Final Report

Preliminary Documentation: 100 Buln Buln Road, Drouin, Victoria: EPBC 2023/09526

Prepared for

Drouin Highfields Development Pty Ltd

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Ecology and Heritage Partners acknowledge the Traditional Owners of the country we live and work on, and we pay our respect to Elders past, present and emerging.

CONTENTS

1 DECRIPTION OF THE ACTION 5
1.1 Project Description 5
1.2 Project Location 6
1.3 Project Timing 6
2 HABITAT ASSESSMENT 8
2.1 Strzelecki Gum 8
2.2 Giant Gippsland Earthworm 10
3 IMPACT ASSESSMENT 11
3.1 Strzelecki Gum 11
3.2 Giant Gippsland Earthworm 13
4 AVOIDANCE, MITIGATION AND MANAGEMENT MEASURES 14
4.1 Strzelecki Gum 14
4.2 Giant Gippsland Earthworm 17
4.3 Management Measures 17
5 OFFSETS 19
5.1 Strzelecki Gum 19
5.2 Giant Gippsland Earthworm 19
6 ECOLOGICALLY SUSTAINABLE DEVELOPMENT 20
7 ECONOMIC AND SOCIAL MATTERS 23
7.1 Economic and Social Impact Analysis 23
7.2 Indigenous Stakeholder Consultation 23
7.3 Projected Economic Costs and Benefits 23
7.4 Employment Opportunities 24
8 ENVIRONMENTAL RECORD OF THE PERSON PROPOSING TO UNDERTAKE THE ACTION 25
9 CONCULSION 26
REFERENCES 27
FIGURES 28

APPENDIX 1 REQUEST FOR FURTHER INFORMATION 33

APPENDIX 2 PROTECTED MATTERS SEARCH TOOL (PMST) REPORT 49

APPENDIX 3 STRZELECKI GUM RECORDED IN PROPOSED ACTION AREA 66

APPENDIX 4 GIANT GIPPSLAND EARTHWORM GUIDELINES FOR REVEGETATION AND PLANTATION PROJECTS 68

APPENDIX 5 GIANT GIPPSLAND EARTHWORM CONTINGENCY PLAN 73

1 DECRIPTION OF THE ACTION

1.1 Project Description

The proposed action is a new residential development, Highfields Estate, located in Drouin, Victoria. Highfields Estate will create an attractive and spacious community of approximately 299 lots across 36.16 hectares of land connecting existing residential areas in Drouin within the Urban Growth Zone. A Neighbourhood and Cultural Heritage Park (1.84 hectares) is the proud focus of the proposal, located along the sweeping boulevard entrance road. A large wetland and conservation reserve (7.12 hectares) contribute to extensive open space areas, with mature native trees protected within the residential areas. Topography is a fundamental design consideration and the detailed assessment provides a slope management approach which limits the height of retaining walls for residential lots, delivering the required density to the land as set out by the Drouin Precinct Structure Plan (PSP) (Drouin PSP 2014).

The total area within the boundary of the proposed action area is 36.83 hectares. Of this area, 6.88 hectares of native vegetation patches were mapped, and an additional 35 native scattered trees were mapped. The remainder of the site is primarily dominated by exotic pasture paddocks, historically cleared of native vegetation for grazing. The proposed impact footprint includes the removal of 4.92 hectares of native vegetation patches and nine native scattered trees. The primary impact to native vegetation is through the creation of the required Melbourne Water Balfour Road Drainage Service Scheme that suitably meets the storm water requirements of the development, which once completed, will be revegetated along the verges.

The proposed action requires three main forms of construction, being the creation of housing lots (e.g. creating levelled areas for future housing), creation of the road network (e.g. connection to the site and internal roads throughout the site) and creation of the stormwater drainage system (e.g. wetland system in the low lying area of the study area). Additional ancillary and landscaping works will also be undertaken. In order to achieve the desired outcomes for the development, localised earthworks will be required consisting of excavating, filling, compaction and shaping of areas to allow for road construction, drainage systems and landscaping outcomes. The construction of the nominated access road will require earthworks to construct a permanent road connection by excavating to a prescribed depth and constructing a flexible pavement to council standards. Drainage works will required excavation and installation of Melbourne Water required drainage assets, along with excavation and detailed shaping of the Melbourne Water drainage scheme.

An EPBC Act referral (EPBC 2023/9526) was submitted on the 17 August 2023 to determine if the project was likely to result in a significant impact to any Matters of National Environmental Significance (NES), specifically to Strzelecki Gum *Eucalyptus strzeleckii* and Giant Gippsland Earthworm *Megascolides australis*, as both have been recorded within the proposed action area. The proposed action was deemed a controlled action on the 28th September 2023, due to controlling provisions under Section 18 and 18A (listed threatened species and communities). The assessment approach listed in the decision is by Preliminary Documentation.

The original EPBC Act referral was based on an impact to 24 Strzelecki Gum and no impacts to Giant Gippsland Earthworm habitat. Since the submission of the original referral, impacts to Strzelecki Gum have been reduced to 15 individuals, and there is still no impact to Giant Gippsland Earthworm habitat. This report summarises

the proposed impacts and mitigation, in response to the request for additional information – assessment by preliminary documentation letter received in September 2024 from the Commonwealth (Appendix 1).

1.2 Project Location

The Project is located at 100 Buln Buln Road, Drouin, Victoria, and includes a portion of the Buln Buln Road reserve adjacent to the existing roundabout at the intersection of Walker Drive (Figure 1). It is largely located within private land, with the exception of the Buln Buln Road reserve.

The Project Area is bound by Princes Highway to the north and east, residential developments to the south, and Buln Buln Road to the west. The south east corner abuts the approved Stages 1 and 2 of the residential development (Planning Permit PLA 0285/22 issued by Baw Baw Shire Council) (excluded from the proposed action area as per variation request approval dated 14/08/2024).

The Project Area is currently used as a rural agricultural property. It is sloped south and north-west, with the highest point in the south-east corner then sloping down to the north west and east to the low-lying areas of Gum Scrub Creek. Gum Scrub Creek runs along the north-western boundary before branching to the south-west and south-east of the property. The water flow direction is from the south to the north of the Project Area.

1.3 Project Timing

The anticipated timing for the completion of the proposed action (i.e. completing of all construction related activities for each stage of the proposed residential development) is seven years, depending on planning permits/conditions and associated environmental approvals, the market at each stage release and uptake of lots.

A summary of all anticipated construction works associated with each stage (Stage 3 – 13) of the development within the proposed action area is outlined below and a summary of the project timings for the proposed action are summarized in Table 1. Stage locations are provided on Figure 3.

Construction activities across all stages of works will include:

- Earthworks;
- Sewer installation;
- Gas and water installation;
- Drainage works;
- Road and pavement construction;
- Electrical reticulation; and,
- Landscaping.

Stages 4 and 10 will see the construction of the open space parks. These works will include:

- Earthworks;
- Play equipment installation;

- Hard landscaping – paths, drains, seating, installation of soft fall etc.; and,
- Soft landscaping – tree planting, mulching, turfing.

Stage 9 sees a small number of residential lots and roads delivered along with the drainage reserve works. Works in the drainage reserve will include:

- Earthworks;
- Drainage;
- Extension of culverts under Buln Buln Road;
- Hard landscaping – paths, drains, seating, decking, fitness nodes; and,
- Soft landscaping – tree planting, mulching, turfing.

Stage 13 will include the construction of the culvert crossing over the drainage reserve connecting the west of the study area to the eastern side (i.e. across the drainage reserve).

Table 1. Summary of proposed project timings for the proposed Highfields Development.

Project Component (Stages 3 - 13)	Anticipated Start Date	Anticipated Completion Date
Stage 3	Q1 2026	Q3 2026
Stage 4 (incl. open space)	Q3 2026	Q2 2027
Stage 5	Q2 2027	Q4 2027
Stage 6	Q4 2027	Q2 2028
Stage 7	Q3 2028	Q1 2029
Stage 8	Q1 2029	Q3 2029
Stage 9 (incl. drainage reserve and Buln Buln Road culvert upgrade)	Q2 2029	Q3 2030
Stage 10 (incl. open space)	Q3 2030	Q2 2031
Stage 11	Q2 2031	Q4 2031
Stage 12	Q4 2031	Q2 2032
Stage 13 (incl. drainage reserve culvert crossing)	Q2 2032	Q4 2032

2 HABITAT ASSESSMENT

Several ecological assessments have been completed within the proposed action area where the data has been used to inform the below responses, in addition to the use of available online resources. The primary data used to inform the below responses include:

- Ecology and Heritage Partners (EHP) 2024a. Biodiversity Assessment: 100 Buln Buln Road, Drouin, Victoria;
- EHP 2024b. Biodiversity Assessment: Road and Culvert Upgrade for proposed subdivision, 100 Buln Buln Road, Drouin, Victoria;
- Invert-Eco Consulting 2021. Giant Gippsland Earthworm and Warragul Burrowing Crayfish Assessment at a proposed residential development – 100 Buln Buln Rd, Drouin;
- Carter 2006. National Recovery Plan for the Strzelecki Gum *Eucalytpus strzeleckii*
- Department of Sustainability and Environment (DSE) 2010. National Recovery Plan for the Giant Gippsland Earthworm *Megascolides australis;* and,
- Species Profile and Threats Database for Strzelecki Gum and Giant Gippsland Earthworm;
- Relevant species FFG Act action statements; and,
- The Victorian Biodiversity Atlas (VBA) for previously documented flora and fauna records within the project locality (DEECA 2024).

2.1 Strzelecki Gum

Strzelecki Gum is a species of Eucalyptus, growing to an average height of 30 metres and predominately occurring within the western section of the Strzelecki Ranges bioregion of Victoria (Carter 2006). Habitat that supports Strzelecki Gum is varied within woodland and forested environments but are commonly associated with sites that receive an average annual rainfall exceeding 1000 millimetres, on waterlogged soils and within riparian habitats (Carter 2006). Strzelecki Gum is listed as vulnerable under the EPBC Act.

Key threats to Strzelecki Gum, as identified in the SPRAT Profile and National Recovery Plan (Carter 2006) include habitat loss, weed invasion, grazing, hydrology changes, loss of genetic diversity and increased nutrient levels.

The proposed action area contains suitable habitat for Strzelecki Gum within areas of native vegetation mapped within the proposed action area (Figure 2). Two Ecological Vegetation Classes (EVCs) were recorded within the study area, Damp Forest (EVC 29) and Swampy Riparian Woodland (EVC 83) (EHP 2024a; 2024b). Of these EVCS, a number of different habitat zones were mapped, with a habitat zone boundary defined by either a substantial change in vegetation condition of an EVC, or separation by areas dominated by non-native vegetation. Both of these EVCs provide suitable habitat for Strzelecki Gum, however individuals of Strzelecki Gum were primarily recorded within the Swampy Riparian Woodland EVC within the proposed action area (Table 2; Figure 2).

In addition to the Strzelecki Gum recorded within patches of native vegetation, a total of seven (7) scattered Strzelecki Gum were recorded within the proposed action area (Figure 2). Additional native trees were present within the proposed action area, primarily Messmate Stringybark *Eucalyptus obliqua* and Mountain Grey-gum *Eucalyptus cypellocarpa*.

Table 2. Summary of Strzelecki Gum recorded within patches of native vegetation within the proposed action area

EVC^	EVC extent (ha)	Number of Strzelecki Gum
Damp Forest (DF)	1.452*	1*
Habitat Zone DF1	0.685	1
Habitat Zone DF2	0.767	0
Swampy Riparian Woodland	6.253*	49*
Habitat Zone SRW1	3.652	7
Habitat Zone SRW2	0.487	10
Habitat Zone SRW3	0.468	15
Habitat Zone SRW4	1.151	0
Habitat Zone SRW5	0.402	9
Habitat Zone SRW6	0.071	8
Habitat Zone SRW7	0.020	0

^location of EVCs and associated habitat zones are shown on Figure 2

*Total extent mapped within the proposed action area for the relevant EVC

2.1.1 Local Population Status

Numerous records for Strzelecki Gum have previously been recorded within the local area surrounding the project area (DEECA 2024; Figure 4). There are at least 3825 individual Strzelecki Gums, which have been previously mapped within a 10 kilometre radius of the proposed action area (DEECA 2024). This accounts for all records submitted to the VBA, and the associated count for each record (i.e. there are 974 VBA submissions, which vary from one individual up to 128 individuals) (DEECA 2024). Much of this data is a result of the mapping completed by Baw Baw Shire Council in 2008 (Baw Baw Shire Council 2008), which focused on roadsides and Crown land (i.e. did not include a detailed assessment of private land).

