



Title of Proposal - Proposed Protection Zone, Coomera Woods, 49 George Alexander Way, Coomera

Section 1 - Summary of your proposed action

Provide a summary of your proposed action, including any consultations undertaken.

1.1 Project Industry Type

Residential Development

1.2 Provide a detailed description of the proposed action, including all proposed activities.

Planit Consulting (Planit) was engaged by Polaris Coomera Pty Ltd (Polaris) during 2017 to prepare and undertake assessment and investigations into the potential presence or occurrence of Matters of National Environmental Significance (MNES) pursuant to the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and an assessment of the potential for the proposed Coomera Woods Master Planned Development to have a significant impact on such matters. On 22 December 2017, Polaris referred the proposed development to the Department of Environment and Energy (DEE) for assessment. (DEE reference number: EPBC 2017/8134) (The Coomera Woods referral).

On 07 May 2018 Polaris submitted a request to vary the referred action (under section 156A of the EPBC Act.) by excluding part of the vegetation clearing proposed to be undertaken as part of the the referred action. Polaris also indicated that it is intended that the exclude clearing activities would be undertaken as a separate action to the Coomera Woods referral.

The activities to be undertaken as a separate action to the referred Coomera Woods Master Planned Development actions are proposed to occur within a small area along the northern boundary of the Coomera Woods site. The area the subject of this separate action shall hereafter be referred to as the 'proposed Protection Zone' (refer to attached plan within section 1.4). The purpose of the proposed action is to create some protection to the occupants of the existing adjoining dwellings as well as to the school against bushfire risks and the risk of unsafe trees falling across the boundary onto adjoining residences.

Polaris engaged Planit to prepare and undertake an assessment and investigations into the potential presence or occurrence of MNES and an assessment of the potential for the Proposed Protection Zone activities to have a significant impact on such matters.

The proposed activities include the clearing of a ten meter wide strip of vegetation to create a fire break and also the creation of a fire trail within the Proposed Protection Zone to allow safe access to fire crews.

A number of unsafe trees along the northern boundary have also been identified as safety hazards and have caused damage to neighbouring dwellings through limbs falling across the



boundary. The clearing of the Proposed Protection Zone will mitigate these risk to adjoining occupants.

The current condition of the assessment area is considered degraded and fragmented within an urban landscape. The site provides limited habitat to wildlife and Matters of National Environmental Significance (MNES). Assessments have considered the likely impacts of the proposed action, the current condition of the referral site and compliance with local, regional and state controls and determined that it is unlikely that there will be a significant impact on any Matters of National Environmental Significance.

It has therefore been concluded that the creation of the proposed Protection Zone as outlined within this report is will not, and neither is it likely to have, a significant impact on a vulnerable species for the purposes of section 18 (4) of the EPBC Act.

The proposed action is for the creation of a protection zone to the existing dwellings and school on the land adjoining the northern boundary of Lot 44 on SP207822 (Lot 44).

The proposed activities are:

- The clearing of a ten meter wide strip of vegetation along the northern boundary of Lot 44, and;
- The creation of a proper fire trail / access track within the ten meter cleared area.

The purposes of the proposed activities are:

- To create a fire break with the aim of preventing bushfire flames from reaching existing dwellings on adjoining land. The ten meter zone proposed is generally in accordance with the Bushfire Attack Level – Flame Zone calculated in accordance with Australian Standard AS3959, having regard to the existing vegetation type and cover as well as the site topography; and
- To create a fire trail within the fire break to allow safe access to fire crews to the site for further fire prevention activities and, in the event of a fire, to assist with fire fighting activities; and
- To remove trees within the Proposed Protection Zone that were identified as a safety hazard to adjoining residents and properties due to it posing a potential risk of falling across the boundary into adjoining properties

As the northern boundary of Lot 44 is 1,538m long, the area of the ten meter wide strip is approximately 1.538 hectares. The actual area to be cleared of vegetation will however be less than 1.538 hectares as part of the area is highly disturbed and is not currently covered by trees due to old bushfire trails and access tracks being located along the lot boundary. Aerial images of the Proposed Protection Zone included in the attached Matters of National Environmental Significance Assessment prepared by Planit Consulting dated May 2018 clearly show the reduced vegetation coverage within the Proposed Protection Zone.

The key statistics for the action are:

Proposed Protection Zone = 1.538 hectares (10m width)
Hazardous Trees = 37



For the purpose of impacts on MNES this action is summarised as:

- Clearing of approximately 1.538 ha of predominately disturbed remnant vegetation.

1.3 What is the extent and location of your proposed action? Use the polygon tool on the map below to mark the location of your proposed action.

Area	Point	Latitude	Longitude
Proposed Protection Zone	1	-27.835498865015	153.30779269392
Proposed Protection Zone	2	-27.837927617925	153.3228130644
Proposed Protection Zone	3	-27.838098387568	153.32279160673
Proposed Protection Zone	4	-27.835688613294	153.30774977857
Proposed Protection Zone	5	-27.835498865015	153.30781415159
Proposed Protection Zone	6	-27.835498865015	153.30779269392

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland).

The proposed Protection Zone is adjacent to- and runs parallel with the northern boundary of Lot 44 on SP207822, located at 49 George Alexander Way, Coomera (refer to figure attached in section 1.4).

The proposed Protection Zone is bound by the Gold Coast – Brisbane Railway Line to the west, residential development and Pimpama State Secondary School to the north, Bloom Estate (Formally Big Sky Residential Development) to the east, and the proposed Coomera Woods Master Planned Development, Coomera Activity Centre and Transport Hub associated with the existing Coomera Train Station and Bus Interchange, to the south.

The location of the proposed Protection Zone amongst these developed areas and major transport arterials effectively separate the area from large intact remnants to the north and east. The proposed Protection Zone makes up approximately 1.538 hectares and is dominated by disturbed woodland.



The affected area is located within the East Coomera / Pimpama urban footprint, also referred to as the Urban Koala Area (UKA). The 1.5ha affected area is completely surrounded by the 2,148 Ha East Coomera / Pimpama urban footprint.

The proposed Protection Zone is within an urban area and zoned for residential purposes (refer to Figure 3 within the attached MNES Assessment). The applicable zones are as follows:

-Conservation; and

-Medium density residential.

It is noted that the proposed Protection Zone, is within an area of primarily sparse/modified vegetation due to the existing bushfire maintenance of the site and disturbance from adjacent landuses (refer to attached images in section 1.4 above).

1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?

1.538

1.7 Is the proposed action a street address or lot?

Lot

1.7.2 Describe the lot number and title.Lot 44 on SP207822

1.8 Primary Jurisdiction.

Queensland

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

No

1.10 Is the proposed action subject to local government planning approval?

Yes

1.10.1 Is there a local government area and council contact for the proposal?

Yes

1.10.1.0 Council contact officer details



1.10.1.1 Name of relevant council contact officer.

Broc Smith / Shahadat Hossain

1.10.1.2 E-mail

mail@goldcoast.qld.gov.au

1.10.1.3 Telephone Number

(07) 5582 8866

1.11 Provide an estimated start and estimated end date for the proposed action.

Start date 06/2018

End date 08/2018

1.12 Provide details of the context, planning framework and State and/or Local government requirements.

A number of approvals over the Coomera Woods Master Planned Development Site are in place which include the proposed Protection Zone:

-Development Permit for Reconfiguration of a Lot – 10 Management Lots; Preliminary Approval for Operational Works – Vegetation Clearing; and Preliminary Approval for Operational Works – Preliminary Bulk Earthworks, Associated retaining Walls and Civil Works (Requests to change: 27 March 2015 – ROL201400195) (Date of original application: 26 May 2010 – ROL2800145) (Date of most recent decision: 01 April 2015 – ROL201466195).

-Development Permit for Operational Works for Change to ground Level (1 April 2015 – OPW201401308).

-Development Permit for Operation Works for Vegetation Management (31 March 2015 – OPW201401310).

-A Preliminary Approval and Development Permit for the Reconfiguration of a Lot was approved by CGC on 11 September 2015 (Council Ref: MCU201400732 / ROL20140013):

-Combined Development Application for Section 242 Preliminary Approval varying the Planning Scheme (in accordance with Section 899 of the Sustainable Planning Act 2009) for development in accordance with the Coomera Woods Locality Plan (Lot 1 on SP165372 and Lot 44 on SP 207822); and

-Development Permit for Reconfiguration of a Lot over Lot 1 on SP165372 and Lot 44 on SP207822 for 492 lots (407 detached dwelling lots and 85 management lots, roads and public open space).



Current and future development applications will be assessed against the Preliminary Approval – Coomera Woods – Development Code, which reflects the intention of the Coomera Town Centre Structure Plan.

-As a part of existing approvals, a number of development and management plans have been approved or conceptually approved by CGC for Coomera Woods which include:

-Lot 44 Tree Clearing Staging Plan – Coomera Woods, Coomera (Planit Consulting – 21 November 2014)

-Amended Vegetation Management Plan, George Alexander Way, Coomera, Lot 1 SP165374 & Lot 44 SP207822, Prepared for Polaris Coomera Pty Ltd (Planit Consulting – July 2014)

-Vegetation Management Plan, George Alexander Way, Coomera, Lot 1 SP165374 & Lot 44 SP207822, Prepared for Polaris Coomera Pty Ltd (Planit Consulting – July 2014)

-Lot 44 Tree Clearing Staging Plan Retained Trees at Earthwors Interface (Planit Consulting – 2 June 2014)

-Final Preclearing Fauna Assessment & Management Plan, George Alexander Way Coomera Lot 1 SP165354 & Lot 44 SP207822

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders.

The affected area is part of the proposed Coomera Woods master planned community development, centred within the Coomera Town Centre Structure Plan.

The intention to develop the Coomera Town Centre area has been part of the Gold Coast Planning Scheme (v.1.0) since 2003 with the inclusion of the Coomera Town Centre Local Area Plan. During its design, this planning scheme underwent public consultation in accordance with the Integrated Planning Act 1997. The Coomera Town Centre Structure Plan has also been part of subsequent revisions of the Gold Coast Council Planning Scheme in 2007 (v.1.1) and 2010 (v.1.2) which have similarly gone through the public consultation process in accordance with the Integrated Planning Act 1997 and Sustainable Planning Act 2009, respectively.

The consultation process for the Gold Coast City Plan 2015 (City Plan) included the development of the Coomera Town Centre, which was covered extensively during the public notification period and included a number of meetings between Council and State Government.

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project.



The project is not subject to an environmental impact assessment.

1.15 Is this action part of a staged development (or a component of a larger project)?

No

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

Yes

1.16.1 Identify the nature/scope and location of the related action (Including under the relevant legislation).

The project area is within the broader planning areas of the Coomera Town Centre which retains multiple land owners.



Section 2 - Matters of National Environmental Significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The [interactive map tool](#) can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest. Consideration of likely impacts should include both direct and indirect impacts.

Your assessment of likely impacts should consider whether a bioregional plan is relevant to your proposal. The following resources can assist you in your assessment of likely impacts:

- [Profiles of relevant species/communities](#) (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;
- [Significant Impact Guidelines 1.1 – Matters of National Environmental Significance](#);
- [Significant Impact Guideline 1.2 – Actions on, or impacting upon, Commonwealth land and Actions by Commonwealth Agencies](#).

