safety system within the business
- Mentored project managers through training, and leadership guidance to ensure quality and standards of business were met
- Managed human relation matters within the business
- Digitally transformed infield data collection through roll out of ArcGIS Collector, leading to the reduction in the use of paper in the field.

2014-2018 Team Leader / Ecologist
Ecotone Flora Fauna Consultants, Weipa, QLD

- Lead project manager (6 years) for all aspects of mine / drill preclearing environmental surveys across three different mine sites and exploratory sites, including during the construction phase of a new mine in the Weipa region.
- Project managed and participated in numerous annual EVNT projects that led to cultural and process practices changing within a multinational mining company.
- Played a critical role in maintaining client and stakeholder relationships and built stability with onsite leadership to further grow business opportunities.
- Maintained client confidentiality on sensitive and impactful projects.
- Ensured all projects complied with Queensland state and Commonwealth environmental legislation and clients Environmental Authority.
- Assisted in the development of growth and innovation projects such as cloud-based document storage solution to support multi-site users.

2013-2014 Field Technician / Ecologist
Ecotone Flora Fauna Consultants, Weipa, QLD

- Pre-clear flora and fauna mining and drilling programs
- Baseline fauna surveys of future mining areas
- Sensitive vegetation ground truthing
- EVNT flora and fauna surveys
- Seed Processing (storing, drying management of inventory)
- Mixing of seed in preparation for annual rehabilitation season

2010-2012 Mine Operator and Trainer
Rio Tinto, Weipa, QLD

- Acted as Crew Leader to manage 30 mine operators, production targets and minimising environmental impacts
- Skilled Caterpillar 992G, 993K & Komatsu WA900 Loader and 776D, 777F and 785C Caterpillar haul truck operator
- Crew Trainer/Assessor - completed five certificate IV modules to Training and Assessing.

2009 - 2010 Parks and Garden Maintainer
Spotless Group, Weipa, QLD

- Attained six competencies towards Certificate III Forest Growing and Management.
- Maintained local green spaces and houses.

2009-2009 Vet Nurse
Tableland Veterinary Service, Weipa, QLD

- Prepared surgery for surgeries including use of autoclave to sterilise implements
- Administered sedation via injections in the muscle and intravenously
- Prepared and monitored animals before, during and after surgeries
- Monitored animal and anaesthetic during surgery focussing on breath rate, colour of gum and pupil movements
- Took blood samples from veins and prepared samples of foreign bodies for analysis
- Successfully directed and carried out on-call emergency cases with vet assistance over the phone

2003 – 2009 Manager
The Pet Centre, Sydney, NSW

2001 – 2003 Sales Assistant
The Pet Centre, Sydney, NSW

- Implemented standard procedures for staff to follow
- Focussed on achieving a high level of OHS standards within the store
- Responsible for daily takings up to five thousand dollars per day
- Accountable for people management including rosters, recruitment and managing employee issues
- Responsible for management of store inventory
- Developed skills in handling a range of domestic animals
- Maintained animal's health and welfare in store and complied with state laws and regulations
- Analysed store's and customer's aquarium water quality
- Developed sound knowledge of animals including their origin, identification and general requirements

Relevant Volunteer Experience

2012 Fauna Spotter / Field Assistant
Humble Bee Films

- Volunteered as a fauna spotter/field assistant with Dr Brad Purcell and Humble Bee Films in a ten day research camp, during the production of the natural history documentary "Dingo".

2012 **Volunteer Ecological Field Assistant**
Rio Tinto, Weipa, QLD

- Participated in an ethno-botanical workshop with Rio Tinto Alcan Land and Rehabilitation team.
- Participated as a field technician during pre-mining survey work. The work included assessing flora and the land formations to identify buffer zones for natural drainage systems and sensitive areas in the Andoom mine site Weipa.

2012 **Fauna Technician**
Brad Purcell PhD, Greater Blue Mountains World Heritage Area

- Field technician for Brad Purcell during his doctoral research project on dingoes in the Greater Blue Mountains World Heritage Area. Developed skills in use of VHF radio tracking to retrieve collars, triangulation method to determine positioning of dingoes or deployed collars and traversing bushland.