It is acknowledged that some of these individuals may currently not persist in the local area as a result of removal (e.g. for development, plant death or damage). A high-level review of the past EPBC referrals that have included the removal of Strzelecki Gum within the Drouin region identified two past projects; EPBC 2006/2936 which proposed to remove 28 Strzelecki Gum and was deemed Not a controlled action, and EPBC 2018/8345 which proposed to remove up to 30 Strzelecki Gum and was deemed Not a controlled action. It is noted that the EPBC 2018/8345 application proposed to plant at least 186 Strzelecki Gum within its development area.

Therefore, a conservative estimate of the current population is of at least 3000 individuals within 10 kilometres of the proposed action area. The size of the Drouin population could be considered an important population, as the high number of individuals in the local area is likely to contribute to maintaining genetic diversity. Notwithstanding this, the National Recovery Plan does not list any Drouin populations as an important population (Carter 2006).

2.2 Giant Gippsland Earthworm

Giant Gippsland Earthworm is an invertebrate belonging to the *Megascolecidae* family and is a worm that on average is 150 centimetres long (DSE 2010). The species is primarily found within south and west Gippsland, occurring within riparian habitats along creek lines in deep clay soils (DSE 2010). Giant Gippsland Earthworm is listed as Vulnerable under the EPBC Act.

Giant Gippsland Earthworm are a subterranean species, spending much of their life underground, which can make population estimates and survey methods difficult, however the species has been the subject of research for Dr. Beverly Van Praagh for many years (see www.giantearthworm.org.au).

The Drouin region is known to support areas of habitat for Giant Gippsland Earthworm, and protection of habitat for the species has been incorporated into the local planning scheme and relevant incorporated documents. Relevant to the Project Area, this includes an Environmental Significance Overlay (ESO4) and the Drouin Precinct Structure Plan.

Key threats to the species, as identified in the SPRAT Profile and National Recovery Plan (DSE 2010), include Altered Hydrology, Soil Disturbance, Chemical Disturbance, and Collection (harvesting of individuals). A discussion of potential threats to the population within the proposed action area is provided in Section 3.2, and mitigation in Section 4.2.

To determine the potential impacts of the project on the species, Invert-Eco were engaged to complete habitat suitability assessments and targeted surveys within the Project Area. This resulted in one area of suitable habitat being identified within the Project Area, in a small patch adjacent to a tributary of Gum Scrub Creek (Figure 2; Invert-Eco 2021). This area of habitat is located outside of the proposed development area and will have specific mitigation measures implemented to ensure its protection during and post construction.

3 IMPACT ASSESSMENT

3.1 Strzelecki Gum

The proposed action proposes to impact a total of 15 Strzelecki Gums, of the 56 recorded within the proposed action area. All impacts anticipated will result in a direct impact that will occur as a once off event, where the tree will be removed to allow for the delivery of the project component. No indirect impacts are anticipated, and a discussion of retained Strzelecki Gum is provided in Section 4.

A summary of the anticipated impacts to Strzelecki Gum is provided in Table 3, and a table of the impacted Strzelecki Gums is provided in Appendix 3.

Table 3. Summary of proposed impacts to Strzelecki Gum within the Highfields Development proposed action area.

Project Stage	Primary activity	# Strzelecki Gum impacted	Status of impact	Likelihood of impact occurring	Description
Stage 5	Construction of roundabout connection to Walker Drive	3 (Tree ID 260, 261 and 294 on Figure 3a)	Direct. Entire trees removed	High	Three Strzelecki Gum are proposed for removal to create the connection point from the existing roundabout at the junction of Walker Drive and Buln Buln Road to the proposed internal road, Waterside Drive. This connection point is the most feasible, due to the location of the existing roundabout, and is consistent with the Drouin PSP.
Stage 9	Upgrade of culvert under Buln Buln Road	6 (Tree ID 267, 285, 286, 289, 290, 292 on Figure 3a)	Direct. Entire trees removed	High	An existing culvert is present at this location, which will be upgraded to accommodate the anticipated drainage requirements as a result of the upgraded drainage reserve and hydrology changes to the site through future residential use. The earthworks required to upgrade the drainage area either directly impact or encroach more than 10% into the Tree Protection Zones for these six trees.
	Construction of drainage reserve	6 (Tree ID 271 – 274, 276 294 on Figure 3a)	Direct. Entire trees removed	High	A drainage reserve is proposed for construction within the natural low-lying area within Stage 9 of the proposed action area.

An assessment of the proposed impacts to Strzelecki Gum against the significant impact guidelines for vulnerable species (DoE 2013) was completed (Table 4). Based on this assessment, a significant impact is unlikely to occur to Strzelecki Gum as a result of the proposed action.

Table 4. Assessment against the significant impact criteria for Vulnerable species listed under the EPBC Act (DoE 2013) (i.e. Strzelecki Gum)

Significant Impact Criteria (DoE 2013)	Likelihood of Impact	Justification
Lead to a long-term decrease in the size of an important population of a species	Low	The proposed action results in the removal of 15 Strzelecki Gum, however the removal of these 15 individuals is proposed to be mitigated onsite through revegetation plantings along the riparian corridor. Further, 42 individuals will be retained within the development area.
Reduce the area of occupancy of an important population	Low	The proposed action involves the removal of 15 Strzelecki Gums, however, retains 42 individuals within the study area and adjacent road reserve. The project incorporates Strzelecki Gum revegetation into the landscaping plan, with local provenance seed used (GbLA 2023).
Fragment an existing important population into two or more populations	Low	Whilst the project will remove 15 Strzelecki Gum, it will not result in fragmentation of the existing local population as Strzelecki Gum are retained in areas across the Project Area and also occur in the local area. In addition, Strzelecki Gum will be planted back into the site in landscaped areas using individuals grown from local provenance seed (GbLA 2023).
Adversely affect habitat critical to the survival of a species	Negligible	The project is not expected to adversely affect habitat critical to the survival of the species and will be enhancing the existing waterway within the study area, with revegetated areas incorporating Strzelecki Gum (GbLA 2023).
Disrupt the breeding cycle of an important population	Negligible	The proposed action is not expected to disrupt the breeding cycle of an important population, with 42 Strzelecki Gum retained within the study area, of varying age cohorts, and additional plants to be added in the landscaping for the project (GbLA 2023).
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Low	Habitat suitable for Strzelecki Gum will be removed and modified within the study area to accommodate the proposed development, and result in the loss of 15 individuals. Efforts to mitigate this loss are demonstrated by the inclusion of Strzelecki Gum in the future landscaping, using local provenance seed. The inclusion of Strzelecki Gum in the landscaping will be focused in the drainage reserve (GbLA 2023).
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Negligible	The proposed action will not result in an invasive species being introduced that is likely to impact habitat suitable for Strzelecki Gum. A Weed and Pest Animal Management Plan will be prepared and implemented for the project, to manage weed and pest animals within the study area during and post construction.
Introduce disease that may cause the species to decline	Negligible	The proposed action will not result in the introduction of disease that is likely to cause a decline to Strzelecki Gum
Interfere substantially with the recovery of the species	Negligible	The proposed action will not interfere substantially with the recovery of the species.

3.2 Giant Gippsland Earthworm

No direct or indirect impact to Giant Gippsland Earthworm habitat is anticipated from the proposed action. Targeted surveys were completed within the proposed action area by Invert-Eco using methods developed by Dr. Beverley Van Praagh. Van Praagh has been working on this species for over 30 years and is the world's leading expert. She also wrote and contributed to the literature regarding suitable habitat and appropriate sampling techniques (e.g. recovery plan, fact sheets, GGE websites).

The results of the targeted surveys identified one area of habitat for Giant Gippsland Earthworm, covering an area of approximately 0.12 hectares (Invert-Eco 2021). This was identified on the eastern side of a patch of Swampy Riparian Woodland (SRW3 on Figure 2).

The area of habitat, and vegetation in the surrounding area, is proposed to be retained, with no changes to the hydrology or topography proposed. The nearest area of construction to the retained area of habitat will be for the construction of the waterway corridor, which is proposed for construction within the existing depression that runs from the southeastern corner northwest towards the proposed crossway (i.e. connecting Stage 11 to Stage 13). These works are contained within a mapped patch of Swampy Riparian Woodland (SRW4 on Figure 3d). Once the waterway is constructed, it will be revegetated with a riparian species of local provenance.

The existing tributary and associated flow of water that runs through the SRW3 habitat zone towards the SRW4 habitat zone will be maintained, with the natural flow of water through SRW3 still able to move through the landscape at the same capacity pre and post development. No additional waterlogging or compaction of the earth within proximity to the area of identified habitat is likely to occur as a result of the proposed action.

Further, through the change in land use from agriculture to residential, livestock and agricultural practices will be removed from the land. Previously, livestock had access throughout the proposed action area, with no specific protection of the area of Giant Gippsland Earthworm habitat, or the surrounding areas of native vegetation and creek tributaries. Therefore, the creation of the conservation reserve that incorporates the area of habitat for Giant Gippsland Earthworm and removal of livestock from the site may increase the quality of habitat by removing key threats to the species.

As no impacts are anticipated to Giant Gippsland Earthworm, an updated significant impact assessment has not been completed for this species. A previous significant impact assessment was completed by Invert-Eco, which stated that the project would not have a significant impact on Giant Gippsland Earthworm (Invert-Eco 2021).

Specific mitigation measures proposed for the protection of the identified area of habitat are discussed in Section 4.2.

4 AVOIDANCE, MITIGATION AND MANAGEMENT MEASURES

4.1 Strzelecki Gum

The proposed action area contained 56 Strzelecki Gum, present as large and small trees in patches of native vegetation and as scattered trees (Figure 2; Appendix 3). Of the 56 Strzelecki Gum recorded, 42 are proposed to be retained. A summary of the location of these retained trees, proximity to any development and the mitigation measures proposed to ensure their protection are provided in Table 5. Based on the mitigation measures proposed, the likelihood of a direct or indirect impact occurring to the retained Strzelecki Gum that would result in the loss of these individuals is low.

Table 5. Strzelecki Gum proposed for retention within the Project Area and proposed mitigation measures

Project Stage/Location	Primary activity/risk	# Strzelecki Gum Retained	Mitigation proposed
Buln Buln Road	Earthworks within adjacent private land for creation of residential lots	7 (Tree ID 248, 258, 301, 304, 305, 307 & 310 on Figure 3a)	Tree Protection Zone (TPZ) Fencing that protects the entire Tree Protection Zone of each tree and/or fencing along the limit of construction works. A buffer of 10 to 15 meters has been incorporated into the development plan to protect the scattered Strzelecki Gums along Buln Buln Road, south of the Walker Drive roundabout, noting that no residential lots are proposed along this section, only the works associated with the creation of the drainage reserve. Two retained Strzelecki Gum's are located north of the roundabout (Trees 248 and 258 on Figure 3a). Both trees will be protected with TPZ fencing for the duration of any construction works within proximity to their TPZ's.
Stage 8	Creation of tree reserve and construction of internal road within proximity to tree reserve	8 (Tree ID 650, 651, 654 – 656, 658 - 660 on Figure 3a & 3b)	TPZ Fencing and/or fencing along the limit of construction works that protects the entire TPZ of all Strzelecki Gum within this designated tree reserve.
Stage 9	Construction of drainage reserve	27 (Tree ID 45, 277 & 299, and all Strzelecki Gum in SRW3 and SRW5 on Figure 3)	Two large Strzelecki Gum's are proposed for retention within the drainage reserve (Tree 277 and 299 on Figure 3a). These trees will have a TPZ fence established and maintained around the limit of the TPZ during all construction works. Once construction is completed, the trees will be incorporated into the riparian zone landscaping proposed for the waterway.

Project Stage/Location	Primary activity/risk	# Strzelecki Gum Retained	Mitigation proposed
			Sixteen (16) Strzelecki Gums are retained within a conservation reserve located along the south eastern boundary of the proposed action area, within a patch of Swampy Riparian Woodland. The flow of water through this area is from south to the north, where it then enters the branch leading to the north west of the study area. No drainage construction works are proposed within this area, therefore the existing hydrology will be maintained, flowing through to the constructed waterway in the drainage reserve. The SRW3 patch is also largely bounded by the two tree reserves to the west and east (containing the Damp Forest EVC), where no works are proposed. The entire boundary of the retained vegetation located in the south eastern corner of the proposed action area will be fenced for protection, including implementation of sedimentation and erosion controls along the edge of Stage 13 where it abuts the retained SRW3 patch (Figure 3d).