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

No

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

No

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

No

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

Yes

2.4.1 Impact table

Species	Impact
Koala (<i>Phascolarctos cinereus</i>)	There are only three threatened MNES species



Species

Impact

considered to have relevance to the proposed Protection Zone and triggering more detailed assessment; Koalas are known to occur within the locality and has been recorded within the Coomera Woods Master Planned Development Site. It is noted that within each of the previous site specific surveys that have occurred across the Coomera Woods Development site since 2015, no koalas have been recorded within/using the proposed Protection Zone. Contemporary ecological field surveys across the Coomera Woods Master Planned Development Site in association with EPBC 2017/8134 have been conducted to assess the potential occurrence/impact for listed threatened species and communities. A likelihood of occurrence and assessment against the Significant Impact Guidelines for the koala have been prepared within the attached Matters of National Environmental Significance Assessment prepared by Planit Consulting dated May 2018. The Koala (*Phascolarctos cinereus*) is listed as a vulnerable species under the EPBC Act. Within Queensland the estimated population numbers range from 100, 000 to 300, 000 (EPA 2006). Specific population figures have been estimated for some locations where the sum equates to slightly more than 70, 000 with the remainder in the low density populations across Queensland. The Listing Advice for *Phascolarctos cinereus* (Koala) (Threatened Species Scientific Committee, 2012) estimated the Queensland koala population in 2010 to equate to approximately 167, 000 from best known estimates. Within South East Queensland the focus of koala population estimates have focused particularly on the Koala Coast and Pine Rivers. The Listing Advice estimated that in 2010 the population of Koalas within South East Queensland to be 15, 000. This data was based on aggregate of formal estimates and therefore considered of a high reliability. The proposed Protection Zone The proposed Protection Zone is adjacent to- and runs parallel with the northern boundary of Lot 44 (which



Species

Impact

coincides with the northern boundary of the Coomera Woods development site), located at 49 George Alexander Way, Coomera (refer to figure attached in section 1.4). The proposed Protection Zone is bound by the Gold Coast – Brisbane Railway Line to the west, residential development and Pimpama State Secondary School to the north, Bloom Estate (Formally Big Sky Residential Development) to the east, and the proposed Coomera Woods Master Planned Development, Coomera Activity Centre and Transport Hub associated with the existing Coomera Train Station and Bus Interchange, to the south. The location of the proposed Protection Zone amongst these developed areas and major transport arterials effectively separate the area from large intact remnants to the north and east. The proposed Protection Zone makes up approximately 1.538 hectares and is dominated by disturbed woodland. The affected area is located within the East Coomera / Pimpama urban footprint, also referred to as the Urban Koala Area (UKA). The 1.5ha affected area is completely surrounded by the 2,148 Ha East Coomera / Pimpama urban footprint. The proposed Protection Zone is within an urban area and zoned for residential purposes. It is noted that the proposed protection zone, is within an area of primarily sparse/modified vegetation due to the existing bushfire maintenance of the proposed Protection Zone and disturbance from adjacent landuses. In anticipation of the development of this major regional urban expansion, the Council of the City of Gold Coast (CCGC) adopted a proactive approach in relation to the protection of the koala and since 2007 implemented concerted programs in this regard. -The East Coomera Koala Conservation Project (2007 – 2014) -The Koala Conservation Plan for East Coomera (2014-2018) -The Koala Conservation Plan Koala Surveys A complete and detailed assessment of koala surveys undertaken within the Coomera Woods Development Site, which includes the proposed Protection Zone. Biolink 2007 This study



Species	Impact
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covered the greater Coomera- Pimpama Koala Habitat Area (C-PKHA) a total area of 3,640 hectares which included the 2,148 Urban Koala Area (UKA) and the referral site, used the Spot Assessment Technique (SAT) (Philips and Callaghan 2011) to first estimate activity levels and then strip transects to estimate Koala densities in occupied areas. The strip transect estimates were extrapolated from the Coombabah Koala Habitat Area. Results estimated that there were approximately 510 (+/-129) Koalas present in the C-PKHA at the time of the study. Saunders Havill Group 2015 As part of a broader MNES Coomera Woods survey SHG conducted 16 Spot Assessment Technique surveys (SATs) over the referral area. While SAT surveys traditionally rely on the identification of a scat for commencement, 3 of the 16 survey points were undertaken to fill in locational gaps in data and collect information on suitable tree species for koala habitat. Of the 16 survey points completed 6 showed 'low level', 3 recorded 'normal level' and 4 aligned with a 'high level' of usage based on the East Coast (Medium-High) Density Area threshold (Philips and Callaghan 2011). During the 4 days on-site a juvenile koala was observed on a single day and not resighted despite deliberate survey effort within the same locality. Phillips 2015 As part of a compliance assessment under the EPBC Act, Dr Phillips applied SATs to determine Koala activity levels specifically for the site and determined that 33% of the Coomera Woods Development site was occupied by Koalas. Applying the density estimates from the above 2007 C-PKHA surveys, Phillips 2015 estimated that 15 Koalas occupy 61 ha area of the site. No koalas were observed within the entire Coomera Woods Development site during this survey. During the 2015 survey, each of the 15 SAT sites assessed by Biolink in 2006 were reinspected. One of the 15 sites is located within the proposed Protection Zone. In 2015, koala activity was observed in only 5 of the original 15 SAT sites. No koala activity was observed



Species

Impact

within the proposed Protection Zone. Saunders Havill Group 2016 SHG undertook a direct estimation of Koala activity at the site in 2016 using 95 predetermined strip transects of 100 m x 20 m over the course of five days, and then repeated two months later. No Koalas were detected within strip transects and therefore a density of Koalas across the site could not be estimated. During these surveys, two (2) koalas were observed outside of the transect areas that may infer a density estimate of 0.151 0.146 Koalas ha⁻¹. It is noted that transects within this study were conducted within the proposed Protection Zone. No koalas were recorded within the proposed Protection Zone. Planit 2017 The Planit surveys combined SAT assessments and a line transect method to provide an absolute count of koalas in the Coomera Woods Development site. SAT locations aligned with those utilised by Biolink 2007 and observers on transect lines covered the entire site at 10-20m intervals repeated under both diurnal and nocturnal spotlighting conditions. Three (3) koalas were recorded on the first day, an additional koala was found during the nocturnal survey resulting in Four (4) koalas detected. On the second diurnal survey only four (4) koalas were detected though it was considered that one (1) has been considered could be a new sighting. As such, a total of five (5) koalas were recorded during the intensive survey period within the Coomera Woods Development Site. Planit (Chapter 1 – 2017) attest that SAT results replicated over successive surveys indicated that koalas are still utilising areas surveyed by Biolink 2007, although at significantly reduced levels. Intensive contemporary survey results indicate that the number of individual koalas located on the site at anyone time is actually five (5) or below, which is significantly less than the 15 individuals estimated by Phillips (2015). It is also noted within this survey no koalas were observed within the proposed Protection Zone. Upon review of extensive surveys conducted within the last 2 years within Coomera Woods,



Species

Impact

no koalas were recorded within the proposed Protection Zone. SAT surveys also found that zero koala activity was also recorded within the proposed Protection Zone (refer to attached MNES Assessment). The Koala Referral Guidelines include the following statement (p.1.) The loss of two hectares or less of marginal quality habitat critical to the survival (habitat score of 5) is highly unlikely to have a significant impact on the koala for the purposes of the EPBC Act. This section details how the proposed Protection Zone, which is only 1.538 hectares, scores a 3 out of 10 under the Koala Habitat Assessment Tool. The clearing of the proposed Protection Zone, thus does not contain Habitat Critical to the Survival of the Koala Species. The assessment of the proposed action against the Koala Referral Guidelines concludes that the creation of the proposed Protection Zone:

- will not adversely affect habitat critical to the survival of the koala;
- and • will not interfere substantially with the recovery of the koala through the introduction or exacerbation of key threats in areas of habitat critical to the survival of the koala; and
- will not have a significant impact on the koala for the purposes of the EPBC Act.

The proposed action, as determined within the attached MNES Assessment, is unlikely to interfere substantially with the recovery of this species given the proposed action is unlikely to increase or exacerbate key threats which are already present and significant within the Proposed Protection Zone. In the event that the Proposed Protection Zone did contain critical habitat for the survival of the koala, the area is less than 2ha and is therefore unlikely to have a significant impact on the koala and would not require referral to the Department. The Significant Impact Guidelines 1.1 - Matters of National Environmental Significance (SI Guidelines) relevantly provide that an action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

- lead to a long-term decrease in the size of an important population



Species

Impact

of a species • reduce the area of occupancy of an important population • fragment an existing important population into two or more populations • adversely affect habitat critical to the survival of a species • disrupt the breeding cycle of an important population • modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline • result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat • introduce disease that may cause the species to decline, or • interfere substantially with the recovery of the species. An 'important population' is defined as a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are: • 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. The individuals within the referral site does not constitute as an 'important population' as defined within the SI Guidelines. Conclusion The proposed action is not considered to have a significant impact on this species for reasons that include: The site does not contain habitat critical to the survival of the koala as a species: • the proposed Protection Zone is less than 2 hectares and therefore the action is unlikely to cause a significant impact to koala. • the site scores a 3 under the Koala Habitat Assessment Tool in the Koala Referral Guidelines; • the proposed Protection Zone is surrounded by substantial barriers, suffers from edge effects caused by surrounding uses, the habitat is degraded and the site is too small to support a minimum viable population; and • there is no viable ecological link between the Koala conservation area and the proposed Protection Zone that provide adequate connectivity for the purposes of ensuring long term genetic fitness and ensuring proper access to habitat areas critical to the survival of the species. The



Species	Impact
	<p>proposed action will not have a significant impact on an 'Important Population' as defined in the Significant Impact Guidelines: • No koalas have been recorded within the proposed Protection Zone within contemporary koala specific surveys (Phillips 2015; Planit 2017 & SHG 2016); • There is not an important population within the proposed Protection Zone; • The proposed action will not introduce disease that may cause the species to decline, or interfere substantially with the recovery of the species.</p>
Grey-headed Flying-fox (<i>Pteropus poliocephalus</i>)	<p>This species has not been recorded within the proposed Protection Zone, however site tree species do form part of the broader components which make up the critical habitat factors for this species. An Assessment against criteria included within the Significant Impact Guidelines 1.1 concludes the project will not result in Significant Impacts on the Grey-headed Flying-fox species (refer to attached MNES Assessment).</p>
Greater Glider (<i>Petauroides volans</i>)	<p>The species has not been recorded within the proposed Protection Zone or Coomera Woods Development site during various detailed ecological assessments. The habitat features and requirements for this species are considered largely absent from the proposed Protection Zone and that of the surrounding areas. Scat analysis for the area and surrounding properties were conducted during surveys of each property. In addition to the ecological assessments performed within the Coomera Woods Development site, Planit Consulting also performed detailed ecological surveys on numerous surrounding properties which have included surveying for nocturnal arboreal mammals. The Greater Glider was not identified during any of the detailed surveys of the surrounding sites: Bloom Estate (formally Big Sky) -Stage 10: 14 & 15 October 2009 -Stages 4 & 9: 24 & 27 May 2010 -Stages 5-8: 11 & 12 March 2010 The Meadows Estate -June – November 2003 Karingal Drive Precinct -January 2007 Gainsborough Park Woodlands -April – May 2004 Coomera Centre Commercial</p>



Species	Impact
	<p>Park (Lot 1/SP209027) -Initial Surveys: November 2003 – May 2004 -Additional surveys: February – March 2008 Polaris Residential Estate (Lot 2/SP165374) -Initial Surveys: November 2003 – May 2004 -Reviewed Ecological Assessment & VMP: July 2015 Coomera Town Centre -November 2003 – May 2004 Detailed arboreal mammal surveys conducted on and adjacent to the proposed Protection Zone and Coomera Woods Master Planned Development site, covering an area of approximately 550ha found that;</p> <ul style="list-style-type: none">• Tree hollow density was low and below mean habitat tree range (5.9 +/- 0.4 habitat trees/ha) for Coastal Dry sclerophyll Forests (Ross, 1999).- Within Coomera Woods development site there exists a general scattering of hollow bearing trees (HBT) which are stocked at a recorded rate of ~0.16-0.17 HBT/ha.• Tree hollow density (0.16-0.17 HBT/ha) is well below that required for the Greater Glider.- Hollow-bearing trees appear to be the most important factor in habitat selection in southern Queensland. <p>Although greater gliders have a relatively small home range they are reported to be absent from forests with fewer than six habitat trees per hectare (ARCS 1999).</p> <ul style="list-style-type: none">- Several studies have identified that a density of four hollow-bearing trees/ha is sufficient to sustain the diversity of arboreal mammal populations in South East Queensland (Wormington et al. 2002, Maloney et al. 2002).However, some species, such as the greater glider, have been known to utilise many more tree hollows to survive (Council, 'Guideline for the provision of nest boxes').• Greater Glider was not observed within the proposed Protection Zone or adjacent properties through detailed ecological surveying.• Greater Glider was not recorded through scat analysis. <p>Based on information provided within the table above and the extensive surveying effort it is unlikely that the species is present within the Coomera Woods site and therefore unlikely that the proposed action is to have a significant impact on the Greater Glider. The Assessment of</p>



Species	Impact
	<p>Significance provided within below is therefore considered appropriate and consistent with the information provided above. As discussed above, this species has not been recorded within the proposed Protection Zone or Coomera Woods Development Site during extensive and details ecological surveys over the past 15 years. Much of the surrounding properties have also been surveyed by Planit. These surveys have also resulted in no records of the Greater Glider. It is therefore considered that this species does not occur within the proposed Protection Zone and the proposed action is unlikely to significantly impact this species. An Assessment against criteria included within the Significant Impact Guidelines 1.1 concludes the project will not result in Significant Impacts on the Greater Glider (refer to attached MNES Assessment).</p>

2.4.2 Do you consider this impact to be significant?

No

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

No

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

No

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

No

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

No

2.9 Is the proposed action likely to have ANY direct or indirect impact on a water



resource related to coal/gas/mining?

No

2.10 Is the proposed action a nuclear action?

No

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

No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage Place Overseas?

No

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

No



Section 3 - Description of the project area

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed in Section 2).

3.1 Describe the flora and fauna relevant to the project area.

A number of field assessments have been undertaken across the Coomera Woods Master Planned Development Site in association with EPBC 2017/8134 to assess potential presence and impacts to MNES;

-Biolink 2007, Conserving Koalas in the Coomera-Pimpama Koala Habitat Area: A view to the future prepared for City of Gold Coast

-Philips, S. 2015, Impacts of proposed clearing activity on the koala habitat located at 49 George Alexander Way, Coomera in the City of Gold Coast LGA, South-Eastern Queensland, Australian Government, Department of Environment

-Planit Consulting 2004, Ecological Assessment for Coomera Woods, Coomera Town Centre.