Tim Mouton

Curriculum Vitae

Tim works with AEP in the role of Ecologist. Tim has over 10 years of professional experience managing projects in the fields of ecology, natural area restoration, biodiversity conservation, community education, and construction environmental management. Tim also has 5 years experience working in the field as a bush regenerator.

Qualifications

- Bachelor of Environmental Science University of Newcastle (2001)
- Conservation Land Management Certificate II Tafe (2003)
- Master of Environmental Science Southern Cross University (2008)

Further Education & Training (select summary)

- Biodiversity Assessment Methodology (BAM) Accredited Assessor (BAAS: 19083)
- NSW Class C Driver's Licence. Experienced 4WD operator.
- OH&S NSW White Card
- Erosion & Sediment Control Training (4 day Blue Book course / CPESC)
- Feral Animal Control training (1080 & Pindone baiting)
- Certificate 3 in Chemical Application (AQF3)

Fields of Special Competence

- Ecological field survey, covering terrestrial and aquatic flora and fauna
- Highly proficient at botanical surveys and establishing monitoring programs
- Project Management and auditing
- Restoration Science

Professional Affiliations / Memberships (past / present)

- Board of Management member for Worimi Conservation Lands (NPWS & Worimi LALC)
- Certified Practitioner in Erosion & Sediment Control (CPESC) (not currently active)

Relevant Employment History

2019-present Ecologist
Anderson Environment & Planning, Newcastle

Currently employed by Anderson Environment & Planning to assist in the provision of consulting services to land, property, mining industry, legal and government sectors. Covering ecological, project management, environmental, planning services, advices, strategy and representation.

2015-2018 Senior Project Officer / Ecologist
Conservation Volunteers Australia / WetlandCare Australia

- Project managing on-ground restoration works including revegetation, site stabilisation, weed control and bush regeneration.
- Facilitating community engagement events, and supervision of volunteers.
- Undertaking site assessments, ecological surveys, and preparing plans of management.
- Scoping and preparing grant applications, managing all aspects of grant delivery, budgets, and reporting.

2009-2015 Senior Ecologist / Environmental Scientist
Onsite Environmental Management

- Undertaking and project managing detailed environmental assessments including flora and fauna surveys, threatened species assessments, management plans and monitoring reports.
- Environmental site management, monitoring and compliance auditing on large scale infrastructure projects and extractive industries.

2008-2009 Bush Regenerator / Leading Hand
Lane Cove Council
Australian Wetlands

- Undertaking bush regeneration activities including removal of environmental/noxious weeds, track construction and maintenance, native seed collection and propagation, fire assisted regeneration, feral animal control and supervision and training of volunteers.
- Supervising bush regeneration and weed management teams.
- Undertaking large scale revegetation works on infrastructure projects involving mass tubestock planting, site stabilisation and maintenance weeding.

2006-2007 Ecologist / Environmental Scientist
GeoLINK Consulting

- Undertaking and project managing detailed environmental assessments including flora and fauna surveys, threatened species assessments, management plans and monitoring reports.
- Monitoring and analysis of wetland, groundwater, and domestic wastewater systems.

2002-2006 Bush Regenerator / Leading Hand
Gondwana Bush Restoration
Willoughby City Council

- Undertaking bush regeneration activities including removal of environmental/noxious weeds, track construction and maintenance, native seed collection and propagation, fire assisted regeneration, feral animal control and translocation of vegetation.
- Supervision and training of bush regeneration teams and volunteers.

2001-2002 **John Holland Construction**
Environmental Officer

- Environmental site management and monitoring and reporting on large scale infrastructure projects.

Relevant Volunteer Experience

2014 - Current **Burwood Beach Coastcare - Facilitator (Volunteer)**

Supporting and managing volunteers, on-ground works, promotion and funding opportunities on a monthly basis, to undertake conservation and restoration activities within Glenrock State Conservation Area (NPWS estate).

2013 - 2016 **Humane Society International – EPBC Act Nomination Support**

Preparation of Threatened Ecological Community (TEC) nominations under the Commonwealth Environment Protection and Biodiversity Conservation Act, 1999 (EPBC Act).