4.1.1 Assessment of Key Threats

Outside of the physical removal of the 15 Strzelecki Gums, the proposed action is unlikely to pose any other significant threats to the remaining population. The key threats to Strzelecki Gum that are relevant to the proposed action, as per the FFG Act Action Statement prepared for Strzelecki Gum (DEECA 2023) are summarised below in Table 6.

Table 6. Key threats to Strzelecki Gum and assessment of likely occurrence as a result of the proposed action

Threat (DEECA 2023)	Likelihood of threat as a result of the proposed action	Rational
Land Use Change	Low	The land use will be changed from agricultural to residential use. A large drainage reserve is included in the design, that will provide suitable habitat for Strzelecki Gum. Core areas of habitat have been retained where feasible, and will be protected from potential threats posed by the change in land use, including any potential hydrological and human induced threats. A stormwater management strategy (Incitcus 2024) and landscape masterplan (GbLA 2024) have been prepared that both consider and mitigate impacts to Strzelecki Gum.
Livestock	No impact	The proposed action area has historically been used for livestock (cattle) grazing. Livestock will be removed from the site entirely, and will no longer pose any threat to the ecological values within
Loss of key habitat features	Low	The existing topography of the site will be maintained, and the existing drainage corridor will be upgraded to service the future residential development, however, the general water flow through the site will be maintained (Incitus 2024). Key areas of habitat have been retained within the site and incorporated into conservation reserves (e.g. SRW3 on Figure 2). A short term impact will occur to the habitat within the drainage corridor where it occurs within the footprint for the upgraded waterway, however once construction is completed, the area will be revegetated with suitable riparian species, including Strzelecki Gum, reinstating both the habitat and individuals of Strzelecki Gum within the site (GbLA 2024).
Loss of genetic diversity	Low	The proposed action includes the removal of 15 Strzelecki Gums, which will reduce the number of individuals within the local population. To mitigate this loss, planting of Strzelecki Gum is incorporated into the landscape masterplan (GbLA) where Strzelecki Gum will be included in the riparian corridor revegetation area. The establishment of these plants will mitigate against the loss of genetic diversity associated with the removal of the 15 trees.

4.2 Giant Gippsland Earthworm

One area of habitat for Giant Gippsland Earthworm was observed within the proposed action area (Invert-Eco 2021). No direct or indirect impacts are proposed to occur within this area of habitat, and specific measures will be undertaken to ensure its protection during and post development of the proposed action area. These measures are described below and are largely based on the measures included in the Invert-Eco report (Invert-Eco 2021).

The area of identified Giant Gippsland Earthworm habitat will be protected and managed in the following ways:

- Installation of temporary no go zone fencing along the boundary of the SRW3 and Damp Forest patches of vegetation, excluding any access into the area of habitat;
- Installation of permanent fencing to prevent access (i.e. human disturbance) into the area of habitat (location of fencing to incorporate larger tree reserve);
- Installation of signage to educate community on the species in the local area; and,
- Any revegetation within or adjacent to the Giant Gippsland Earthworm habitat will be consistent with the recommendations in Fact Sheet 2 – Guidelines for Revegetation and Plantation Projects (Appendix 4).

In addition, contingency measures will be put in place to address situations where Giant Gippsland Earthworm are discovered during any construction works associated with the development, as per Appendix 5.

4.3 Management Measures

Management measures will be implemented within the proposed action area prior to, during and post construction to ensure that all threats are reduced to retained Strzelecki Gum and Giant Gippsland Earthworm habitat. An overview of these measures, and respective timings, is provided below (Table 7). Most of the mitigation measures apply to both species.

Prior to the commencement of any works on site, a detailed Construction Environmental Management Plan / Site Environmental Management Plan will be prepared and implemented. This plan will include the location of all retained ecological values and required mitigation measure to be implemented, such as Vegetation / Tree Protection Zone fencing, sediment controls and weed control.

Table 7. Proposed mitigation measures for Strzelecki Gum and Giant Gippsland Earthworm

Management Measure	Description	Timing	Maintenance
Tree Protection Fencing / Vegetation Protection Fencing	Suitable temporary fencing will be installed at either the limit of works, around individual retained trees and/or around patches of retained native vegetation	Prior to the commencement of any construction works within a specified stage/area until the completion of all works at that location	Fencing to be checked weekly to ensure it remains compliant and in the correct place

Management Measure	Description	Timing	Maintenance
Environmental No Go Signage	Environmental No Go Zone signs to be attached to each individual Tree Protection fence installed and every 10 meters along any vegetation protection zone areas.	Prior to the commencement of any construction works within a specified stage/area until the completion of all works at that location	Signs to be checked weekly to ensure they remain visible and compliant
Permanent fencing	Permanent post and wire/timber fencing will be installed around the boundaries of the southern conservation reserves to protect the values within, including the area of Giant Gippsland Earthworm habitat.	Upon completion of construction (or earlier if suitable)	Annual checks of fencing to ensure it remains in good condition
Revegetation	To mitigate against the loss of 15 Strzelecki Gum within the site, the drainage corridor will be revegetated with mixed native and indigenous flora species, including Strzelecki Gum. Any revegetation within the Giant Gippsland Earthworm habitat must comply with Appendix 4.	Revegetation to occur upon completion of construction works, in accordance with the Landscape Masterplan (GbLA 2024)	Quarterly checks of all planted Strzelecki Gum for a minimum of three years to ensure survival. Replacement of any dead planted Strzelecki Gum within 6 months of plant death during the three year monitoring. Ongoing weed control to maintain habitat suitability for Strzelecki Gum (weed management to be detailed in the CEMP)

5 OFFSETS

5.1 Strzelecki Gum

The residual impact to Strzelecki Gum within the proposed action area is 15 Strzelecki Gum. This is not considered to be a significant impact, therefore, no offset strategy is proposed. Proposed mitigation measures are discussed in Section 4.1.

5.2 Giant Gippsland Earthworm

No impacts are proposed to the area of confirmed Giant Gippsland Earthworm habitat within the proposed action area. Proposed mitigation measures are discussed in Section 4.2.

6 ECOLOGICALLY SUSTAINABLE DEVELOPMENT

The National Strategy for Ecologically Sustainable Development (ESD) (1992) sets out the policy framework for the Australian Government to make decisions and take actions to pursue ecologically sustainable development (ESD).

The National Strategy requires government departments to develop institutional arrangements to ensure that the principles and objectives of ESD are delivered and sets out the following core objectives for achieving ESD:

- to enhance individual and community well-being by following a path of economic development that safeguards the welfare of future generations
- to provide for equity within and between generations
- to protect biological diversity and maintain essential ecological processes and life-support systems.

The project response to the EPBC Act principals of ESD are provided below:

The proposed action has long-term and short-term economic, environmental, social and equitable considerations.

The proposed development has been recognised by the Baw Baw Shire Council for its significance as a strategic residential development site, through its inclusion in the Drouin Precinct Structure Plan (PSP) (Drouin PSP 2014) as land suitable for such use, which is incorporated into the local planning scheme under Clause 37.07-2 *Urban Growth Zone schedule 2*.

The purpose of the Urban Growth Zone is as following:

- To implement the Municipal Planning Strategy and the Planning Policy Framework.
- To manage the transition of non-urban land into urban land in accordance with a precinct structure plan.
- To provide for a range of uses and the development of land generally in accordance with a precinct structure plan.
- To contain urban use and development to areas identified for urban development in a precinct structure plan.
- To provide for the continued non-urban use of the land until urban development in accordance with a precinct structure plan occurs.
- To ensure that, before a precinct structure plan is applied, the use and development of land does not prejudice the future urban use and development of the land.

The proposed action is consistent with the above, where it seeks to develop land currently used for farming into a residential development that is consistent with the specifications of the Drouin PSP (Drouin PSP 2014)

Environmentally the project has also further applied the principles of impact "avoidance" and "minimisation" through the identification of the ecological values within the proposed action area prior to the finalisation of the development plan, which sought to minimise its impacts on these identified values.

The precautionary principle which states that a lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation where there are threats of serious or irreversible environmental damage.

Robust environmental assessments have been completed to assess the potential impacts of the project. The level of assessment undertaken for this project provides a sound basis for understanding the likely project impacts and in developing effective environmental management and mitigation measures.

Through this process, all known or likely to occur ecological values have been assessed with respect of the likelihood of impact that the project may have on the identified value. Mitigation measures have been identified that target the protection of ecological values within the proposed action area.

The principle of inter-generational equity which states that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

By undertaking the development activity in accordance with best-practise industry standards, the proponent will mitigate any potential indirect impacts on matters of NES. This will ensure that quality and integrity of the surrounding environment is maintained for future generations.

The current land use as for agriculture has no means of protection for the Giant Gippsland Earthworm or Strzelecki Gum within the Project Area. The proposed future use will remove livestock from the site and incorporate the area of habitat for Giant Gippsland Earthworm into a conservation reserve, which will improve the protection and reduce threats to this population. The retained Strzelecki Gums will be protected in designated tree reserves or within improved habitat along the drainage reserve, with supplementary planting of additional Strzelecki Gums proposed in an effort to mitigate the lost individuals.

The proposed mitigation measures will ensure minimal impact of the project on matters of NES.

The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.

Two matters of NES were identified within the proposed action area, including 56 Strzelecki Gum and an area of habitat for Giant Gippsland Earthworm. Of the 56 Strzelecki Gum recorded, 15 are proposed to be impacted. No impacts to Giant Gippsland Earthworm are proposed.

The loss of 15 Strzelecki Gum within the proposed action area will be mitigated by the planting and establishment of at least 15 Strzelecki Gum within the proposed riparian corridor, where the constructed waterway will occur. All planted trees will be of local provenance, to maintain the genetic diversity of the local population. Remaining areas of retained Strzelecki Gum and habitat for Giant Gippsland Earthworm will be protected during and post construction to prevent unintended loss of these values, through ongoing weed management, a revegetation strategy (which is sensitive to Giant Gippsland Earthworm) and measures to prevent damage from the future residential population, such as fencing and educational signage.

No other matters of NES are considered to be impacted by the proposed action.

Improved valuation, pricing and incentive mechanisms should be promoted.

This ESD principal is not considered to apply to this project.

7 ECONOMIC AND SOCIAL MATTERS

The below response is provided by Bayport.

7.1 Economic and Social Impact Analysis

Highfields is a significant development within the township of Drouin. It presents an opportunity to complete the missing road link between Waterside Drive to Walker Drive, alleviating traffic congestion on Princess Way. It will complete the two towns trail to the Crystal Water Estate and it will revitalise the upper sections of Gum Scrub Creek, creating improved habitat for flora and fauna species.

Most importantly the development presents a real opportunity to deliver desperately needed affordable housing stock to the local market. The land has been clearly identified for development and the proposed layout strikes a balance for all outcomes, and has avoided or minimised impact to the local flora and fauna species, where ever possible.

7.2 Indigenous Stakeholder Consultation

The Drouin Precinct Structure Plan (PSP) went through vigorous consultation as part of a planning scheme amendment prior to its implementation. The development has been thoroughly considered by all local and state agencies. The required actions are merely a result of implementing the PSP as envisaged in 2014.

Prior to commencement of works the project requires a detailed planning application and advertising of the works, which provides for a further level of consultation.

A Cultural Heritage Management Plan (CHMP) has been completed and approved for the site. All salvage works required for the project have been completed.

As part of the CHMP, Drouin Highfields Development have created an additional open space the “cultural heritage park” within stage 10 to protect cultural heritage values identified during preparation of the CHMP. A very welcomed inclusion by the Bunurong Land Council and Traditional Owners.

The cultural heritage parks provides an opportunity for the development to acknowledge and provide history of the local indigenous groups.

7.3 Projected Economic Costs and Benefits

Employment opportunities are vast and are hard to estimate. Through civil works alone, the project is likely to employ circa 50 direct employees and countless more through supply chains.

The construction of circa 370 homes will employ countless trades and supply chain staff steadily over the 8 year period.

By adopting a conservative value of circa $600,000 per dwelling constructed, this development would generate over $220,000,000 of economic activity to the local area.

7.4 Employment Opportunities

Increased residential activity to Drouin is likely to impact local employment through the creation of new jobs, catering for the increased population. Jobs would range from health, logistics, produce through to hairdressing, mechanics, lawn mowing, and other employment opportunities not yet seen in the area.

8 ENVIRONMENTAL RECORD OF THE PERSON PROPOSING TO UNDERTAKE THE ACTION

The action is proposed to be undertaken by the Developer, Drouin Highfields Pty Ltd. Bayport Civil will be the contractor undertaking the works for the client. Bayport is currently certified in ISO 14001 Environmental Management Systems.

9 CONCULSION

The proposed action area supports two matters of National Environmental Significance, Strzelecki Gum and habitat for the Giant Gippsland Earthworm. The proposed action will result in an impact to Strzelecki Gum, where 15 individuals are proposed for removal.