-Planit Consulting 2014, Amended Vegetation Management Plan commissioned by Polaris Coomera Pty Ltd

-Planit Consulting 2008, Updated Ecological Assessment, Cunningham Drive South, Coomera, Coomera Town Centre.

-Planit Consulting, 2017, Coomera Woods Koala Evaluation and Assessment Chapter 1 – Evaluation of Koala Survey Methodology, commissioned by Polaris Coomera Pty Ltd

-Planit Consulting, 2017, Coomera Woods Koala Evaluation and Assessment Chapter 2 – Response to Dept. of Environment and Energy Brief, commissioned by Polaris Coomera Pty Ltd

-Saunders Havill Group 2015, Ecological Assessment Report EPBC Act Referral commissioned by Polaris Coomera Pty Ltd

-Saunders Havill Group, 2017, Koala Assessment Report, 49 & 51 George Alexander Way Coomera, Commissioned by Polaris Coomera Pty Ltd.

These reports were prepared for the Coomera Woods Master Planned Development site (not



specifically for the Proposed Protection Zone).

Additional site investigations of the proposed Protection Zone were conducted to ground truth the findings from the abovementioned reports. The investigations of the proposed Protection Zone found that this area remained largely consistent with previous findings. No additional flora and fauna were recorded during site investigations.

Three vegetation communities have been identified within the Proposed Protection Zone. These are:

-Forest Red Gum/Ironbark/Bloodwood Association - covering approximately 2,550m² or about 16% of the Proposed Protection Zone

-Tallowwood/White Mahogany/Grey Gum Association - covering approximately 4,270m² or about 27% of the Proposed Protection Zone

-Spotted Gum/Ironbark Association - covering approximately 8,730m² or about 56% of the Proposed Protection Zone.

On-ground assessment confirmed that large parts of the Proposed Protection Zone are unvegetated, predominately due to an old bushfire track and access tracks being located along this property boundary, but probably also due to illegitimate use of the site during construction activities associated with adjoining developments. As can be observed on the aerial photos, unvegetated areas extend beyond the Proposed Protection Zone in numerous locations.

Adjoining development activities (such as earthworks) probably also contributed to the degenerated state of vegetation along this boundary, resulting in a large number of dead trees in close proximity to the boundary.

The following sections, including descriptions of vegetation and fauna likely to occur, have been prepared from the abovementioned reports. As these reports were prepared for the Coomera Woods Master Planned Development site (not specifically for the proposed Protection Zone), findings therefore refer to the features found within the entire Coomera Woods Development Site. The sections below were prepared with details from the Ecological Technical Note – MNES Flora and Fauna, Coomera Woods by Saunders Havil Group, dated January 2017.



Flora

The following general flora observations were made across the Coomera Woods Development site:

-Fifty-nine (59) flora species have been identified within the Coomera Woods Master Planned Development Site throughout the field assessments, with sixteen (16) of these species being introduced. Four (4) of these introduced species were considered Class 3 weed species under the Land Protection (Pest and Stock Route Management) Act, and six (6) are considered environmental weeds within the Gold Coast Region.

-The proposed Protection Zone is dominated by Eucalypt Woodland/Open Forest located on minor alluvial deposit, or on metamorphosed sedimentary rocks associated with the Neranleigh-Fernvale formation beds. The understory across the majority of the proposed Protection Zone is routinely slashed and typically dominated by regenerating eucalypts, native shrubs and grasses.

-A history of disturbance due to fire, grazing, logging and slashing is evident across the proposed Protection Zone with the most heavily impacted areas reflective of 'non-remnant' vegetation.

-Remnant mapping covers the majority of the proposed Protection Zone, and the Regional Ecosystems associated with this mapping are Least Concern RE12.11.5 (*Corymbia citriodora* subsp. *variegata*, *Eucalyptus siderophloia*, *E. major* open forest on metamorphics +/- interbedded volcanics) and Of Concern RE12.3.11 (*Eucalyptus tereticornis* +/- *Eucalyptus siderophloia*, *Corymbia intermedia* open forest on alluvial plains usually near coast). RE 12.3.11 is mapped in three small areas of the main drainage lines, whereas RE 12.11.5 covers the balance of the remnant vegetation mapping.

On-ground assessment confirmed the Regional Ecosystems and associated species mix are present within the proposed Protection Zone, however, based primarily on canopy species present, the proposed Protection Zone has been categorised into three broad vegetation communities:

Forest Red Gum/Ironbark/Bloodwood Association (Broad Gullies and Drainage Lines)

Existing canopy vegetation includes predominately stems of *Eucalyptus tereticornis*, *E. siderophloia* and *Corymbia intermedia* within the lower flowpath and *E. tindaliae*, *E. resinifera*, *E. propinqua*, *E. carnea*, *C. citriodora*, *Angophora leiocarpa*, *E. fibrosa* and *E. acmenoides* on the gully banks. Common elements of the small tree (T2) layer include *Lophostemon suaveolens*, *Melaleuca quinquenervia*, *Allocasuarina littoralis*, *Acacia* spp., *Alphitonia excelsa* and *Callistemon salignus*.



Tallowwood/White Mahogany/Grey Gum Association (Mid-slope Areas)

The canopy varies in composition but is mostly dominated by White Stringybark (*Eucalyptus tindaliae*) and Broadleaved White Mahogany (*E. carnea*) in association with varying subdominance of Ironbarks (*E. siderophloia* and *E. fibrosa*), Pink Bloodwood (*Corymbia intermedia*), Smoothbarked Apple (*Angophora leiocarpa*) and Grey Gum (*Eucalyptus propinqua*). In the moister parts and on the more sheltered slopes it includes some Tallowwood (*Eucalyptus microcorys*) and a greater proportion of Grey gum. The drier areas include some Spotted Gum and Brush Box (*Lophostemon confertus*) with Blue Gum sporadically occurring on the lower slopes.

Spotted Gum/Ironbark Association (Ridgelines and Balance Areas)

The canopy is dominated by Spotted Gum (*Corymbia citriodora*) and Broad-leaved Ironbark (*Eucalyptus fibrosa*)/or Grey Ironbark (*E. siderophloia*) with White Stringybark (*E. tindaliae*), Broadleaved White Mahogany (*E. carnea*), Narrow-leaved Ironbark (*E. crebra*), Smoothbarked Apple (*Angophora leiocarpa*), Pink Bloodwood (*Corymbia intermedia*) and Grey Gum (*Eucalyptus propinqua*) common.

The vegetation communities within the proposed Protection Zone are mapped within the attached MNES Assessment, Figure 5 – Vegetation Communities within the proposed Protection Zone.

Queensland's Regulated Vegetation Management Map shows the site contains areas of Category B Remnant Vegetation.

The Vegetation Management Support Map identifies this remnant vegetation as being made up the following regional ecosystems:

RE12.11.5 (Least Concern)

-Open forest complex in which spotted gum is a relatively common species. Canopy trees include *Corymbia citriodora* subsp. *variegata*, *Eucalyptus siderophloia* or *E. crebra* (sub coastal ranges), *E. major* and/or *E. longirostrata* and *E. acmenoides* or *E. portuensis* and/or *E. carnea* and/or *E. eugenioides*. Other species that may be present and abundant locally include *Corymbia henryi*, *C. intermedia*, *C. trachyphloia*, *Eucalyptus tereticornis*, *E. propinqua*, *E. biturbinata*, *E. moluccana*, *E. melliadora*, *E. fibrosa* subsp. *fibrosa* and *Angophora leiocarpa*. *Lophostemon confertus* often present in gullies and as a subcanopy or understorey tree. Mixed understorey of grasses, shrubs and ferns. Occurs on hills and ranges of Palaeozoic and older



moderately to strongly deformed and metamorphosed sediments and interbedded volcanics. (BVG1M: 10b)

-RE12.11.5 is an essential habitat factor for Koala.

RE12.11.24 (Least Concern)

-Eucalyptus carnea, E. tindaliae, Corymbia intermedia woodland +/- E. crebra or E. siderophloia, Eucalyptus resinifera, Eucalyptus major, E. helidonica, Angophora woodsiana, C. trachyphloia, E. microcorys, Corymbia citriodora subsp. variegata, C. henryi. Occurs on Palaeozoic and older moderately to strongly deformed and metamorphosed sediments and interbedded volcanics usually at altitudes <300 metres. (BVG1M: 9g).

Flora Species

A list of the flora species recorded during Coomera Woods Master Planned Development site surveying is provided below.

Scientific Name

Acacia complanata

Acacia concurrens

Acacia disparrima

Acacia fimbriate

Acacia leiocalyx

Ageratum houstonianum

Allocasuarina littoralis

Alphitonia excelsa

Angophora leiocarpa

Asparagus aethiopicus

Bidens pilosa



Breyenia oblongifolia

Cassytha pubescens

Chrysocephalum apiculatum

Conyza bonariensis

Corymbia acitriodora

Corymbia intermedia

Corymbia tessellaris

Corymbia trachyphloia

Cymbopogon refractus

Desmodium rhytidophyllum

Dianella caerulea

Eucalyptus acmenoides

Eucalyptus crebra

Eucalyptus microcorys

Eucalyptus propinqua

Eucalyptus seeana

Eucalyptus siderphloia

Eucalyptus tereticornis

Eucalyptus tindaliae

Eustrophus latifolius

Geitonoplesium cymosum

Gomophocarpus physocarpus

Goodenia hederacea

Goodenia rotundifolia



Hybanthus stellaroides

Imperata cylindrica

Lantana camara

Leucaena leucocephala

Leucopogon margarodes

Lomandra longifolia

Lomandra multiflora

Lophostemon confertus

Lophostemon suaveolens

Megathyrus maximus

Melaleuca viminalis

Passiflora suberosa

Pinus elliotii

Platynerium bifurcatum

Pteridium esculentum

Schinus terebinthifolius

Sida cordifolia

Smilax australis

Solanum mauritianum

Solanum seafortianum

Sphagneticola trilobata

Themeda triandra

Thunbergia alata

Wahlenbergia gracilis



Overall, the site upon inspection was disturbed as result of historical land use including logging, slashing and grazing as well as the invasion of weeds through the creation of vehicle access tracks. It is noted:

A history of disturbance due to fire, grazing, logging and slashing is evident across the site with most heavily impacted areas reflective of 'non-remnant' vegetation.

A number of weeds were identified throughout the site including four (4) weeds declared under the Land Protection (Pest and Stock Route Management) Act 2002 which were Groundsel (*Baccharis hamifolia*) – Class 2, Fireweed (*Senecio madagascariensis*) – Class 2, Camphor Laurel (*Cinnamomum camphora*) – Class 3, and Lantana (*Lantana camara*) – Class 3 as well as six (6) environmental weeds within the Gold Coast Region.

It is noted that the vegetation within the proposed Protection Zone is heavily disturbed and contains sparse vegetation, due to historic use of the site and presence of extensive edge effects. This is evident within the attached MNES Assessment, Figure 6 – Aerials of the proposed Protection Zone.

Fauna

As with the vegetation assessment above, the following has been prepared with the reports not specific to the proposed Protection Zone. The reports were prepared for the Coomera Woods Master Planned Development site.

A review of the reports indicate that surveys conducted since 2015 did not detect koala activity, and neither were any koalas observed, within the proposed Protection Zone.

The sections below were prepared with details from the Ecological Technical Note – MNES Flora and Fauna, Coomera Woods by Saunders Havil Group, dated January 2017.

A fauna assessment was conducted in conjunction with the vegetation assessment over the Coomera Woods Master Planned Development Site by SHG and was designed to build on the knowledge of extensive surveys already completed by Planit Consulting and Biolink.

The purpose of the survey was to identify habitat opportunities, observations of species presence and activity, and undertake targeted searches for actual usage by threatened and significant fauna species. It is noted that previous fauna assessment were also undertaken by Planit Consulting during November 2003 to May 2004 and again in February to March 2008 which reported results consistent with the 2015 survey. Additional arboreal fauna surveying was conducted by Planit Consulting in April – May 2017, for targeted species.



A summary of fauna observations is provided below:

-Twenty-five (25) fauna species were identified on the Coomera Woods Master Planned Development Site throughout the field assessment.

-Seventeen (17) species of bird were recorded during surveys of the Coomera Woods Master Planned Development Site. No species listed as vulnerable, endangered or critically endangered under the Environmental Protection and Biodiversity Conservation Act 1999 were recorded on the Coomera Woods Master Planned Development Site during fauna survey works.

-Six (6) mammal species were recorded on the Coomera Woods Master Planned Development Site. One species, the Koala, listed as vulnerable under the Environmental Protection and Biodiversity Conservation Act 1999 were recorded on the Coomera Woods Master Planned Development Site during fauna survey works.