No direct or indirect impacts to Giant Gippsland Earthworm are anticipated, based on the nature of the project and the implementation of the mitigation measures within and reference in this document.

The proposed action area supports a further 42 Strzelecki Gums that are proposed to be retained. Retention of these individuals is important on ensuring that a significant impact to Strzelecki Gum does not occur as a result of the project. Therefore, adherence to all mitigation measures and development of a detailed Construction Environmental Management Plan will be required to ensure the impacts are restricted to the 15 proposed to removal, and no direct or indirect impacts that result in the loss of any additional Strzelecki Gum occurs.

Based on the proposed impacts and mitigation measures presented in this report, we consider that the proposed action should be approved with conditions (e.g. submission of a detailed CEMP prior to the commencement of the action for approval by the Minister, and then implementation of the CEMP prior to commencement of the action).

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GbLA 2024. 100 Buln Buln Road, Drouin: Landscape Masterplan. Gb Landscape Architects 2024.

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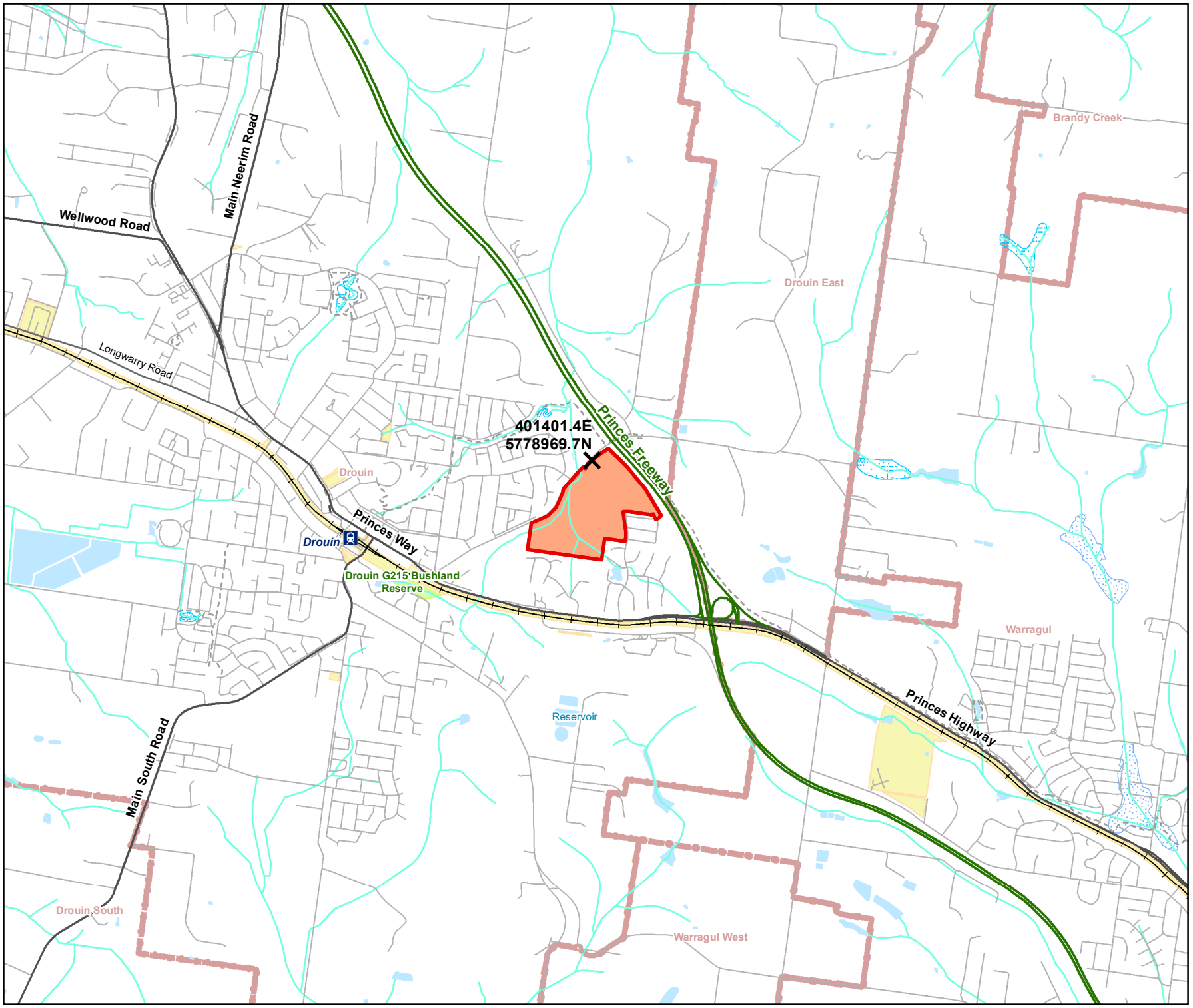
FIGURES



Legend

- Proposed Action Area
- Reference Coordinates
- Railway
- Freeway
- Major Road
- Collector Road
- Minor Road
- Proposed Road
- Minor Watercourse
- Permanent Waterbody
- Land Subject to Inundation
- Wetland/Swamp
- Parks and Reserves
- Crown Land
- Localities

Figure 1

Location of the Proposed Action Area (EPBC 2023/9526)

Preliminary Documentation for 100 Buln Buln Road, Drouin

N

0 400 800

Metres

Map Scale: 1:35,000 @ A4
Coordinate System: GDA2020 MGA Zone 55

ecology & heritage partners

Legend

- Proposed Action Area
- Giant Gippsland Earth worm habitat (Invert-Eco 2021)

Strzelecki Gum

- Scattered Large Tree
- Scattered Small Tree
- Large Tree in patch
- Small Tree in patch

Ecological Vegetation Classes

- Damp Forest (EVC 29)
- Swampy Riparian Woodland (EVC 83)

Development plan

- Road
- Open space / reserve
- Drainage reserve

Figure 2

Ecological features

Preliminary Documentation for 100 Buln Buln Road, Drouin

N

0 50 100

Metres

Map Scale: 1:4,500 @ A4
Coordinate System: GDA2020 MGA Zone 55

ecology & heritage partners

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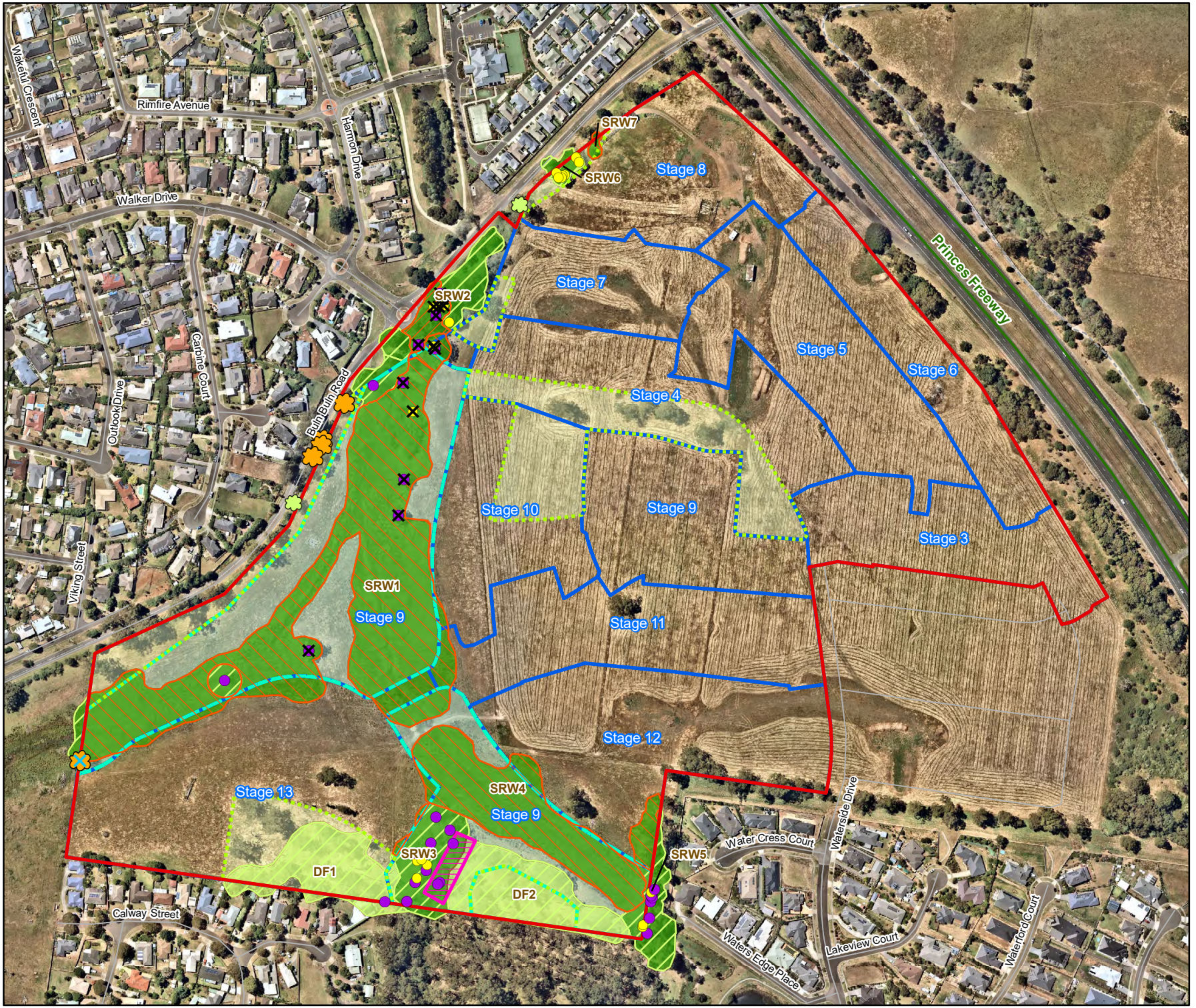
Aerial source: Nearmap 2022



Legend

- Proposed Action Area
- Stage boundary
- Open space / reserve
- Drainage reserve
- Giant Gippsland Earthworm habitat (Invert-Eco 2021)

Strzelecki Gum

- Scattered Large Tree
- Scattered Small Tree
- Large Tree in patch
- Small Tree in patch
- Impacted tree
- Removed with council approval

Ecological Vegetation Classes

- Damp Forest (EVC 29)
- Swampy Riparian Woodland (EVC 83)
- Impacted vegetation
- Retained vegetation

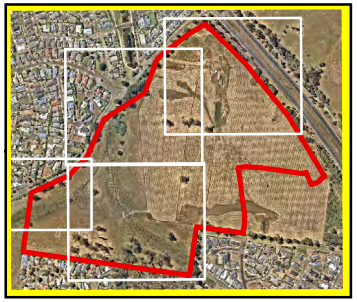


Figure 3 Overview

Development plan impacts

Preliminary Documentation for 100 Buln Buln Road, Drouin

N

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Metres

Map Scale: 1:4,500 @ A4
Coordinate System: GDA2020 MGA Zone 55

ecology & heritage partners

Aerial source: Nearmap 2022

Legend

- Proposed Action Area
- Stage boundary
- Open space / reserve
- Drainage reserve

Strzelecki Gum

- Scattered Large Tree
- Scattered Small Tree
- Large Tree in patch
- Small Tree in patch
- Impacted tree

Ecological Vegetation Classes

- Swampy Riparian Woodland (EVC 83)
- Impacted vegetation
- Retained vegetation

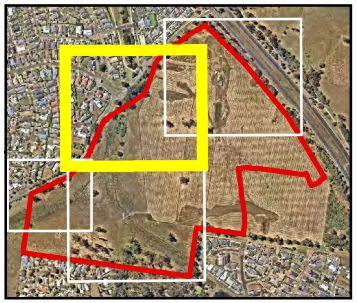

Figure 3a

Development plan impacts

Preliminary Documentation for 100 Buln Buln Road, Drouin

N

0 20 40

Metres

Map Scale: 1:1,800 @ A4
Coordinate System: GDA2020 MGA Zone 55

ecology & heritage partners

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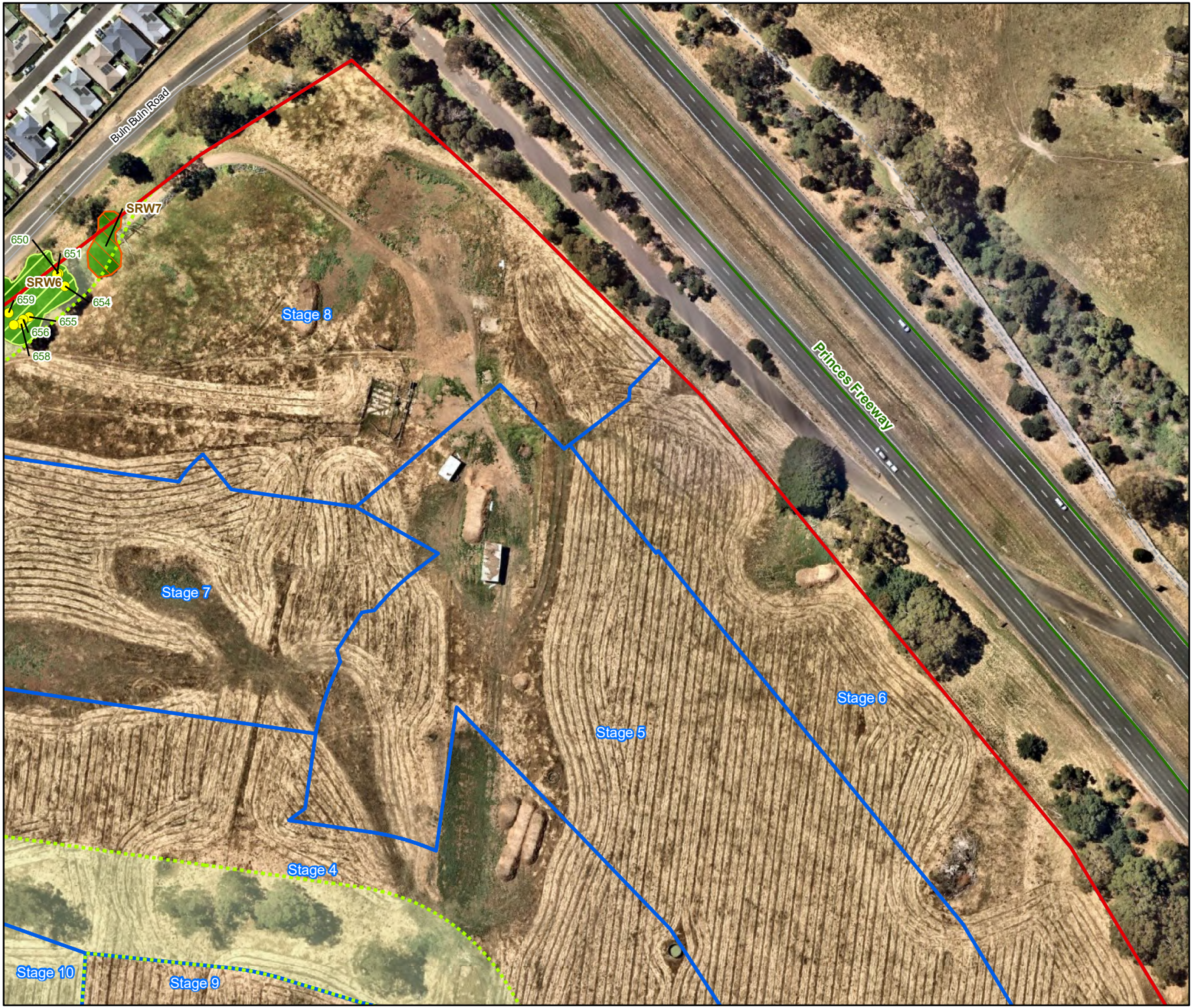
Aerial source: Nearmap 2022



Legend

- Proposed Action Area
- Stage boundary
- Open space / reserve

Strzelecki Gum

- Small Tree in patch

Ecological Vegetation Classes

- Swampy Riparian Woodland (EVC 83)
- Impacted vegetation
- Retained vegetation

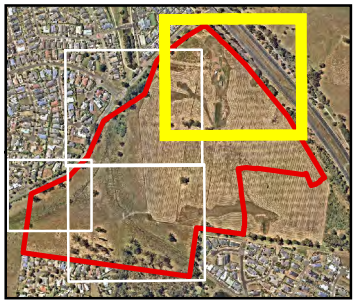


Figure 3b

Development plan impacts

Preliminary Documentation for 100 Buln Buln Road, Drouin

N

0 20 40

Metres

Map Scale: 1:1,800 @ A4
Coordinate System: GDA2020 MGA Zone 55

ecology & heritage partners

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Aerial source: Nearmap 2022

Legend

- Proposed Action Area
- Stage boundary
- Open space / reserve
- Drainage reserve

Strzelecki Gum

- Scattered Large Tree
- Large Tree in patch
- Removed with council approval

Ecological Vegetation Classes

- Swampy Riparian Woodland (EVC 83)
- Impacted vegetation
- Retained vegetation

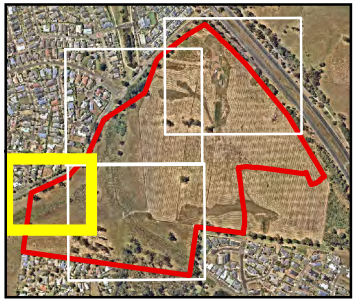

Figure 3c

Development plan impacts

Preliminary Documentation for 100 Buln Buln Road, Drouin

N

0 12.5 25

Metres

Map Scale: 1:1,100 @ A4
Coordinate System: GDA2020 MGA Zone 55

ecology & heritage partners

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Aerial source: Nearmap 2022

Legend

- Proposed Action Area
- Stage boundary
- Open space / reserve
- Drainage reserve
- Giant Gippsland Earthworm habitat (Invert-Eco 2021)

Strzelecki Gum

- Large Tree in patch
- Small Tree in patch
- Impacted tree

Ecological Vegetation Classes

- Damp Forest (EVC 29)
- Swampy Riparian Woodland (EVC 83)
- Impacted vegetation
- Retained vegetation

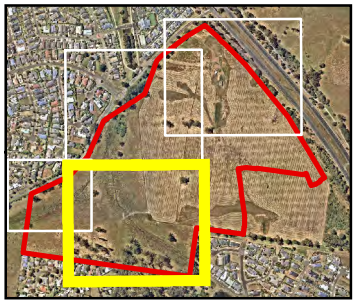

Figure 3d

Development plan impacts

Preliminary Documentation for 100 Buln Buln Road, Drouin

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Metres

Map Scale: 1:1,800 @ A4
Coordinate System: GDA2020 MGA Zone 55

ecology & heritage partners

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Aerial source: Nearmap 2022

Legend

- Proposed Action Area
- Strzelecki Gum records (VBA 2024)

Strzelecki Gum records (Sustainable Tree Management 2022)

- Tree impacted
- Tree removed with council approval
- Tree retained

Figure 4

Previously documented Strzelecki Gum records within 10km of the Proposed Action Area (EPBC 2023/9526)

Preliminary Documentation for 100 Buln Buln Road, Drouin

N

0 2 4

Kilometres

Map Scale: 1:75,000 @ A3
Coordinate System: GDA2020 MGA Zone 55

ecology & heritage partners

APPENDIX 1 REQUEST FOR FURTHER INFORMATION

Request for additional information – assessment by preliminary documentation

Highfields Estate Residential Development, 100 Buln Buln Road, Drouin, Victoria (2023/09526)

On 28 September 2023 the delegate of the Minister for the Environment determined that the proposed action to develop an area of 41.35 ha of land for a 373-lot residential subdivision, including housing lots, creation of a road network, a stormwater drainage system and open spaces at 100 Buln Buln Road, Drouin, Victoria was a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and that the controlling provisions were sections 18 and 18A (listed threatened species and communities).

Noting that you have provided some of these elements of information within the original referral document, we are asking that this information be compiled with the further information into a preliminary document that informs the assessment. It has been determined that the proposed action will be assessed by preliminary documentation. Preliminary documentation for the proposal will include:

- The information contained in the original referral.
- The further information you provide on the impacts of the action and the strategies you propose to avoid, mitigate and offset those impacts (as described below); and
- Any other relevant information on the matters protected by the EPBC Act.

The preliminary documentation should be sufficient to allow the Minister (or delegate) to make an informed decision on whether to approve, under Part 9 of the EPBC Act, the taking of the action for the purposes of each controlling provision.

The preliminary documentation must address the matters set out below and follow the content, style and formatting requirements set out in Appendix A.

1. DESCRIPTION OF THE ACTION

Information required	
1.1	The department notes discussions with proponent about potential staging of areas within the referral. Please reconfirm the location, boundaries and size (in hectares) of the proposed action area and the proposed disturbance footprint. Include mapping of any adjoining areas which may be directly or indirectly impacted by the proposal, including nearby vegetation, listed species habitat, and watercourses. Mapping and coordinates should be provided as per the *Guide to providing maps and boundary data for EPBC Act Projects (https://www.dcceew.gov.au/sites/default/files/documents/epbca-maps-data-guidelines.pdf)*.
1.2	A description of all components of the action, including the anticipated timing and duration (including start and completion dates) of each component of the project. This

	should include the proposed construction activities associated with each stage of the project.

2. HABITAT ASSESSMENT

Background

Based on the information provided in your referral, and other available information, the department considers that the listed species and communities identified below may be significantly impacted by the proposed action.

- Strzelecki Gym (*Eucalyptus strzeleckii*) – Vulnerable
- Giant Gippsland Earthworm (*Megascolides australis*) – Vulnerable

It is the proponent's responsibility to be aware of any changes to the distribution of listed threatened species, and information available in the Species Profile and Threats (SPRAT) Database. The proponent must ensure that a recent Protected Matters Search Tool (PMST) report has been generated and considered before finalising the draft preliminary documentation.

Habitat assessments must be informed by desktop and field surveys (in accordance with departmental guidelines or as defined by best practice surveys), and with reference to relevant departmental documents (e.g., approved Conservation Advice, Recovery Plans, draft referral guidelines and Listing Advice, and SPRAT Database), including published research and other relevant sources.

2.1 Species specific information

The preliminary documentation must address the following matters in addition to the general information listed above.

Information required	
Strzelecki Gym (*Eucalyptus strzeleckii*) - Vulnerable	
2.1.1	The total area and quality of habitat to be impacted in hectares with details on whether any impacts are likely to be unknown, unpredictable or irreversible and the science informing these areas and impacts.
2.1.2	An assessment of the landscape context of species habitat including connectivity for patches of species habitat, including their habitat quality and approximate size of the Strzelecki Gum population. And an assessment of how much connectivity the preserved trees around the perimeter of the area of the proposed action will provide to any nearby populations.
2.1.3	An assessment of whether the population of Strzelecki Gum in and near the area of the proposed action meets the criteria for important population outlined in (A) the *Significant Impact Guidelines 1.1* (listed below): • key source populations either for breeding or dispersal • populations that are necessary for maintaining genetic diversity, and/or • populations that are near the limit of the species range. Or meets the requirements of an important population outlined in (B) the National recovery plan for the Strzelecki Gum (*Eucalyptus strzeleckii*) 2006 as "containing a high number of individuals."
Giant Gippsland Earthworm (*Megascolides australis*) – Vulnerable	
2.2.1	The referral noted the GGE would only occur in one defined area in the south of the area of the proposed action near Gum Scrub Creek. Please provide further justification on the habitat assessment provided in the referral. Where required, reassess all the habitat's specific features available in the proposed action area as per the habitat described in the National Recovery Plan for the Giant Gippsland Earthworm (*Megascolides australis*) 2010.
2.2.2	Provide the scientific reasoning for how the extent of known and unknown potential habitat for the Giant Gippsland Earthworm were derived.
2.2.3	An assessment of the adequacy of any surveys undertaken (including survey effort, timing and accordance with Department of Climate Change, Energy, Environment and Water's relevant scientific and policy guidance).

3. IMPACT ASSESSMENT

Background

The proposed action is considered likely to have impacts to threatened species and communities (section 18 and section 18a). The preliminary documentation must include an assessment of direct, indirect, and consequential impacts as a result of the proposed action and must be assessed in accordance with relevant departmental policies and guidelines, including the SPRAT Database.

Consideration of impacts include direct, indirect, and facilitated impacts, occurring as a result of the action, including consideration of the nature, likelihood, and severity of the impacts.

The department considers the proposed action may result in, but is not limited to, the following impacts:

- Decrease in habitat quality or quantity due to direct clearance
- A risk of indirect impacts to the populations of the MNES due to potential changes to hydrology

Listed Threatened Species and Communities

Information required	
3.1	An assessment of the impacts of habitat or species removal. Include consideration of the landscape context and connectivity with other patches of habitat and information on the long-term viability of local populations of Strzelecki Gum if the proposed action was to proceed.
3.2	An assessment of the likely impacts on GGE and Strzelecki Gum associated with the changes to hydrology. The assessment must include the impacts to the landscape scale species habitat and associated buffer zones.
3.3	An assessment of the likely duration of impacts to MNES as a result of the proposed action.
3.4	A discussion of whether the impacts are likely to be repeated, for example as part of maintenance.
3.5	A discussion of whether any impacts are likely to be unknown, unpredictable or irreversible.
3.6	Justification, with supporting evidence, how the proposed action will not be inconsistent with relevant conservation advice, recovery plans or threat abatement plans.