-One (1) reptile species were recorded on the Coomera Woods Master Planned Development Site. No species listed as vulnerable, endangered or critically endangered under the Environmental Protection and Biodiversity Conservation Act 1999 were recorded on the Coomera Woods Master Planned Development Site during fauna survey works.

-One (1) introduced amphibian species was recorded on the Coomera Woods Master Planned Development Site. No species listed as vulnerable, endangered or critically endangered under the Environmental Protection and Biodiversity Conservation Act 1999 was recorded on the Coomera Woods Master Planned Development Site during the fauna survey works.

-The proposed Protection Zone's ability to support listed threatened fauna species, which are generally highly sensitive, specialised and require particular habitat features, is considered highly unlikely for the majority of the listed EPBC Act protected species.

-Fauna cameras were deployed at two locations over the Coomera Woods Master Planned Development Site within drainage areas where it was considered likely that visitation for water would be high. The only fauna recorded were common bird species, including the Pale Headed Rosella (*Platycercus adscitus*) and Noisy Minor (*Manorina melanocephala*).

-A few small rocky areas were observed within the Coomera Woods Master Planned Development Site close to the ridgelines contained little to no habitat value due to the absence of suitable overhangs, crevices or hollows.

-Survey did not locate any large or unusual nests associated with migratory, rare birds or birds of prey within the proposed Protection Zone.

Dogs were observed utilising the Coomera Woods Master Planned Development Site and proposed Protection Zone, with numerous footprints along the dirt tracks.



Fauna Species

A list of the flora species recorded during Coomera Woods Master Planned Development site surveying is provided below.

Scientific Name

Aquila audax

Cacatua galerita

Canis lupis familiaris

Centropus phasianius

Coracina novaehollandiae

Corvus orru

Cracticus nigrogularis

Cracticus torquatus

Gymnorhina tibicen

Lopholaimus anatarticus

Macropus giganteus

Macropus rufogriseus

Malurus melanocephalus

Manorina melanocephala

Meliphaga lewinii

Neochmia temporalis

Phascolarctus cinereus

Platycerus adscitus



Podargus strigiodes

Pseudocheirus peregrinus

Rhinella marina

Trichoglossus haematodus

Vanellus miles

Varanus varius

Wallabia bicolor

No additional fauna species were observed during site investigations.

Koala Surveys

As discussed above and within the attached document, detailed koala specific surveys have been completed over the Coomera Woods Development Site and wider region over the past decade:

Biolink 2007

This study covered the greater Coomera- Pimpama Koala Habitat Area (C-PKHA) a total area of 3,640 hectares which included the 2,148 Urban Koala Area (UKA) and the referral site, used the Spot Assessment Technique (SAT) (Philips and Callaghan 2011) to first estimate activity levels and then strip transects to estimate Koala densities in occupied areas. The strip transect estimates were extrapolated from the Coombabah Koala Habitat Area. Results estimated that there were approximately 510 (+/-129) Koalas present in the C-PKHA at the time of the study.

Saunders Havill Group 2015

As part of a broader MNES Coomera Woods survey SHG conducted 16 Spot Assessment Technique surveys (SATs) over the referral area. While SAT surveys traditionally rely on the identification of a scat for commencement, 3 of the 16 survey points were undertaken to fill in locational gaps in data and collect information on suitable tree species for koala habitat. Of the 16 survey points completed 6 showed 'low level', 3 recorded 'normal level' and 4 aligned with a 'high level' of usage based on the East Coast (Medium-High) Density Area threshold (Philips



and Callaghan 2011). During the 4 days on-site a juvenile koala was observed on a single day and not resighted despite deliberate survey effort within the same locality.

Phillips 2015

As part of a compliance assessment under the EPBC Act, Dr Phillips applied SATs to determine Koala activity levels specifically for the site and determined that 33% of the Coomera Woods Development site was occupied by Koalas. Applying the density estimates from the above 2007 C-PKHA surveys, Phillips 2015 estimated that 15 Koalas occupy 61 ha area of the site.

No koalas were observed within the entire Coomera Woods Development site during this survey. During the 2015 survey, each of the 15 SAT sites assessed by Biolink in 2006 were reinspected. One of the 15 sites is located within the proposed Protection Zone. In 2015, koala activity was observed in only 5 of the original 15 SAT sites. No koala activity was observed within the proposed Protection Zone.

Saunders Havill Group 2016

SHG undertook a direct estimation of Koala activity at the site in 2016 using 95 predetermined strip transects of 100 m x 20 m over the course of five days, and then repeated two months later. No Koalas were detected within strip transects and therefore a density of Koalas across the site could not be estimated. During these surveys, two (2) koalas were observed outside of the transect areas that may infer a density estimate of 0.151 0.146 Koalas ha-1.

It is noted that transects within this study were conducted within the proposed Protection Zone. No koalas were recorded within the proposed Protection Zone.

Planit 2017

The Planit surveys combined SAT assessments and a line transect method to provide an absolute count of koalas in the Coomera Woods Development site. SAT locations aligned with those utilised by Biolink 2007 and observers on transect lines covered the entire site at 10-20m intervals repeated under both diurnal and nocturnal spotlighting conditions.

Three (3) koalas were recorded on the first day, an additional koala was found during the nocturnal survey resulting in Four (4) koalas detected. On the second diurnal survey only four (4) koalas were detected though it was considered that one (1) has been considered could be a new sighting. As such, a total of five (5) koalas were recorded during the intensive survey period within the Coomera Woods Development Site. Planit (Chapter 1 – 2017) attest that SAT results replicated over successive surveys indicated that koalas are still utilising areas surveyed by Biolink 2007, although at significantly reduced levels.



Intensive contemporary survey results indicate that the number of individual koalas located on the site at anyone time is actually five (5) or below, which is significantly less than the 15 individuals estimated by Phillips (2015). It is also noted within this survey no koalas were observed within the proposed Protection Zone.

The most recent and comprehensive of these was undertaken by Planit in 2017. A summary of the works performed and results are included below:

Planit 2017 employed two sampling methods to survey the site;

1. SAT sites; and
2. Line transect method.

The SAT site activity levels recorded, only one (1) site of high activity levels. This sampling method was applied to the site approximately 8 weeks after a heavy rain event. The resulting activity levels are therefore likely to be a current representation of activity levels, as any older faecal pellets would have been removed before sampling.

The line transect method was extensive and covered the Coomera Woods Development multiple times, something none of the previous visual observation have done. The result was a total five (5) koalas recorded over the Coomera Woods Development Site during an intensive 2 day period of diurnal and nocturnal surveys.

As established within section 2.4 of this report, the proposed Protection Zone does not contain an important population or critical habitat for the survival of the koala. An assessment against the Koala Habitat Assessment Tool in accordance within the EPBC Act Referral Guidelines for the vulnerable koala (Koala Referral Guidelines) and determined the proposed Protection Zone achieved a score of 3, not a critical habitat.

Koala Occurrence: Score =1

The EPBC Act Protected Matters Search Tool identified the Koala as having potential to occur within the proposed Protection Zone. A review of the reports indicate that surveys conducted since 2015 did not detect koala activity, and neither were any koalas observed, within the proposed Protection Zone.

While there is evidence of Koala occurrence on the Coomera Woods Development site, it is noted that East Coomera Koala Conservation Project has involved the relocation of 180 'at



risk' Koalas out of the imminent Coomera development area. This has included the removal of 19 Koalas off the Coomera Woods Master Planned Development site and a significant number from the surrounding areas as part of the East Coomera Koala Conservation Project, reducing the number of Koalas in the area.

Recent surveys of the Coomera Woods Master Planned Development Site, post relocation of 180 koalas, results:

- Phillips performed a site survey using the SAT method and determined that approximately 33% of the Coomera Woods Development site was utilised by koalas, 5 of the 15 sites recorded koala activity. One of the SAT sites was within the Proposed Protection Zone (PO27), this site did not record any koala activity (Phillips, 2015: p. 6).
- SGH performed a 4 day field survey completed in 2015 observed one juvenile male. Scats were observed in several locations, concentrated to gully lines and foothills. Overall use of the Coomera Woods Development site was determined to be "low". No SAT sites were performed within the Proposed Protection Zone.
- SGH performed koala specific surveys using the strip transect method in October 2016 and observed two koalas within the Coomera Woods Development site. No koalas were observed within the Proposed Protection Zone (SHG, 2017: p. 33).
- Planit performed a comprehensive koala survey over a concentrated 36hr period utilising the line transect method and determined that up to 5 koalas were using the Coomera Woods Development site. None of the 5 individuals observed were recorded within the Proposed Protection Zone (Planit, 2017: p. 22). The SAT method was also used recreating the sites performed by Phillips (2015), Planit also found that PO27 recorded 0% activity and concluded that the use of the Coomera Woods Development site was "low".

It is noted that the potential habitat provided within the proposed Protection Zone is minimal due to the presence of edge effects and low density of vegetation. Each of the previous site specific surveys that have occurred across the Coomera Woods Development site has resulted in no koalas being recorded within/using the proposed Protection Zone.

As there is evidence of koala occurrence within two kilometers from the proposed Protection Zone in the previous 5 years, this attribute has been scored 1.

Vegetation Composition: Score = 2

A detailed description of the vegetation composition on proposed Protection Zone is provided within the flora portion of Section 2 of this assessment, and based on the results from 2004,



2008 and 2015 ecological field surveys.

The proposed Protection Zone was found to be dominated by species that achieve the definition of 'woodland' and 'forest' as referenced in the Koala Referral Guidelines. Ecological survey of the proposed Protection Zone is predominately dominated by Eucalyptus and Corymbia species. Specifically, these species included Eucalyptus tereticornis (Forest Red Gum), Eucalyptus siderophloia (Grey Gum), Corymbia intermedia (Pink Bloodwood), Corymbia citriodora (Spotted Gum) and Broad-leaved Ironbark (Eucalyptus fibrosa)/or Grey Ironbark (E. siderophloia). Further, there was a high dominance of Allocasuarina littoralis (Black She-oak), A. torulosa (Forest She-oak) and Wattles (Acacia disparrima, A. leiocalyx, A. melanoxylon) throughout the shrub layer and a number of weed species were identified.

As vegetation composing of canopy species on site is made up of more than two species considered to be Koala food trees, this attribute has been given a score of 2.

Habitat Connectivity: Score = 0

The proposed Protection Zone is bound by the Gold Coast – Brisbane Railway Line to the west, Foxwell Road the south and existing and approved development to the north and east. Current aerial imagery shows small vegetated patches to the south. Connectivity to these patches are segregated by existing arterial road and rail infrastructure and future development and EPBC approvals.

Additionally, the Bloom Estate to the immediate east has now completed vegetation clearing, removing the majority of vegetation adjoining the eastern boundary with the exception of the retained gully line. Urban development has expanded significantly in the wider Coomera area over the past decade, with residential estates now dominating the landscape to the east and west of the Pacific Motorway.

A primary barrier to dispersal between the proposed Protection Zone and bushland directly to the west is the Gold Coast Railway Line and Coomera Train Station. Trains travel along this portion of the line between Brisbane and the Gold Coast roughly every half an hour between 5am and 12pm. The high frequency of train movements along the track poses significant threats of injury or death to dispersing Koalas. In addition, vegetation clearing of isolated pockets between the railway line and Pacific Motorway associated with Westfield's Northern Frame Precinct (EPBC2014/7291) and Shopping Centre (EPBC20147292) has now been completed. The construction of the shopping centre has commenced and together with the rail corridor, this effectively forms an impenetrable koala barrier to the west and south-west of the proposed Protection Zone.

The upgrade to the Foxwell road interchange with the M1 motorway (Exit 54) had recently been completed. Demonstrating its support for the development of the Coomera regional centre, the majority of the funding was provided by the Federal Government with the balance provided by the State government and some significant commitments by developers within the Coomera Town Centre. With Foxwell road planned as an arterial road, the section between the recently



completed interchange and the entrance to the Coomera Rail station is currently being upgraded from a 2 lane to a 6 lane road. The section to the east of the access road to the station had already been upgraded to 6 lanes by Council. This major road with high traffic volumes forms a very significant barrier between the proposed Protection Zone and the remaining habitat to the south.

From the above it is evident that the proposed Protection Zone is surrounded by barriers against the movement of koalas to and from remaining habitat patches and the Koala Conservation Area (which is to be retained and restored by Council as permanent koala habitat for the survival of the species in the broader Coomera / Pimpama area).

Furthermore, the Coomera Town Centre Structure Plan shows that the surrounding Coomera area is expected to undergo even further development in the future. The proposed Protection Zone is located centrally within this urban development zone and, as such, will be completely surrounded by existing and future development. Consequently, the project area will become a completely isolated patch fragmented from habitat patches elsewhere in the landscape once surrounding development is complete. The proposed Protection Zone is not part of a contiguous landscape. No suitable corridors to support the regular and ongoing movement of Koalas between habitat areas has been planned within the Coomera Town Centre.

The local ecological corridor illustrated within the Coomera Town Centre Structure Plan which extends from the north-eastern corner of Lot 44 through adjoining developments to the north-east (to ultimately link up with the Council's Koala Conservation Area) is designed to allow for the immediate refuge for wildlife. This corridor, with its mature vegetation and dense canopy, could facilitate dispersal of individual koalas through adjoining developments to the Koala Conservation Area located to the north and east of the East Coomera urban footprint.

The Referral Guidelines, in Table 8: Barriers to dispersal and fragmentation address mitigation measures against 'barriers to movement to or from habitat critical to the survival of the koala that is likely to result in a long-term reduction in genetic fitness or access to habitat critical to the survival of the koala'. It provides that the retention of corridor(s) of at least 100m width would only have a moderate effect in the mitigation of barriers and that corridors greater than 300m can be considered to have higher effectiveness.

Having regard to the provisions of Table 8 mentioned above, with a minimum width of approximately 80m (varying in width up to approximately 100m), the corridor through the UKA does not mitigate against the barriers surrounding the proposed Protection Zone and would not provide effective movement to prevent long-term reduction in genetic fitness.

Further investigations of the ecological corridor have revealed that there are one-way koala exclusion fences in place at three locations that prevent koalas from moving from the koala conservation area into the ecological corridor (and potentially onwards to the proposed Protection Zone). Those fences are located at:

Location 1: the interface between the Gainsborough Greens residential development and the



koala conservation area.

The Gainsborough Greens estate is located directly north of Yawalpah road, straddles the ecological corridor and adjoins the koala conservation area. A continuous one-direction koala fence had been constructed between the conservation area and the Gainsborough Greens development precincts (e.g. residential and open space precincts). This design is a standard chain-wire fence with a 60cm strip of sheet metal attached beneath the top of the fence on the side of the conservation area.

The strip inhibits arboreal fauna from climbing the exclusion side of the fence, preventing access to the urban area and the ecological corridor from the conservation area. As the 60cm metal sheeting is only installed on the one side of the exclusion fencing, koalas are able to escape from Gainsborough Greens to the conservation area by climbing the fence on the urban side and dropping down into retained vegetation on the opposite side.

The installation of such fencing has been found effective in restricting koala movement across main roads and changing koala movement behaviours (Jones et al, 2013). These one-direction fences allow koalas to move from the Gainsborough Greens development into the koala conservation area but does not allow koalas to move out of the koala conservation area.

Location 2: along Gainsborough Drive

Gainsborough Drive is a two lane road that cross the corridor approximately 300m north of Yawalpah Road. A one direction koala fence is constructed along only the northern boundary of Gainsborough Drive. The one-direction koala exclusion fence is erected such that it excludes movement from the north towards the south. As there is no exclusion fence along the southern side of Gainsborough Drive, koalas can still cross the road and move northwards – in the direction of the koala conservation area

Location 3: along Yawalpah Road

A one-direction koala exclusion fence is constructed on the northern boundary of Yawalpah road reserve; The one-direction koala exclusion fence adjoins residential acoustic / koala exclusion fence on either side

of the ecological corridor. Koalas can thus not move around the one-direction koala exclusion fence. There is no fence on the southern boundary of Yawalpah Road reserve.

Again, the one-direction koala exclusion fence is erected such that it excludes movement from the north towards the south. It is thus not possible for koalas within the Gainsborough Greens ecological open space

to cross the fence into Yawalpah Road and move southwards within the ecological corridor or



towards the urban footprint.

As there is no fence along the southern boundary of Ywalpah Road, koalas can however cross the road and move northwards – out of the urban footprint and towards the koala conservation area

At each of these above mentioned locations, koalas are able to move from the south to the north, but are unable to move from the north within the ecological corridor.

The presence of these fences, and the inability of koalas to move from the koala conservation area to the urban areas in the south, is consistent with the empirical evidence obtained from the surveys conducted on the site that there are only a small number of koalas using the site. Despite that the site is used by that small number of koalas, the ecological corridor does not allow for recruitment of koalas from the northern koala conservation area and thus results in a sink, where mortality rates exceed breeding and recruitment.

One-way Fauna Exclusion Fence - Design & function

The one-way fauna exclusion fencing constructed as part of the Gainsborough Greens development are in accordance with the Department of Transport and Main Roads (Qld) Fauna Sensitive Road Design Manual, Volume 2: Preferred Practices.

This design is a standard chain-wire fence (typically 1.8m high) with a 60cm strip of sheet metal attached beneath the top of the fence. The strip inhibits arboreal fauna from climbing the exclusion side of the fence. It does however allow arboreal fauna to climb the non-exclusive side of the fence and cross the fence by dropping down on the exclusive side. The fence thus prevent access to the roads and ecological corridor from the conservation area.

As the 60cm metal sheeting is only installed on the one side of the exclusion fencing, koalas are able to escape from roadways and urban areas to the conservation area by climbing the fence on the road way side and dropping down into retained vegetation on the opposite side.

A concrete strip is inserted along the bottom of the fence – preventing animals from burrowing under the fence.

This design effectively deters koala movement from the conservation area to the ecological corridor.

Application of one-way fauna exclusion fences

One direction koala fences are widely used in Queensland and New South Wales to prevent koalas from moving onto roads and reduce the incidence of koala strikes by vehicles. These fences however also allow koalas, that may find its way into the road reserve or within urban



area, the means to scale the fence and escape using a drop-down method.

One direction koala exclusion fences are widely used along roads developed or upgraded by the QLD Department of Transport and Main Roads. Projects include upgrades of the Bruce Highway and sections of roads near Kawartha Forest to guide fauna to appropriate crossing structures.

New South Wales road projects include the \$4.36 billion Woolgoolga to Ballina Pacific Highway which include a number permanent koala exclusion fences in key locations in Wardell, an upgrade jointly funded by the Australian and NSW governments. The koala exclusion fences have been installed in accordance with the Conditions of Approval for the upgrade as part of the project's Koala Management Plan.

The Tweed Coast Comprehensive Koala Plan of Management (2015) includes the use of fauna exclusion fencing within the Koala Area Precincts and Koala Linkage Precincts to facilitate the safe movement of koalas through the landscape while mitigating potential vehicle strikes.

It is noted that one-way fauna exclusion fencing has been incorporated into the landscape design for the Gainsborough Greens development at the request of the City of Gold Coast to allow arboreal fauna access to the conservation areas and restrict movement from the conservation areas to the urban landscape.

The East Coomera Koala Population Study 2017 prepared by Biolink (Biolink 2017) also recommended further installation of one-way koala exclusion fencing around the conservation areas and rural landscape to prevent koalas dispersing out of these areas and into the high-risk urban landscape (p. 61 & 71).

The effectiveness of the one-way fauna exclusion fences

The installation of such fencing has been found effective in restricting koala movement across main roads and changing koala movement behaviours (Jones et al, 2013). This study recorded a koala crossing a major road numerous times prior to installation of one-way fauna exclusion fencing, approaching the road on 38 occasions and crossing 19 times (50% approach-crossing ration). Post construction the animal approached the road 11 times along the fauna-exclusion fence side, none of these approaches resulted in the koala crossing the road.

Additional barriers to movement of koalas at Yawalpah Road

In addition to the one-way fauna exclusion fencing there are projects within the area surrounding the the proposed Protection Zone and ecological corridor that are further hindering access to the ecological corridor from the conservation areas.

Yawalpah Road is planned as a four lane road. The northern two lanes as well as the



earthworks for the future (southern) two lanes are constructed across the ecological corridor. Roadworks are under way to the east of the ecological corridor to extend the northern two lanes of Yawalpah road to the intersection with Kerkin road, replacing the old existing two lane road.

There are a series of hydraulic culverts within the ecological corridor and crossing underneath Yawalpah Road. Council road design drawings show that the culverts are 1.8m in diameter. The culverts extend under the Yawalpah Road embankment and are approximately 40m long.

The length of piping and absence of fauna furniture and permanent inundation would preclude movements through them by koalas from the conservation areas to the ecological corridor.

The culvert outlets are located north of the Yawalpah road reserve boundary and thus north of the one-way fauna exclusion fence. The culverts are partially submerged and aquatic plants are growing at both the inlet and outlet of the culverts, indicating that the culverts are permanently submerged. Koalas cannot cross through the culverts and move from the north to the south.

Koalas can however cross the road reserve from the south (e.g. from urban development in the south), cross the fence on the northern boundary and move towards the koala conservation area in the north.

The constraints listed above and the proposed Protection Zone condition it is evident that both the the proposed Protection Zone and ecological corridor south of Yawalpah Road cannot support a viable koala population.

As per the information provided in the referral and in line with the Department's assessment above, the physical attributes of the corridor (including the vegetation within the corridor) makes it a suitable method for the dispersal of koalas from the Coomera Woods Development site to the conservation area.

The one-way fauna exclusion fences across that cross the ecological corridor effectively allow koalas to enter the koala conservation area, through a drop down method. However, the 60cm strip of sheet metal along the top of the fencing on the conservation area side stops koalas from climbing over the fence and into the urban footprint.

The combined effect is that while the ecological corridor does provide for koalas that may be present to disperse to the koala conservation area, it does not provide connectivity between the Coomera Woods site and the koala conservation area located beyond the urban footprint. The proposed Protection Zone is thus not part of a contiguous landscape greater than 300 Ha. The habitat connectivity score should therefore be =0

No habitat connectivity values will be retained in the short or long term surrounding the proposed Protection Zone, resulting in an attribute score of 0.

Key existing threats: Score = 0



Detailed information is available about the existing threats to Koalas in the East Coomera area as extensive monitoring and research was completed during 2012 and 2013 as a lead in to implementing the Council's translocation strategy. Vehicle strikes, dog attacks and disease are three existing threats to the Coomera koala population. The following data has been provided from Council's Reports and Plans (East Coomera Koala Conservation Plan 2014-2018) surrounding this strategy and reports on threats at a time when East Coomera was substantially less developed.

Vehicle Strike:

Between 2012 and 2013, Wildcare Australia recorded six (6) Koala fatalities from vehicle strike within East Coomera. In the same period, CGC recorded a further two (2) Koala fatalities taking the total deaths from vehicle strike to 8 for the period. The majority of these strikes occurred along Foxwell Road to the south of the project site. Additionally, thirteen (13) Koala vehicle strikes were recorded along the Pacific Motorway as it traverses the Coomera area.

Substantial development expansion and vehicle usage on existing and new roads has occurred since this period. Additionally, it is noted that the project area includes two new large scale "trunk" road corridors partially funded by the Council and State Government.

Dog Attack:

There are approximately 60,000 registered dogs within the Gold Coast area with the majority of these residing in urban settings and occurring through the entire East Coomera area. In 2012, fifteen (15) Koalas were rescued or recovered from the East Coomera Area by Wildcare Australia. Many of these were due to threats of or actual suspected attacks by dogs. Substantial evidence of both frequent and regular Koala mortality from vehicle strike and dog attack is known within the immediate proximity of the project site. These threats, along with the removal of habitat, are in essence why the CGC commenced this strategy of physically capturing and relocating the Koalas from the East Coomera area.

Disease:

Chlamydia is a common bacterial infection in koalas which causes symptoms such as cystitis, conjunctivitis leading to blindness, respiratory infections, reduced fertility rates and if left untreated can lead to death. Unfortunately, most wild koala populations are infected, and inhibits conservation activities. Chlamydia is a serious threat to koalas within the Gold Coast with a mortality rate of 78 per cent of those admitted to the Currumbin Wildlife Hospital. Wildcare Australia koala rescues for 2011 and 2012 found that 26 per cent of examined koalas from East Coomera tested positive for Chlamydia.

The Coomera Woods site is almost completely surrounded by vehicle and dog attack threats, either through already constructed residential areas and roads or through approved and under construction areas, the majority of which also retain EPBC approvals. A large portion of the East Coomera koala population is also at risk from chlamydia.

Due to the existence of key threats, the attribute has scored 0.



Recovery value: Score = 0

The relevant interim recovery objective states:

1. Protect and conserve large, connected areas of koala habitat, particularly large, connected areas that support koalas that are:
 - (i) Of sufficient size to be genetically robust / operate as a viable sub-population; or
 - (ii) Free of disease or have a very low incidence of disease; or
 - (iii) Breeding (i.e. presence of back young or juveniles).
2. Maintain corridors and connective habitat that allow movement of koalas between large areas of habitat.

Reviewing the above, it is considered that the majority of habitat provided within the proposed works area of the proposed Protection Zone is unlikely to be important in achieving the Interim Recovery Objectives.

Large and connected

The proposed Protection Zone encompasses approximately 1.5ha. While it forms part of the Coomera Woods Development site, which encompass approximately 147 hectares), as has been demonstrated above, the site is not connected to the Council's Koala Conservation Area.

The proposed Protection Zone is not large and connected, and is not part of a large connected area of koala habitat.

Does the site support a viable sub-population?