4. AVOIDANCE, MITIGATION AND MANAGEMENT MEASURES

Background

Avoidance and mitigation measures are the primary methods of eliminating and reducing significant impacts on MNES. Where possible and practicable, it is best to avoid impacts. If impacts cannot be avoided, then they should be minimised or mitigated as much as possible. Avoidance and mitigation measures must be investigated thoroughly as a part of the assessment and be supported by evidence to demonstrate likely success.

Management commitments by the person proposing to take the action must be clearly distinguished from recommendations or statements of best practice made by the document author or other technical expert.

The SPRAT Database, and associated statutory documents, may provide relevant mitigation measures for listed threatened species and ecological communities and listed migratory species.

The department notes the referral includes a description of the proposed avoidance, mitigation and management measures to be implemented by the proponent during the construction, operation and maintenance stages of the proposed action. The referral also states that a relevant **stormwater management plan** will be developed prior to the commencement of the proposed action.

Information required	
4.1	A detailed summary of measures proposed to be undertaken by the proponent to avoid, mitigate and manage relevant impacts of the proposed action on relevant MNES. This should include for each measure: i. A statement of the objectives, ongoing management and monitoring, and locations and timing ii. The party responsible iii. The policy basis, for instance, consideration of the National recovery plan for the Strzelecki Gum (*Eucalyptus strzeleckii*) 2006 and the National Recovery Plan for the Giant Gippsland Earthworm (*Megascolides australis*) 2010.
4.2	The proposed measures must be based on best available practices, appropriate standards, evidence of success for other similar actions and supported by published scientific evidence.
4.3	All proposed measures for MNES must be drafted to meet the 'S.M.A.R.T' principle: • S – Specific (what and how) • M – Measurable (baseline information, number/value, auditable) • A – Achievable (timeframe, money, personnel) • R – Relevant (conservation advice, recovery plans, threat abatement plans)

	• T – Time-bound (specific timeframe to complete)
4.4	The details of the vegetation and species habitat to be retained and an associated map showing the retained vegetation and habitat for the proposed action and project area. The information and mapping must include the location and quantification of the total area of retained vegetation and species habitat when acting in combination with past, present, and reasonably foreseeable projects in the region.

5. OFFSETS

Background

Environmental offsets are measures that compensate for the residual significant impacts of an action on the environment. Offsets provide environmental benefits to counterbalance the impacts that remain after consideration of avoidance and mitigation measures. It is important to consider environmental offsets early in the assessment process. Correspondence with the department regarding offsetting is highly encouraged. The department's *EPBC Act Environmental Offsets Policy* (2012) (Offsets Policy) is available at: www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy.

Information required	
5.1	An assessment of the likelihood of residual significant impacts occurring on relevant MNES, after avoidance, mitigation and management measures have been applied.
5.2	Acknowledging that if avoidance, mitigation and management are unable to reduce the significance of the impacts, please provide a summary of the proposed environmental offset and key commitments to achieve a conservation gain for each protected matter with residual significant impacts.
5.3	Where offset area/s have been nominated, include a draft OAMP (Offset Area Management Plan) as an appendix to the PD. The draft OAMP must meet the information requirements set out in Appendix B, and must be prepared by a suitably qualified ecologist and in accordance with the department's *Environmental Management Plan Guidelines* (2014), available at: www.environment.gov.au/epbc/publications/environmental-management-plan-guidelines.

6. ECOLOGICALLY SUSTAINABLE DEVELOPMENT (ESD)

Information required	
6.1	A description of how the proposed action meets the principles of ESD, as defined in section 3A of the EPBC Act. The following principles are ***principles of ecologically sustainable development***: • decision making processes should effectively integrate both long term and short term economic, environmental, social and equitable considerations. • if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. • the principle of inter-generational equity—that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations. • the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision making. • improved valuation, pricing and incentive mechanisms should be promoted.

7. ECONOMIC AND SOCIAL MATTERS

Information required	
7.1	An analysis of the economic and social impacts of the action, both positive and negative.
7.2	Details of any public consultation activities undertaken and their outcomes.
7.3	Details of any consultation with Indigenous stakeholders. **Indigenous engagement** Identify existing or potential native title rights and interests, including any areas and objects that are of particular significance to Indigenous peoples and communities, possibly impacted by the proposed action and the potential for managing those impacts. Describe any Indigenous consultation that has been undertaken, or will be undertaken, in relation to the proposed action and their outcomes. The department considers that best practice consultation, in accordance with the The Interim Engaging with First Nations People and Communities on Assessments and Approvals under Environment Protection and Biodiversity Conservation Act 1999 (interim guidance) - DCCEEW includes: • identifying and acknowledging all relevant affected Indigenous peoples and communities.

	• committing to early engagement. • building trust through early and ongoing communication for the duration of the project, including approvals, implementation and future management. • setting appropriate timeframes for consultation; and • demonstrating cultural awareness. Describe any state requirements for approval or conditions that apply, or that the proponent reasonably believes are likely to apply, to the proposed action with regards to Indigenous peoples and communities.
7.4	Projected economic costs and benefits of the project, including the basis for their estimate through cost/benefit analysis or similar studies.
7.5	Employment opportunities expected to be generated by the project (including construction and operational phases).

8. ENVIRONMENTAL RECORD OF THE PERSON PROPOSING TO TAKE THE ACTION

Information required	
Include 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:	
8.1	the person proposing to take the action;
8.2	for an action for which a person has applied for a permit, the person making the application;
8.3	if the person is a body corporate—the history of its executive officers in relation to environmental matters; and
8.4	if the person is a body corporate that is a subsidiary of another body or company (the parent body)—the history in relation to environmental matters of the parent body and its executive officers.

9. CONCLUSION

Please provide an overall conclusion as to the environmental acceptability of the proposal with regards to the objects and requirements of the EPBC Act including the principles of Ecologically Sustainable Development (ESD). You may wish to include a statement as to whether or not the controlled action should be approved and may recommend conditions pertaining to an approval. This should include justification for undertaking the proposed action in the manner proposed.

10. INFORMATION SOURCES

The preliminary documentation must state for the information provided, the following:

a) The source and currency (date) of the information.

b) How the reliability of the information was tested.

c) The uncertainties (if any) in the information.

d) The guidelines, plans and/or policies considered.

APPENDIX A: Preliminary documentation content, style and formatting requirements

A1. Content requirements	
A1.1	Be a stand-alone document containing sufficient information to avoid the need to search out previous or supplementary reports.
A1.2	Enable interested stakeholders and the Minister to easily understand the consequences of the project on matters of national environmental significance (MNES).
A1.3	Be written so that any conclusions reached can be independently assessed. Include all key claims, findings, proposals and undertakings in the main document.
A1.4	Refer to all relevant standards, policies and other guidance material published by the department. Any instances where published guidance is not followed must be justified. Where no Commonwealth standards exist, state government and industry standards may be useful.
A1.5	Include the names, roles and qualifications (where relevant) of all persons involved in preparing the preliminary documentation.
A1.6	Include a copy of this request for information and a cross-reference table indicating where the information fulfilling this request is included in the preliminary documentation (e.g., Section 4.2.2 and Appendix A, Chapter 2.1).
A1.7	The preliminary documentation must state the following for all information provided: • The source and date of the information. • How the reliability of the information was tested. • The uncertainties (if any) in the information. • The guidelines, plans, and/or policies considered.
A2. Format and style requirements	
A2.1	Be in a suitable format to be published in hardcopy (A4 or A3 size, with maps and diagrams in A4 or A3 size and in colour) and published in electronic format (e.g., MSWord or PDF) on the internet.
A2.2	Include detailed technical information, studies or investigations necessary to support the information in the stand-alone document as appendices.
A2.3	Be objective, clear, succinct, avoid technical jargon and, where appropriate, be supported by maps, plans, diagrams, data or other descriptive detail.

A2.4	Reference all sources using the Harvard standard of referencing. Ensure that other supporting documents (e.g., academic studies, regulatory standards) are publicly accessible, with electronic links provided where possible.
A2.5	Redact the contact details of departmental officers.
A2.6	Not contain any commercial in confidence markings. If the preliminary documentation contains sensitive information, please discuss this with the assessment officer.
A3. Ecological data provision	
A3.1	The preliminary documentation must include an appendix of occurrence records (both sightings and evidence of presence) for all listed threatened and migratory species identified during field surveys for the proposed action. This data may be used by the department to update the relevant species distribution models that underpin the publicly available Protected Matters Search Tool (PMST).
A3.2	The species occurrence records must be provided in accordance with the department's *Guidelines for biological survey and mapped data* (2018) using the species observation data template provided with this request for additional information. Sensitive ecological data must be identified and treated in accordance with the department's *Sensitive Ecological Data – Access and Management Policy V1.0* (2016) or subsequent revision.

APPENDIX 2 PROTECTED MATTERS SEARCH TOOL (PMST) REPORT

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 24-Oct-2024

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	2
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	47
Listed Migratory Species:	8

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	18
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	9
Regional Forest Agreements:	2
Nationally Important Wetlands:	None
EPBC Act Referrals:	20
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands) [Resource Information]

Ramsar Site Name	Proximity	Buffer Status
Gippsland lakes	50 - 100km upstream from Ramsar site	In feature area
Western port	20 - 30km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Natural Damp Grassland of the Victorian Coastal Plains	Critically Endangered	Community may occur within area	In buffer area only
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community may occur within area	In buffer area only

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia			
Regent Honeyeater [82338]	Critically Endangered	Species or species habitat may occur within area	In feature area
Botaurus poiciloptilus			
Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat known to occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Roosting known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat may occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Pycnoptilus floccosus](#) Pilotbird [525]	Vulnerable	Species or species habitat may occur within area	In feature area
[Rostratula australis](#) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
[Stagonopleura guttata](#) Diamond Firetail [59398]	Vulnerable	Species or species habitat may occur within area	In feature area
FISH			
[Galaxiella pusilla](#) Eastern Dwarf Galaxias, Dwarf Galaxias [56790]	Endangered	Species or species habitat known to occur within area	In feature area
[Nannoperca obscura](#) Yarra Pygmy Perch [26177]	Endangered	Species or species habitat may occur within area	In feature area
[Prototroctes maraena](#) Australian Grayling [26179]	Vulnerable	Species or species habitat likely to occur within area	In feature area
FROG			
[Litoria raniformis](#) Southern Bell Frog,, Growling Grass Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]	Vulnerable	Species or species habitat known to occur within area	In feature area
MAMMAL			
[Antechinus minimus maritimus](#) Swamp Antechinus (mainland) [83086]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Dasyurus maculatus maculatus (SE mainland population)](#) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area	In feature area
[Gymnobelideus leadbeateri](#) Leadbeater's Possum [273]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
[Isoodon obesulus obesulus](#) Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) [68050]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Mastacomys fuscus mordicus Broad-toothed Rat (mainland), Tooarrana [87617]	Endangered	Species or species habitat may occur within area	In buffer area only
Petauroides volans Greater Glider (southern and central) [254]	Endangered	Species or species habitat known to occur within area	In feature area
Petaurus australis australis Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Potorous tridactylus trisulcatus Long-nosed Potoroo (southern mainland) [86367]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Pseudomys fumeus Smoky Mouse, Konoom [88]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat may occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In feature area
OTHER			
Megascolides australis Giant Gippsland Earthworm [64420]	Vulnerable	Species or species habitat known to occur within area	In feature area
PLANT			
Amphibromus fluitans River Swamp Wallaby-grass, Floating Swamp Wallaby-grass [19215]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Astelia australiana Tall Astelia [10851]	Vulnerable	Species or species habitat may occur within area	In feature area
Caladenia tessellata Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dianella amoena Matted Flax-lily [64886]	Endangered	Species or species habitat likely to occur within area	In feature area
Eucalyptus strzeleckii Strzelecki Gum [55400]	Vulnerable	Species or species habitat known to occur within area	In feature area
Glycine latrobeana Clover Glycine, Purple Clover [13910]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lepidium aschersonii Spiny Peppercress [10976]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Pomaderris vacciniifolia Round-leaf Pomaderris [4256]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Prasophyllum spicatum Dense Leek-orchid [55146]	Vulnerable	Species or species habitat may occur within area	In feature area
Pterostylis chlorogramma Green-striped Greenhood [56510]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Senecio psilocarpus Swamp Fireweed, Smooth-fruited Groundsel [64976]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In feature area
Xerochrysum palustre Swamp Everlasting, Swamp Paper Daisy [76215]	Vulnerable	Species or species habitat likely to occur within area	In feature area
REPTILE			
Lissolepis coventryi Swamp Skink, Eastern Mourning Skink [84053]	Endangered	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Roosting known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Defence		
Defence - WARRAGUL TRAINING DEPOT [21110]	VIC	In buffer area only

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Roosting known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Breeding known to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Sterna striata White-fronted Tern [799]		Migration route may occur within area	In buffer area only

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Drouin G215 B.R	Natural Features Reserve	VIC	In feature area
Drouin West G82 B.R	Natural Features Reserve	VIC	In buffer area only

Protected Area Name	Reserve Type	State	Buffer Status
Drouin West G83 B.R.	Natural Features Reserve	VIC	In buffer area only
Drouin West G84 B.R.	Natural Features Reserve	VIC	In buffer area only
Labertouche Creek B.R.	Natural Features Reserve	VIC	In buffer area only
Picnic Point SS.R.	Natural Features Reserve	VIC	In buffer area only
Robin Hood SS.R.	Natural Features Reserve	VIC	In buffer area only
Rokeby F.R.	Nature Conservation Reserve	VIC	In buffer area only
Whiskey Creek B.R.	Natural Features Reserve	VIC	In buffer area only

Regional Forest Agreements

[Resource Information]

Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.