Because the Proposed Protection Zone (and the Coomera Woods Development Site) is functionally disconnected from the larger conservation area to the north, whether the Proposed Protection Zone is able to support a viable sub-population must be considered on the basis that the Proposed Protection Zone and sub-population within Coomera Woods is separated from the sub-population in the conservation area.

The Proposed Protection Zone its self is not of sufficient size to support a viable koala sub-population. As discussed within EPBC 2017/8134 the Coomera Woods Development Site sub-



population is not viable, given the size and condition of the habitat and being disconnected from the conservation area sub-population.

Furthermore, Biolink 2017 estimates that a minimum viable population (MVP) would require 170 individuals and approximately 1500 hectares of suitable habitat (Biolink 2007b). The sub-population within Coomera Woods, nor within the urban koala area, meet the MVP requirements. Comprehensive surveys of Coomera Woods found only five koalas and none recorded within the Proposed Protection Zone.

The Koala Referral Guidelines state:

“In most cases, the value of these three attributes [i.e. habitat connectivity, existing threats and recovery value] in urban areas is likely to be zero as the existing effects of habitat loss, fragmentation, vehicle strike, dog attack and other threats have and area likely to continue to degrade these areas over the medium to long-term.” (p. 25)

The Biolink 2017 also includes the following statement:

“It is very clear that the urban sub-population in the emerging Coomera Town Centre section of the urban area is at significant risk and is unlikely to be viable over the long-term.” (p. 49)

The Proposed Protection Zone does not support a viable sub-population, and is not of sufficient size to support a genetically robust sub-population. Extensive surveys over the Coomera Woods Development Site recorded only five koalas, none of which were observed within the Proposed Protection Zone. This is a likely result of the extensive and continual anthropogenic disturbances from adjacent land uses and degraded habitat within the Proposed Protection Zone. The Proposed Protection Zone does not meet the interim recovery objectives in this regard.

Disease

Additionally, a consideration within the interim recovery objective refers to koalas that are ‘free of disease or have a very low incidence of disease’. The following extracts from East Coomera Koala Translocation Program are noted in relation to the health of koalas in the Coomera area:

“Of the Koalas examined for the project, around 40% had some clinical signs of illness or disease ranging from conjunctivitis, cystitis, reproductive tract disease, gingivitis, gastrointestinal candidiasis, poor body condition, bacterial infection, toxæmia/septicaemia anaemia and bone marrow disease.”

The report goes on to state;

“the health assessment have raised serious concerns regarding overall health of the local koala population, particularly in relation to chlamydial infection”, with 21% of Koala examined testing positive for Chlamydia.



In the Biolink 2017 report (p20) it is recorded that 14.3% of adult males and 26.1% of adult females observed (by detection through binoculars) showed obvious signs of disease (i.e. cystitis and/or conjunctivitis).

The report further provide that:

“Disease poses an ongoing threat to koalas in urban landscapes where resident koalas are likely to face added nutritional and social stress associated with limited available habitat and safe dispersal opportunities, and in some cases elevated koala densities.”

The koala sub-population within the urban koala area are not disease free and neither does it have a low incidence of disease.

The interim recovery objective is not met in this regard.

Breeding

Extensive surveys over the Coomera Woods site recorded only five koalas, none of which were observed within the Proposed Protection Zone. It is considered that the Proposed Protection Zone does not support a viable sub-population and does not facilitate breeding within the urban footprint.

The urban koala sub-population has dramatically decreased over the past decade indicating a negative breeding rate.

Biolink 2017 estimates that the overall koala population for the entire East Coomera area, which includes both the urban and rural koala sub-populations, is relatively the same as the results from over a decade ago, namely:

- 2006-07 population estimate: 510 (± 129)
- 2017 population estimate: 499 (± 74)

It is to be expected that the koala population within the conservation area would be breeding.

However, in order to assess whether the koalas within the urban footprint are breeding, it is necessary to review the corresponding koala population estimates. The following figures are relevant:

- The Biolink 2007 report (p.7) estimated that 70% of the East Coomera population (356 koalas) resided within the UKA; and



- 180 koalas were translocated from the UKA (Biolink 2017, p.5)

From the abovementioned numbers, it is evident that, (ignoring all natural reproduction of the remaining koalas during this decade) the current population should be $356 - 180 = 176$ koalas.

However, Biolink 2017 (p.57) state that only up to approximately 80 koalas are currently still likely to reside in the UKA. If these Biolink figures are correct, there has been a very considerable negative koala population growth within the koala populations located within the urban footprint.

The koala population estimates in the Biolink 2017 report do not point to successful breeding amongst the fragmented urban koala population within the urban footprint. On the contrary, the latest population estimates support the scientific position that the population within the urban footprint will continue to decline over time.

The Proposed Protection Zone does not meet the recovery objectives in relation to breeding.

Maintain corridors and connective habitat that allow movement of koalas between large areas of habitat

As has been demonstrated above, the site is not large and connected, and is not part of a large connected area of koala habitat.

The interim recovery objective is not met in this regard

Having regard to all of this information, the correct score to be attributed for recovery value is 0.

Total Koala Habitat score - 3 (NOT critical habitat)

A score of 5 or more in the koala habitat assessment tool would determine that an area may contain critical habitat. The proposed Protection Zone is however only 1.538 hectares in size.

Relevantly, the Koala Referral Guidelines include the following statement (p.1.)

The loss of two hectares or less of marginal quality habitat critical to the survival (habitat score of 5) is highly unlikely to have a significant impact on the koala for the purposes of the EPBC Act.

A full assessment against the Significant Impact Guidelines has been performed for the koala within the attached MNES Assessment, which determined that this species is unlikely to be significantly impacted by the proposed action.



Additional assessments against the Significant Impact Guidelines have been performed for the Grey-headed Flying-fox and Greater Glider which are also provided within the attached MNES Assessment. Both of which determined that these species will not be significantly impacted. Neither the Grey-headed Flying-fox or the Greater Glider were recorded during previous assessments over the Coomera Woods Development site or in contemporary site investigations of the proposed Protection Zone

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

The existing drainage of the Coomera Woods Development site is currently uncontrolled draining via sheet flow to the existing gullies. Two drainage lines traverse the site from the central ridgeline draining northeast into the Pimpama River. Run-off south of the ridgeline will flow towards Oakey Creek and ultimately Coomera River to the southeast.

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

Regional Ecosystems mapping shows the proposed variation are contains Land Zone 11.

Land Zone 11

Short Description: metamorphic rocks

General term: hills and lowlands on metamorphic rocks

Metamorphic rocks, forming ranges, hills and lowlands. Primarily lower Permian and older sedimentary formations which are generally moderately to strongly deformed. Includes low to high grade and contact metamorphics such as phyllites, slates, gneisses of indeterminate origin and serpentinite, and interbedded volcanics. Soils are mainly shallow, gravelly Rudosols and Tenosols, with Sodosols and Chromosols on lower slopes and gently undulating areas. Soils are typically of low to moderate fertility.

The underlying geological units are utilised in association with the existing vegetation of the site to determine the regional ecosystem types (vegetation communities in a bioregion that are consistently associated with a particular combination of geology, landform and soil). Analysis of the regional ecosystem types occurring within bushland on similar geology proximate to the rehabilitation areas can provide insight on what vegetation communities exist and are likely to be successful if utilised within a revegetation project.

The Australian Soil Resource Information System (ASRIS) maps the site as containing



Chromosols. The pH is estimated to be about 4.8-5.5 indicating strongly acidic soils, while the texture has been mapped as loam, silt loam or sandy loam with a clay content of 20-30%.

A review of the Soils Inventory of the Gold Coast (DNRM 2004) indicates that the soil associations of the site are delineated generally according to underlying geological formations. The majority of the site is comprised of weathered materials generally associated with the Neranleigh-Fernvale metasediments. These soils contain strong texture contrasts between the A and strongly acidic C horizons. The mapped description of the soil type is:

Red Kurosol KU-AA, Brown Kurosol, KU-AB, Yellow Kurosol KU-AC, Grey Kurosol KU-AD, Ref Ferrosol FE-AA red soil, lack strong texture contrast Tenosols TE weak pedologic organisation, overlies hard unweathered rock or decomposed rock.

Parent Material = Arenite, mudstone, shale, chert, jasper, basic metavolcanics, pillow lava and conglomerate of Neranleigh Fernvale beds metasediments.

The areas surrounding the low-lying portions of the site are mapped as consisting of soil types associated with alluvial deposits in the city. The mapped description of the soil type is:

Mellic Brown Kandosol KA-AB-Do, Brown Dermosol DE-AB, Mottled Grey Sodosol SO-AD, Grey Dermosol DE-AD, Yellow Kandosol KA-AC, Hydrosols HY, Rudosols RU; also includes acid sulfate soils.

Parent Material = Alluvium: clay, silt, sand and gravel; flood plain alluvium

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

This proposed Protection Zone has not been identified as containing outstanding natural features. As previously stated, the site has been disturbed and retains isolated and fragmented ecological values in terms of biodiversity and habitat availability. While the site remains vegetation with predominately native species, disturbance to the ground layer, particularly around access tracks, significantly restricts vegetation regeneration. In addition, the site contains notable weed infestations, these areas are associated with access tracks and property boundaries.

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

Queensland's Regulated Vegetation Management Map shows the site contains areas of Category B Remnant Vegetation. The Vegetation Management Support Map identifies this remnant vegetation as being made up the following regional ecosystems:



RE12.11.5 (Least Concern)

-Open forest complex in which spotted gum is a relatively common species. Canopy trees include *Corymbia citriodora* subsp. *variegata*, *Eucalyptus siderophloia* or *E. crebra* (sub coastal ranges), *E. major* and/or *E. longirostrata* and *E. acmenoides* or *E. portuensis* and/or *E. carnea* and/or *E. eugenioides*. Other species that may be present and abundant locally include *Corymbia henryi*, *C. intermedia*, *C. trachyphloia*, *Eucalyptus tereticornis*, *E. propinqua*, *E. biturbinata*, *E. moluccana*, *E. melliiodora*, *E. fibrosa* subsp. *fibrosa* and *Angophora leiocarpa*. *Lophostemon confertus* often present in gullies and as a subcanopy or understorey tree. Mixed understorey of grasses, shrubs and ferns. Occurs on hills and ranges of Palaeozoic and older moderately to strongly deformed and metamorphosed sediments and interbedded volcanics. (BVG1M: 10b)

-RE12.11.5 is an essential habitat factor for Koala.

RE12.11.24 (Least Concern)

-*Eucalyptus carnea*, *E. tindaliae*, *Corymbia intermedia* woodland +/- *E. crebra* or *E. siderophloia*, *Eucalyptus resinifera*, *Eucalyptus major*, *E. helidonica*, *Angophora woodsiana*, *C. trachyphloia*, *E. microcorys*, *Corymbia citriodora* subsp. *variegata*, *C. henryi*. Occurs on Palaeozoic and older moderately to strongly deformed and metamorphosed sediments and interbedded volcanics usually at altitudes <300 metres. (BVG1M: 9g).

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

The proposed Protection Zone is relatively level from east to west and is slightly down hill from the residential area to the north. Contours range from 30m along the proposed Protection Zone to 40m within the residential areas to the north.

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

The proposed Protection Zone is currently vacant and surrounded by residential precincts. While the western portion of the proposed Protection Zone remains primarily vegetated with native species, the area to the east is primarily clear of vegetation as a result of historic uses of the area and existing fire management activities.

The surrounding land uses have isolated and fragmented this patch of habitat and therefore diminished the site's ecological value. Disturbance from edge effects, weed invasion, creation of access tracks, increases in domestic and feral animals and historical clearing have left the site devoid of notable ecological features and fragmented from large habitat area within the broader Coomera region, limiting its ability to support a high level of biodiversity of provide meaningful connectivity.



Overall, the proposed Protection Zone is considered to be disturbed and limited in its ability to provide safe refuge or connectivity fauna. The proposed action is within an area consisting of sparse vegetation due to the neighbouring landuses and fire trails to access the site (see images attached within section 1.4).

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

No Commonwealth Heritage Places are located within or adjacent to the proposed Protection Zone.

3.9 Describe any Indigenous heritage values relevant to the project area.

There are no known places of indigenous heritage value located within the proposed Protection Zone.

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

The entire extent of the site is freehold land.

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

The proposed Protection zone is currently vacant/disturbed land. Surrounding landuses range from residential, education, transport (rail and bus) and roads.



Section 4 - Measures to avoid or reduce impacts

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

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

Avoidance

The proposed action has been carefully considered with the consultation of planning and bushfire consultants to minimize potential impacts (i.e. native vegetation loss) and ensure the bushfire APZ is established such that loss of significant habitat trees or foraging for MNES species are minimal. The proposed action is located within areas considered to represent low ecological values, previously disturbed for bushfire management and/or impacted by the adjacent land uses and so vegetation within the proposed Protection Zone is sparse.

The clearing of the proposed Protection Zone is estimated to be approximately 1.538ha, however given the current condition of the site the actual area to be cleared is likely to be considerably lower as the area is highly disturbed and not covered by vegetation within some areas which contain old bushfire trails and access tracks.

Mitigation Measures

In anticipation of the development of this major regional urban expansion, the Council of the City of Gold Coast (CCGC) adopted a proactive approach in relation to the protection of the koala and since 2007 implemented concerted programs in this regard.

The East Coomera Koala Conservation Project (2007 – 2014)

Following extensive field work to estimate koala populations within the local government area, the CCGC developed and initiated the East Coomera Koala Conservation Project (2007 – 2014) within planned urban development areas to manage the most at-risk koalas. This project included detailed monitoring and relocation of koalas. It resulted in 180 individuals being translocated between 2008 and 2014 from the East Coomera urban footprint to secure habitat



areas in the Gold Coast hinterland. This included 19 koalas from the Coomera Woods Development site. The monitoring and relocation program was undertaken in accordance with Animal Ethics Committee approvals and corresponding Scientific Purposes Permits issued by the State Government.

The Koala Conservation Plan for East Coomera (2014-2018)

CCGC expect 170 koalas to remain within conservation reserves and rural areas beyond the urban footprint at East Coomera-Pimpama. The CCGC developed and adopted the Koala Conservation Plan for East Coomera (2014-2018) to direct the ongoing protection and management of the remaining koala population at East Coomera.

Referring to key findings from health assessments for over 200 koalas captured from the project area in conjunction with the East Coomera Koala Conservation Project between 2008 and 2014, Council state that:

Koala health issues have been recognised as one of the key factors contributing to koala population declines across SEQ. Assessment of the current health status of koalas within the project area has provided a vital insight into key factors that threaten the remaining population.

Of the koalas from the project area examined for the Project, approximately 40 per cent had some clinical signs of illness or disease ranging from conjunctivitis, cystitis, reproductive tract disease, nephritis, kidney disease, gingivitis, gastro-intestinal candidiasis, poor body condition, bacterial infection, toxæmia/septicaemia, anaemia and bone marrow disease.

In conjunction with the Plan, the CCGC identified a Priority Koala Conservation Precinct (PKCP). It covers around 2,112 hectares which includes areas of high quality koala habitat outside the urban footprint, together with some rural lands. The Plan included habitat restoration works within the PKCP.

The Koala Conservation Plan state that its objectives are to:

- identify the principal threats to koalas and koala habitat in the project area
- provide for long-term survival of the local koala population by developing and implementing measures to effectively address threats
- develop effective public awareness, engagement and education programs concerning local koala conservation issues
- provide for effective implementation, monitoring and review of the Koala Conservation Plan.



It relevantly provide that specific measures for investigation will include:

- potential habitat restoration programs,
- wild dog management programs,
- community education and awareness activities,
- signage on adjoining major roads, and
- monitoring of koala population size, distribution, health and genetics.

Towards the conclusion of the Plan, the CCGC reported as follows:

This plan has delivered key habitat conservation, contributed to koala health and welfare research and community engagement initiatives, including the preparation of school education materials in alignment with the school science curriculum. Most importantly this plan includes monitoring of the population and habitat changes following the translocation program.

The Koala Conservation Plan

The CCGC developed, and following public consultation, adopted the city wide Koala Conservation Plan during September 2017. Relevantly, the CCGC states that:

This Plan is broken down into categories which address threat management, population monitoring and community engagement. The threat mitigation actions incorporate many of the conservation actions from the City's previous Koala Conservation Plans and have been reviewed and updated where appropriate.

The Aim and Objectives of the plan are as follows:

Aim:

To ensure long-term sustainability of koala populations on the Gold Coast, including safe passage and habitat retention, through threat mitigation actions, research and community collaboration



Objectives

The Koala Conservation Plan will identify and implement measures to minimise threats to koala survival by:

- improving safe passage of koalas within urban areas through appropriate infrastructure planning and community participation in conservation initiatives
- identifying and protecting habitat to limit clearing and increase connectivity through informed development assessment
- reducing koala mortalities caused by vehicle strike, dog attack and Chlamydia
- partnering with government, universities, community groups and other research organisations to increase scientific knowledge of koala ecology and health
- maintaining a comprehensive, well informed understanding of Gold Coast koala populations and their threats.

The following measures are proposed to mitigate potential impacts associated with the proposed action:

Impact of Vegetation and Habitat Clearing

Disturbance to areas of native and exotic vegetation as described in this report will be unavoidable to deliver the required fire break in accordance with the appropriate BAL. To ensure that clearing impacts do not occur outside of the designated fire break it will be necessary to clearly identify and mark the boundaries of the clearing zone onsite prior to commencement. Such boundaries are to be protected via high visibility fencing and signage identifying that no activities (including temporary storage, stockpiling, vehicle movement etc.) are permitted beyond such points.

Within the designated fire break, identification of areas to be cleared are to be pre-assessed by an experienced ecologist and wildlife spotter/catcher. This pre-assessment shall allow for an inventory of trees bearing birds nests and/or hollows (suitable for arboreal mammal or bat nesting) to be undertaken prior to felling works. A wildlife spotter catcher is to be utilised during all phases of clearing of the site to ensure safe dispersal and relocation of native fauna.

Salvageable habitat components such as hollow stems or ground logs shall also be stockpiled



and randomly dispersed throughout the retained bushland external to the fire break.

Domestic Animal Management

To mitigate the potential impact of domestic animals on resident fauna the following measures are proposed:

-No cats or dogs other than guide dogs are permitted to be kept within the within the proposed Protection Zone.

Terrestrial Fauna Dispersal Barriers, Barrier Effects

As discussed in the previous sections the following measures are proposed to reduce the potential impact of fire break on continued terrestrial fauna dispersal within the locality:

Limiting clearing of habitat to fragmented areas or areas at the edge of existing contagious remnant.

Prohibiting the keeping of cats and dogs (other than guide dogs) from the site.

Weed Management

A vegetation management plan has been prepared to minimise the potential impact of weeds within the site as a result of the proposed action (refer to attached MNES Assessment).

Fauna Management

Within the proposed Protection Zone, identification of areas to be cleared are to be pre-assessed by an experienced ecologist and wildlife spotter/catcher. This pre-assessment shall allow for an inventory of trees bearing birds nests and/or hollows (suitable for arboreal mammal or bat nesting) to be undertaken prior to felling works. A wildlife spotter catcher is to be utilised during all phases of clearing of the proposed Protection Zone to ensure safe dispersal and relocation of native fauna.

Salvageable habitat components such as hollow stems or ground logs shall also be stockpiled and randomly dispersed throughout the retained bushland external to the proposed Protection Zone.

It is noted that the proposed Protection Zone is less than 2ha and does not contain critical



habitat for the survival of the koala.

Compliance with State and Regional Controls

-South East Queensland Koala Conservation State Planning Regulatory Provisions 2015 (SEQ SPRP)

-Nature Conservation (Koala) Conservation Plan 2006 & Nature Conservation (Koala) Conservation Plan 2017

The proposed Protection Zone is not mapped within an identified Koala Broad-hectare Area. The proposed action complies with strict regional and state regulatory provisions for the carrying out of works within koala habitat areas. The adjacent vegetation and ecological corridor will provide dispersal opportunities for potential fauna from the proposed Protection Zone following sequential clearing of the area, while supervised by a DEHP qualified spotter/catcher.

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

The matters protected by the EPBC Act that may be affected by the proposed action is the koala. The proposed action involves the removal of approximately 1.538ha of potential habitat. The site has been assessed as not containing critical habitat for the koala and achieved a score of 3 against the Significant Impact Guidelines.

It is noted that in the event that the proposed Protection Zone did achieve the required score for critical habitat the proposed Protection Zone is less than 2ha and is therefore considered unlikely to result in a significant impact and does not require referral to the Department (Referral Guidelines for the Vulnerable Koala, Figure 2 – Assessing adverse impacts on habitat critical to the survival of the koala).

Though potential habitat will be cleared, no harm is expected to come to individual koalas during clearing works.

Vegetation clearing will include the following;

-Implementation of Sequential clearing – with maximum clearing limits/day and clearing in a direction that ushers wildlife towards adjacent vegetation and/or the ecological corridor; and

-Supervision of clearing works by DEHP qualified wildlife spotter/catcher.



Both of the above measures are in accordance with the Nature Conservation (Koala) Conservation Plan 2017;

Part 3 s10 Sequential clearing in a koala habitat area

(3) in this section- Sequential clearing means all of the following conditions-

(a) clearing of the koala habitat trees is carried out in a way that ensures koalas on the area being cleared (the clearing site) have enough time to move out of the clearing site without human intervention, including, in particular, for clearing sites with an area of more than 3ha, by—

(i) carrying out the clearing in stages; and

(ii) ensuring not more than the following is cleared in any 1 stage—

(A) for a clearing site with an area of 6ha or less—50% of the site's area; (B) for a clearing site with an area of more than 6ha—3ha or 3% of the site's area, whichever is the greater; and

(iii) ensuring that between each stage and the next there is at least 1 period of 12 hours starting at 6p.m. on a day and ending at 6a.m. on the following day during which no trees are cleared on the site;

(b) clearing of the koala habitat trees is carried out in a way that ensures, while the clearing is carried out, appropriate habitat links are maintained within the clearing site and between the site and its adjacent area, to allow koalas living on the site to move out of the site;

(c) no koala habitat tree in which a koala is present, and no koala habitat tree with a crown overlapping a tree in which a koala is present, is cleared.

Part 3 s11 Koala spotter needed for clearing in Koala habitat area

(1) This section applies to a person clearing, in a koala habitat area, koala habitat trees having a trunk of a diameter of more than 10cm at 1.3m above the ground.

(2) The person must ensure the clearing is carried out in the presence of a koala spotter who has the primary role of locating koalas in the trees for the person. Maximum penalty—120 penalty units.

(3) This section applies in addition to any other requirement applying to the clearing under an Act.

(4) In this section— koala spotter means a person who has demonstrated experience in—

(a) locating koalas in koala habitats; or



(b) conducting fauna surveys.



Section 5 – Conclusion on the likelihood of significant impacts

A checkbox tick identifies each of the matters of National Environmental Significance you identified in section 2 of this application as likely to be a significant impact.

Review the matters you have identified below. If a matter ticked below has been incorrectly identified you will need to return to Section 2 to edit.

5.1.1 World Heritage Properties

No

5.1.2 National Heritage Places

No

5.1.3 Wetlands of International Importance (declared Ramsar Wetlands)

No

5.1.4 Listed threatened species or any threatened ecological community

No

5.1.5 Listed migratory species

No

5.1.6 Commonwealth marine environment

No

5.1.7 Protection of the environment from actions involving Commonwealth land

No

5.1.8 Great Barrier Reef Marine Park

No

5.1.9 A water resource, in relation to coal/gas/mining

No



5.1.10 Protection of the environment from nuclear actions

No

5.1.11 Protection of the environment from Commonwealth actions

No

5.1.12 Commonwealth Heritage places overseas

No

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

The attachment MNES Assessment and a number of supporting technical reports provide relevant details on the survey, assessment and consideration of impacts on the koala within the legislative context of the EPBC Act. These span over a 2 year period. The overarching conclusions of these various reports by two separate Ecological Consultancy Professional Services Companies is that the proposed action will not result in significant impacts on the koala or any other species as listed and protected as a Matter of National Environmental Significance (MNES) under the EPBC Act. The core findings of this assessment, and on which the no significant impact determination derived, are:

With respect to the possible impact on the Grey-headed Flying fox, an assessment against criteria included within the Significant Impact Guidelines 1.1 is provided in the attached MNES Assessment prepared by Planit (May 2018), which concludes the project will not result in significant impacts on the species:

-this species has not been recorded within the proposed Protection Zone or Coomera Woods Development Site;

-potential habitat for this species is not limited to the proposed Protection Zone.

With respect to the possible impact on the Greater Glider, an assessment against the criteria included within the Significant Impact Guidelines 1.1 is provided in the attached MNES prepared by Planit (May 2018), which concludes the project will not result in significant impact on this species.

-this species has not been recorded within the proposed Protection Zone or surrounding area surveyed by planit;

-the proposed Protection Zone does not provide suitable habitat for this species, tree hollow density is low and below mean habitat tree range (5.9 +/- 0.4 habitat trees/ha) for Coastal Dry



sclerophyll Forests (Ross, 1999).

With respect to the possible impact of the proposed action on the koala, reasons as to why the proposed action should not be regarded as having a significant impact are set out in the attached MNES Assessment prepared by Planit (May 2018). Those reasons include that;

-this species has not be recorded within or using the proposed Protection Zone in contemporary koala specific surveys within the Coomera Woods Development site, which the survey area encompasses the proposed Protection Zone.