RFA Name	State	Buffer Status
Central Highlands RFA	Victoria	In feature area
Gippsland RFA	Victoria	In feature area

EPBC Act Referrals

[Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Gippsland Rail Line Upgrade - Pakenham to Longwarry East	2019/8563		Completed	In buffer area only
Highfields Estate Residential Development	2023/09526		Assessment	In feature area
Residential Development, Warragul South	2022/9187		Assessment	In buffer area only
Controlled action				
Installation of replacement crude-condensate pipeline, Vic	2014/7202	Controlled Action	Post-Approval	In buffer area only
Not controlled action				
Biodiversity Impacts Audit	2011/6191	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Industrial Development	2009/4823	Not Controlled Action	Completed	In buffer area only
McGlones Road Widening, Drouin, Vic	2018/8345	Not Controlled Action	Completed	In buffer area only
Regional Fast Rail Project - Latrobe Valley Country Works Package	2002/654	Not Controlled Action	Completed	In feature area
Removal of Strzelecki Gum as part of the Regional Fast Rail Project	2006/2936	Not Controlled Action	Completed	In feature area
Residential Development, 245 Copelands Road, Warragul, Vic	2018/8342	Not Controlled Action	Completed	In buffer area only
Tarago Water Treatment Plant	2007/3622	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
Gippsland Rail Line Upgrade - Longwarry East to Traralgon	2019/8564	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Regional Fibre Optic Project (RFOP)	2003/916	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Residential village and low density housing within Gian Gippsland Earthworm Bio	2007/3474	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Waterford Rise Residential Development Warragul	2010/5605	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Referral decision				
All actions taken in response to the current severe bushfires in Victoria.	2009/4787	Referral Decision	Completed	In feature area
Removal of native vegetation, 241 Copelands Rd, Warragul, Vic	2018/8274	Referral Decision	Completed	In buffer area only

Bioregional Assessments			[Resource Information]
SubRegion	BioRegion	Website	Buffer Status
Gippsland	Gippsland Basin	BA website	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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APPENDIX 3 STRZELECKI GUM RECORDED IN PROPOSED ACTION AREA

A summary of all Strzelecki Gum's recorded within the proposed action area, and their relevant status, are provided in Table A3.

Table A3. Summary of all Strzelecki Gum recorded in proposed action area.

Tree # (Figure 3a-d)	Species Name	Scattered / Patch & Size	Status
45	*Eucalyptus strzeleckii*	Large Tree in patch	Retained
50	*Eucalyptus strzeleckii*	Large Tree in patch	Retained
53	*Eucalyptus strzeleckii*	Large Tree in patch	Retained
54	*Eucalyptus strzeleckii*	Small Tree in patch	Retained
55	*Eucalyptus strzeleckii*	Large Tree in patch	Retained
57	*Eucalyptus strzeleckii*	Small Tree in patch	Retained
58	*Eucalyptus strzeleckii*	Small Tree in patch	Retained
59	*Eucalyptus strzeleckii*	Small Tree in patch	Retained
60	*Eucalyptus strzeleckii*	Large Tree in patch	Retained
61	*Eucalyptus strzeleckii*	Large Tree in patch	Retained
62	*Eucalyptus strzeleckii*	Small Tree in patch	Retained
63	*Eucalyptus strzeleckii*	Large Tree in patch	Retained
66	*Eucalyptus strzeleckii*	Large Tree in patch	Retained
67	*Eucalyptus strzeleckii*	Large Tree in patch	Retained
69	*Eucalyptus strzeleckii*	Large Tree in patch	Retained
70	*Eucalyptus strzeleckii*	Large Tree in patch	Retained
137	*Eucalyptus strzeleckii*	Large Tree in patch	Retained
138	*Eucalyptus strzeleckii*	Small Tree in patch	Retained
139	*Eucalyptus strzeleckii*	Small Tree in patch	Retained
140	*Eucalyptus strzeleckii*	Large Tree in patch	Retained
141	*Eucalyptus strzeleckii*	Large Tree in patch	Retained
142	*Eucalyptus strzeleckii*	Large Tree in patch	Retained
143	*Eucalyptus strzeleckii*	Large Tree in patch	Retained
144	*Eucalyptus strzeleckii*	Small Tree in patch	Retained
145	*Eucalyptus strzeleckii*	Large Tree in patch	Retained
248	*Eucalyptus strzeleckii*	Scattered Small Tree	Retained
258	*Eucalyptus strzeleckii*	Small Tree in patch	Retained
260	*Eucalyptus strzeleckii*	Large Tree in patch	Impacted
261	*Eucalyptus strzeleckii*	Small Tree in patch	Impacted

Tree # (Figure 3a-d)	Species Name	Scattered / Patch & Size	Status
271	*Eucalyptus strzeleckii*	Large Tree in patch	Impacted
272	*Eucalyptus strzeleckii*	Small Tree in patch	Impacted
273	*Eucalyptus strzeleckii*	Large Tree in patch	Impacted
274	*Eucalyptus strzeleckii*	Large Tree in patch	Impacted
276	*Eucalyptus strzeleckii*	Large Tree in patch	Impacted
277	*Eucalyptus strzeleckii*	Large Tree in patch	Retained
278	*Eucalyptus strzeleckii*	Scattered Large Tree	Removed with council approval
285	*Eucalyptus strzeleckii*	Large Tree in patch	Impacted
286	*Eucalyptus strzeleckii*	Small Tree in patch	Impacted
287	*Eucalyptus strzeleckii*	Small Tree in patch	Impacted
289	*Eucalyptus strzeleckii*	Small Tree in patch	Impacted
290	*Eucalyptus strzeleckii*	Small Tree in patch	Impacted
292	*Eucalyptus strzeleckii*	Large Tree in patch	Impacted
294	*Eucalyptus strzeleckii*	Large Tree in patch	Impacted
299	*Eucalyptus strzeleckii*	Large Tree in patch	Retained
301	*Eucalyptus strzeleckii*	Scattered Large Tree	Retained
304	*Eucalyptus strzeleckii*	Scattered Large Tree	Retained
305	*Eucalyptus strzeleckii*	Scattered Large Tree	Retained
307	*Eucalyptus strzeleckii*	Scattered Large Tree	Retained
310	*Eucalyptus strzeleckii*	Scattered Small Tree	Retained
650	*Eucalyptus strzeleckii*	Small Tree in patch	Retained
651	*Eucalyptus strzeleckii*	Small Tree in patch	Retained
654	*Eucalyptus strzeleckii*	Small Tree in patch	Retained
655	*Eucalyptus strzeleckii*	Small Tree in patch	Retained
656	*Eucalyptus strzeleckii*	Small Tree in patch	Retained
658	*Eucalyptus strzeleckii*	Small Tree in patch	Retained
659	*Eucalyptus strzeleckii*	Small Tree in patch	Retained
660	*Eucalyptus strzeleckii*	Small Tree in patch	Retained

*Tree 278 excluded from total number of Strzelecki Gums within Proposed Action Area as already removed with council consent.

APPENDIX 4 GIANT GIPPSLAND EARTHWORM GUIDELINES FOR REVEGETATION AND PLANTATION PROJECTS

PROTECTING GIANT GIPPSLAND EARTHWORM HABITAT - guidelines for revegetation and plantation projects

Fact Sheet No. 2, April 2014

Careful thought and planning must be given when revegetating areas known to be habitat for the threatened Giant Gippsland Earthworm (GGE) (*Megascolides australis*) (Figure 1). In south and west Gippsland, revegetation frequently occurs on steep slopes and along stream banks, exactly where GGE love to live. We know that soil moisture is an important part of the GGE's habitat. Planting of trees in or close to GGE colonies can result in a reduction in soil moisture and therefore a loss in suitable habitat. Where GGE colonies are located in areas targeted for revegetation or plantations, planning and practices need to be modified to protect earthworms from direct damage or longer-term habitat degradation.

Figure 1 Giant Gippsland Earthworm (GGE)

Threats to GGE from revegetation

Site preparation for revegetation projects, (including agro-forestry and plantations), usually involves ploughing, scalping or deep-ripping and herbicide treatments. These activities cause immediate harm to GGE colonies by damaging worms, destroying burrow systems and poisoning individuals.

Another long-term effect is a drying out of the upper layers of the soil and a lowering of water-tables, also affecting springs and soaks as growing trees use water. These effects can alter local hydrological conditions to the extent that soils no longer hold sufficient moisture year-round to allow colonies to survive.

Over time the change from open pasture to dense stands of trees causes changes to the soil environment. Roots of growing trees form physical barriers that may interfere with burrow building by earthworms.

Without action to avoid or mitigate these effects, revegetation projects can inadvertently result in local extinctions of GGE colonies.

The strategy to protect GGEs during revegetation projects is to apply a modified planting design and create a buffer around each colony to absorb any negative impacts from revegetation works. The modified planting design is characterised by the creation of three zones, each of which requires different planting (species composition and density) and management prescriptions.

What can I do?

1. Locate and Map GGE colonies

The first step is to identify whether there are any colonies within the area proposed for revegetation. Information on how to identify GGE habitat on your property and detect the presence of colonies is available in Fact Sheet 1 - Recognising GGE habitat on your farm.

As well as its location, the extent of each colony needs to be determined. The area occupied by colonies is typically small, the smallest being a few square metres with the largest up to 2500 m². You may encounter one colony or many small, isolated colonies separated by areas of unsuitable habitat (e.g. dry, silty or rocky soils).

Once the colony is identified, an additional 10 metres area should be included to account for GGEs on the edge of the colony.

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PROTECTING GGE HABITAT

The area occupied by earthworms is known as **Zone 1 -** GGE Colony – No planting zone.

2. Establish buffer around colonies

Establish a buffer area around each colony. The minimum recommended width of buffers is 30 metres from the edge of the area occupied by the colony. However, actual buffer size may vary depending on individual site characteristics.

This buffer area is known as **Zone 2** - Modified planting zone.

Buffers for colonies on hillsides

Many colonies found on hillsides are associated with underground springs or soaks and the slopes are usually south facing. These areas may be obvious as greener patches often with areas of slumping (Figure 2). A colony on a hillside will require a larger buffer above the colony to protect the source soak from thirsty plants. In the example shown in Figure 2, it is recommended not to plant trees between the head of the soak and the top of the hill immediately above it.

Figure 2 GGE colony on south facing slope with obvious soak and soil slumping

Colonies along creek banks

Colonies located along the banks of creeks and drainage channels are generally found on terraces above the flood level. They rarely extend into surrounding pasture and are usually located within a few metres of the edge of the creek bank (Figure 3). However, if the creek occurs within a gully, colonies can extend higher up into the gully slopes (Figure 4).

Figure 3 GGE habitat on well defined banks

Figure 4 GGE habitat extending into surrounding slopes above creek

3. Planting Design

The following guidelines are recommended when designing revegetation works around GGE colonies. Figure 5 & 6 provide a diagrammatic representation of zoned planting for GGE colonies.

Zone 1 - GGE habitat – No planting zone

This is the area occupied by GGEs in addition to a 10 metre buffer. No planting is undertaken within GGE habitat and original cover (e.g. pasture) remains. Any remnant vegetation occurring within GGE habitat should be retained.

Zone 2 – Modified planting zone

This zone includes a 30 m area surrounding GGE habitat. The standard Ecological Vegetation Class (EVC) planting is modified to only include plants with minimally invasive root systems and low water usage e.g. native grasses, sedges and herbs.

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Modified planting for hillside colonies (Figure 5)

The buffer area above GGE colonies on hillslopes must take into account protection of the entire soak (if recognisable). This may require an extension of Zone 2 to include the top of a slope.

Modified planting for creekside colonies (Figure 6)

The width of the area to be fenced out for revegetation along creek banks may be considerably less than 30 metres. It is therefore recommended that the area above the GGE colony (away from the creek bank) is either left as pasture or planted as per Zone 2. This will depend on the size of the area occupied by the colony. For example, a small colony extending a few metres perpendicular to a creek, may allow for Zone 2 planting within the area to be fenced. Colonies occupying the total width of the area to be fenced should be left as pasture or minimal Zone 2 planting.

Zone 3 – Standard EVC Planting

Zone 3 includes areas outside the GGE colony and buffer. These areas should be planted with reference to the appropriate bioregional Standard Ecological Vegetation Class (EVC) benchmark for the site (www.depi.vic.gov.au).

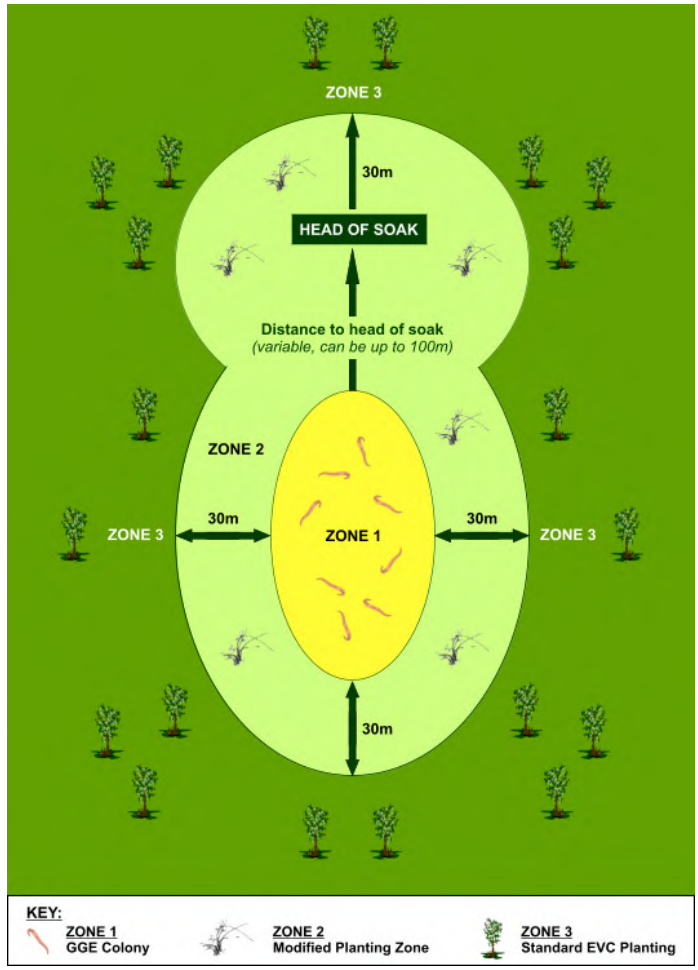

Figure 5 Modified planting for hillside colonies

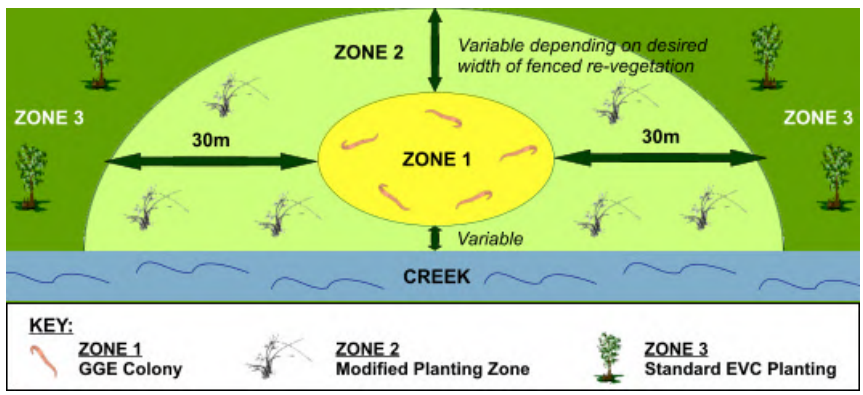

Figure 6 Modified planting for creekside colonies

PROTECTING GGE HABITAT

Fact Sheet No. 2, April 2014

4. Management guidelines for colonies and buffer areas

All activities that damage GGEs and their habitat should be excluded from the colony and its buffer.

Zone 1

- no excavation or soil disturbance (e.g. no ploughing, scalping or deep-ripping of soil);
- retain any existing native vegetation, except for regenerating trees or tall shrubs;
- no vehicle access;
- no broadscale use of herbicide. Manage weeds by hand or use spot application of herbicides with low toxicity to humans or animals and approved for use around waterways (e.g. Roundup biactive);
- manual slashing (anytime) or crash grazing (dry conditions only) are acceptable;
- if retaining cover of introduced pasture grasses is undesirable, vegetate as per Zone 2 using planting methods that cause minimal disturbance to soils;
- temporary fencing may be desirable to identify and protect GGE colonies during revegetation works; and
- install permanent fencing outside Zone 1.

Zone 2

- minimise soil disturbance;
- no broadscale use of herbicide. This does not exclude “spot” spraying for weed control;
- avoid the entry of heavy machinery, especially during wet or water-logged conditions;
- no planting of trees and tall shrubs;
- remove regenerating trees or tall shrubs; and
- re-plant with native understorey species including grasses, sedges or low-growing, shallow-rooted shrubs as per modified planting design.

Zone 3

- apply standard EVC planting and management practices apply;
- no restrictions on plantings;
- no restrictions on vehicle access; and
- no restrictions on chemical usage.

5. Other management considerations

Avoid constructing tracks where they will affect drainage into buffer and habitat areas.

Careful fencing procedures around the colony are required to minimise the impact of the fencing activity on GGEs.

These guidelines are based on the current understanding of the impacts of revegetation works on GGEs and may alter as further understanding of the relationship between GGEs and their environment is available. Remember to check our website www.giantearthworm.org.au regularly for the latest information.

Resources

http://www.dse.vic.gov.au/__data/assets/pdf_file/0005/97349/NativeVeg_Reveg.pdf

http://www.giantearthworm.org.au

http://www.giantearthworm.org.au/sitefiles/fact-sheet1.pdf

Last updated April 2014
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APPENDIX 5 GIANT GIPPSLAND EARTHWORM CONTINGENCY PLAN

GUIDELINES FOR THE ACCIDENTAL UNEARTHING OF GIANT GIPPSLAND EARTHWORMS JULY 2014

Even after appropriate survey, assessment and planning have been undertaken at a site, undetected populations of the Giant Gippsland Earthworm may be accidentally unearthed during project works. The following guidelines have been produced to manage these incidents.

IN THE EVENT OF THE ACCIDENTAL UNEARTHING OF GIANT GIPPSLAND EARTHWORMS THE FOLLOWING ACTIONS SHOULD BE IMPLEMENTED IMMEDIATELY.

1. All works must cease within a 50m diameter AREA around the location of the incident.
2. The Site Supervisor must be alerted to the incident
3. The Site Supervisor must establish the AREA as an INCIDENT SITE by securing the boundary and preventing any movement of machinery into the site or any further disturbance to the soil.
4. The Site Supervisor must ensure that any earthworms left exposed in the soil are left in situ and covered with a 10cm layer of moist soil.
5. The Site Supervisor must ensure that any earthworms unearthed and appearing uninjured must be collected and relocated according to the instructions provided.
6. The Site Supervisor must ensure that any dead or fatally injured animals are collected and put in **95 % alcohol in sealed glass jar or plastic container or frozen storage** as soon as possible after unearthing for collection by DSE or deposit at Museum Victoria. All specimens must be accompanied by appropriate label with date, precise locality and organisation details.
7. The Site Supervisor must ensure that the Biodiversity Unit, DSE Office, Traralgon (Ph: 03 51722111) is contacted within 24 HOURS regarding earthworms that required collection.
8. The Site Supervisor must ensure that an INCIDENT REPORT is completed in the format provided and sent to the Agency responsible for authorizing the works (e.g. DPI, shires, DSE) within 24 HOURS OF THE INCIDENT.

AN ASSESSMENT OF THE IMPACT OF WORKS ON THE GIANT GIPPSLAND EARTHWORM POPULATION MAY BE REQUIRED BY THE AUTHORISING AGENCIES. ADVICE WILL BE GIVEN ON HOW TO PROCEED WITH WORK ACTIVITIES AS QUICKLY AS POSSIBLE.

The Giant Gippsland Earthworm has been officially listed under both Victorian and Federal legislation as a threatened species. As a result, permits from both levels of government may

be required to either remove animals or interfere with their habitat. Substantial penalties may apply for non-adherence.

INCIDENT REPORT FOR THE ACCIDENTAL UNEARTHING OF GIANT GIPPSLAND EARTHWORMS

`

Name of company/organisation:

……

Name of contact:

……

Contact details:

……

Location of Incident:

……..

Date of Incident:

……..

Size of area from which earthworms unearthed……...

Estimate of numbers of worms unearthed…….

Number of earthworms recovered in situ……..

Number of earthworms taken for relocation……..

Description of Incident

……..
……..
……..
……..
……..
……..
……..
……..

Attach **photograph** of habitat/incident

This Incident Report must be sent to the authorizing agency within 24 hours

INSTRUCTIONS FOR RELOCATING GIANT GIPPSLAND EARTHWORMS

It is important that the following instructions are followed in order to ensure the best possible chance of survival for Giant Gippsland Earthworms that have been accidentally unearthed and need to be placed back into the soil.

1. Collect all uninjured earthworms. Giant Gippsland Earthworms are fragile and must be handled with great care. They cannot support their own weight out of their burrows. They must ALWAYS be carried in a HORIZONTAL position. They should NEVER be held vertically and allowed to dangle. This always results in DEATH.

2. If more than one earthworm is unearthed, they can be kept in plastic box or esky with moist soil with either wet hessian or newspaper over the top for up to ONE HOUR while the relocation site is prepared. If the WEATHER is VERY WARM, earthworms must be relocated as SOON AS POSSIBLE.

3. Earthworms must be kept in a shaded location while being kept for relocation.

4. Relocate uninjured earthworms to a nearby site that will not be subject to any earthworks. This site should have a moist, predominantly clay soil.

5. Dig a small trench to a depth of approximately 30 cm. The length of the trench should be at least as long as the earthworm. The earthworm should be placed in the trench and gently covered with loose moist soil and the removed clods of pasture placed on top.

6. Up to two earthworms can be placed in a single trench.

7. If the soil is dry, wet the trench. Watering may also be required in the following days, particularly in summer. Expert advice is available from the Biodiversity Unit, DSE Office, Traralgon (Ph: 03 51722111) any on-going need for watering of relocation sites.

Identification of Giant Gippsland Earthworms

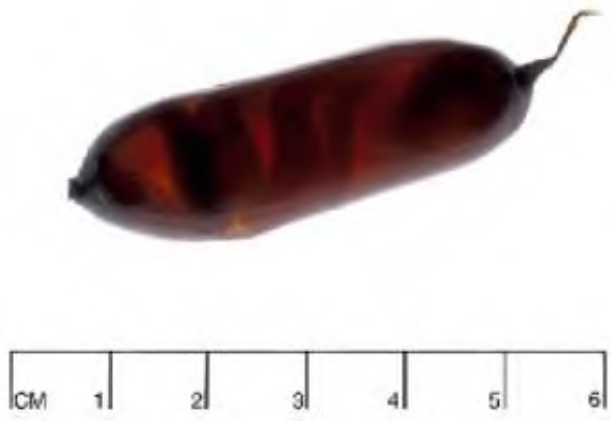
Adult : 80-150 cm long x 2 cm diametre

Colour: Dark purple head grading into pink-flesh colour

Distinguishing Marks: 3 bands positioned about 1/3 down the body on the ventral side (underneath) the adult worm

Identification of Giant Gippsland Earthworms *Cont-*

Egg Cocoons



Egg Cocoons:
Large (5-9 cm), amber coloured deposited within the burrow system and are found at an average depth of around 20 cm. They can be found all year round due to their long incubation period.