-the most recent survey undertaken over the Coomera Woods Development Site- involving a line transect method of visual observation covering the entire site three times over two days and one night-showed that there were only five individual koalas on the site;

-the small number of koalas does not constitute a minimum viable population and neither do the koalas form a part of a larger and viable or sustainable population (due to the fact that the area is bounded by significant barriers in the form of extensive urban development and major transport infrastructure). The small number of koalas within the Coomera Woods Development site therefore do not constitute a population that is or could be important for the survival of the species;

-given its inadequate size, low quality of the vegetation and the edge effects resulting from surrounding urban development, the proposed Protection Zone itself cannot support a minimum viable population. Furthermore, given the urban context and the resulting barriers bounding the proposed Protection Zone, it does not form part of a larger contiguous landscape;

-the outcome of the assessment of the site against the EPBC Act referral guidelines for the vulnerable koala is a score of 3, meaning that under the Referral Guidelines the proposed Protection Zone does not contain habitat critical to the survival of the koala, and if it did the area is less than 2 hectares and therefore the action is unlikely to have a significant impact on this species and does not require referral;

-measures required to be taken under Queensland law and local planning requirements provide protection for the well-being of the koalas remaining on the site. Given that the site does not contain habitat critical to the survival of the koala, it is more appropriate that the impact of the proposed action is regulated under Queensland and local law rather than under EPBC Act.

Although the proposed Protection Zone is predominantly bushland the area is highly disturbed and provides limited habitat for MNES species. The evidence collected and analysed on this project assessed against the provided criteria of the EPBC Act and Guidelines, concludes the proposed action will not result in a significant impact on MNES.



Section 6 – Environmental record of the person proposing to take the action

Provide details of any proceedings under Commonwealth, State or Territory law against the person proposing to take the action that pertain to the protection of the environment or the conservation and sustainable use of natural resources.

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

Development undertaken to date include:

- The vegetation clearing and bulk earthworks of 25 hectare site adjoining the ecologically sensitive McCoy's creek corridor upstream from Moreton Bay Ramsar Wetland Site.
- The vegetation clearing of a 55 hectare site straddling the Oakey Creek upstream from the Coomera River and the Moreton Bay Ramsar wetland site.

The abovementioned works had been undertaken in accordance with the requirements of the subject development approvals and relevant legislative requirements to the satisfaction of the Authorities.

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

Polaris is not and has not been the subject of proceedings under Commonwealth, State or Territory Law.

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

Yes

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

Polaris does not have an environmental policy. Development applications for all works include



the preparation of site specific Fauna-, Flora- and Environmental Engineering Management Plans by independent professionals (appointed by Polaris) in accordance with applicable legislative and regulatory requirements as well as best practices.

Contracts let by Polaris for the execution of works:

Stipulate the supervision of the works by independent professionals (superintendents) appointed by Polaris;

Oblige contractors to comply with all applicable legislative and regulatory requirements;

Call for the preparation of necessary management plans by the contractor and the approval thereof by the relevant superintendents prior to the commencement of the works. These Contractor Management Plans must as a minimum include the requirements set in the management plans submitted / approved as part of the development applications.

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

Yes

6.4.1 EPBC Act No and/or Name of Proposal.

Industrial Subdivision, Old Pacific Highway, Coomera, QLD. EPBC 2013/6819



Section 7 – Information sources

You are required to provide the references used in preparing the referral including the reliability of the source.

7.1 List references used in preparing the referral (please provide the reference source reliability and any uncertainties of source).

Reference Source	Reliability	Uncertainties
Australian Koala Foundation 2012, National Koala Tree Protection List; Recommended Tree Species for Protection and Planting of Koala Habitat.	Reliable	N/A
Australian Koala Foundation, The Spot Assessment Technique: determining the importance of Habitat Utilised by Koalas (<i>Phascolarctos cinereus</i>), available online: https://www.savethekoala.com/sites/default/files/docs/conservation/The%20Spot%20Assessment%20Technique.pdf	Reliable	N/A
Australian Soil Resource Information System, http://www.asris.csiro.au/	Reliable	N/A
Biolink 2007, Conserving Koalas in the Coomera-Pimpama Koala Habitat Area: A view to the future prepared for City of Gold Coast	Reliable, at the time of the study this document was a fair representation of the area, even though density estimates were based on indirect survey methods.	As discussed within section 2.4.1 of this referral and the attached Coomera Woods Koala Assessment Chapter 1 prepared by Planit there are uncertainties relating to the application of these findings to the referral site and surrounding environment in its current condition.
Biolink, 2017, East Coomera Koala Population Study 2017, Prepared for the City of Gold Coast.	There are uncertainties within this study	This study has determined that though approximately 34% of the habitat within the East Coomera Study Area had been cleared the current koala population is relatively the same as recorded over a



Reference Source	Reliability	Uncertainties
Callaghan J. 2014, Koala Conservation Plan for East Coomera prepared for City of Gold Coast	Reliable	decade ago, despite this clearing and the translocation of 180 koalas from high risk areas (i.e UKA). This study again relies heavily on the SAT method to determine results and koala activity. This technique was evaluated within Chapter 1: Evaluation of Koala Survey Methodology by Planit (2017) to be an unreliable technique to estimate population density and size. The number of assumptions associated with this method increases the limitations and inaccuracy of results.
City of Gold Coast. 2017, Koala Conservation Plan, available online: http://www.goldcoast.qld.gov.au/documents/bf/koala-conservation-plan.pdf	Reliable	N/A
City of Gold Coast. 2014, Koala Conservation Plan for East Coomera 2014-2018, available online: http://www.goldcoast.qld.gov.au/documents/bf/koala-conservation-plan-east-coomera.pdf	Reliable	N/A
Department of Main Roads, 2008. Bruce Highway (Cooroy to Curra) Strategic Planning Study, Recommended Corridor Report, Appendix B Fauna Movement and Road Impact Mitigation (Biodiversity Assessment and Management)	Reliable	N/A
Dique DS, de Villiers DL and Preece HJ 2003, Evaluation of line-transect sampling for estimating Koala abundance in the Pine Rivers Shire, south-	Reliable	N/A



Reference Source	Reliability	Uncertainties
east Queensland.' Wildlife Research 30: 127-133		
Habitat, 2013. Gainsborough Greens Koala Management Master Plan	Reliable	N/A
Hill & Curran 2003, Area, shape and isolation of tropical forest fragments: effects on tree species diversity and implications for conservation. Journal of Biogeography, 30: 1391-1403.	Reliable	N/A
Jones et al., 2013 Koala Retrofit Works Program, Evaluation Monitoring for Koala-Specific Overpass Structure. For the Department of Transport and Main Roads	Reliable	N/A
Philips, S. 2015, Impacts of proposed clearing activity on the koala habitat located at 49 George Alexander Way, Coomera in the City of Gold Coast LGA, South-Eastern Queensland, Australian Government, Department of Environment	Unreliable, there are a number of inaccuracies within the document relating to calculations and inappropriate application of outdated data and statistics. The koala density estimates were based on indirect sampling methods and assumptions.	As discussed within Section 2.4.1 of this referral and the attached Coomera Woods Koala Assessment Chapter 1 prepared by Planit there are a number of inaccuracies with this report, including the calculations and the application of a 2007 koala density estimate to the referral site. The context of the site has changed considerably and therefore should not be assessed using preexisting statistics.
Phillips S & Callaghan J 2011, The Spot Assessment Technique: a tool for determining localised levels of habitat use by Koalas Phascolarctos cinereus. Australian Zoologist 35(3): 774-780.	Reliable	N/A
Planit Consulting 2014, Amended Environmental Corridor Rehabilitation Strategy commissioned by Polaris Coomera Pty Ltd	Reliable	N/A
Planit Consulting 2014,	Reliable	N/A



Reference Source	Reliability	Uncertainties
Amended Vegetation Management Plan commissioned by Polaris Coomera Pty Ltd		
Planit Consulting 2014, Final Preclearing Fauna Assessment & Management Plan commissioned by Polaris Coomera Pty Ltd	Reliable	N/A
Planit Consulting, 2017, Coomera Woods Koala Evaluation and Assessment Chapter 1 – Evaluation of Koala Survey Methodology, commissioned by Polaris Coomera Pty Ltd	Reliable	N/A
Planit Consulting, 2017, Coomera Woods Koala Evaluation and Assessment Chapter 2 – Response to Dept. of Environment and Energy Brief, commissioned by Polaris Coomera Pty Ltd	Reliable	N/A
Planit Consulting, 2018, Proposed Protection Zone, Matter of National Environmental Significant Assessment, commissioned by Polaris Coomera Pty Ltd	Reliable	N/A
Saunders Havill Group 2015, Ecological Assessment Report EPBC Act Referral commissioned by Polaris Coomera Pty Ltd	Reliable	N/A
Saunders Havill Group, 2017, Koala Assessment Report, 49 & 51 George Alexander Way Coomera, Commissioned by Polaris Coomera Pty Ltd	Reliable	N/A
TMR, 2010. Fauna Sensitive Road Design Manual, Vol. 2.	Reliable	N/A



Section 8 – Proposed alternatives

You are required to complete this section if you have any feasible alternatives to taking the proposed action (including not taking the action) that were considered but not proposed.

8.0 Provide a description of the feasible alternative?

There are no feasible alternatives to the proposed action. The proposed Protection Zone to establish a fire break and access track/fire trail is located within an area of modified/sparse vegetation. It is unlikely that this area provides preferred habitat for MNES.

8.1 Select the relevant alternatives related to your proposed action.

8.27 Do you have another alternative?

No



Section 9 – Contacts, signatures and declarations

Where applicable, you must provide the contact details of each of the following entities: Person Proposing the Action; Proposed Designated Proponent and; Person Preparing the Referral. You will also be required to provide signed declarations from each of the identified entities.

9.0 Is the person proposing to take the action an Organisation or an Individual?

Organisation

9.2 Organisation

9.2.1 Job Title

Managing Director

9.2.2 First Name

Kaeko

9.2.3 Last Name

Omura

9.2.4 E-mail

kaeko@polariscoomera.com.au

9.2.5 Postal Address

PO Box 105
Surfers Paradise QLD 4217
Australia

9.2.6 ABN/ACN

ABN

36130648056 - POLARIS COOMERA PTY LTD

9.2.7 Organisation Telephone

(07) 55925890



9.2.8 Organisation E-mail

admin@polariscoomera.com.au

9.2.9 I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

Not applicable

Small Business Declaration

I have read the Department of the Environment and Energy’s guidance in the online form concerning the definition of a small a business entity and confirm that I qualify for a small business exemption.

Signature:..... Date:


9.2.9.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations

No


9.2.9.3 Under sub regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made

Person proposing the action - Declaration

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

Signature:  Date: 17 May 2018

I, KAEKO OMURA, the person proposing the action, consent to the designation of POLARIS COOMERA PTY LTD as the proponent of the purposes of the action describe in this EPBC Act Referral.

Signature:  Date: 17 May 2018

9.3 Is the Proposed Designated Proponent an Organisation or Individual?



Organisation

9.5 Organisation

9.5.1 Job Title

Managing Director

9.5.2 First Name

Kaeko

9.5.3 Last Name

Omura

9.5.4 E-mail

kaeko@polariscoomera.com.au

9.5.5 Postal Address

PO Box 105
Surfers Paradise QLD 4217
Australia

9.5.6 ABN/ACN

ABN

36130648056 - POLARIS COOMERA PTY LTD

9.5.7 Organisation Telephone

(07) 55925890

9.5.8 Organisation E-mail

admin@polariscoomera.com.au

Proposed designated proponent - Declaration

I, KAEKO OMURA, the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.



Signature:.....*[Handwritten Signature]*..... Date:17 May 2018.....

9.6 Is the Referring Party an Organisation or Individual?

Organisation

9.8 Organisation

9.8.1 Job Title

Director

9.8.2 First Name

Boyd

9.8.3 Last Name

Sargeant

9.8.4 E-mail

boyd@planitconsulting.com.au

9.8.5 Postal Address

PO Box 206
Nobby Beach QLD 4218
Australia

9.8.6 ABN/ACN

ABN

20099261711 - PLANIT CONSULTING PTY. LTD.

9.8.7 Organisation Telephone

(07) 55261500

9.8.8 Organisation E-mail

admin@planitconsulting.com.au

Referring Party - Declaration



I, Boyd Sargeant, I declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence.

A handwritten signature in blue ink, appearing to be 'Boyd Sargeant', written over the signature line.

Signature:..... Date:18/05/2018.....



Appendix A - Attachments

The following attachments have been supplied with this EPBC Act Referral:

1. images_of_existing_site_condition.pdf
2. mnes_assessment_part_1.pdf
3. mnes_assessment_part_2.pdf
4. mnes_assessment_part_3.pdf
5. mnes_assessment_part_4.pdf
6. mnes_assessment_part_5.pdf
7. mnes_assessment_part_6.pdf
8. mnes_assessment_part_7.pdf
9. mnes_assessment_part_8.pdf
10. mnes_assessment_part_9.pdf
11. mnes_assessment_part_10.pdf
12. mnes_assessment_part_11.pdf
13. mnes_assessment_part_12.pdf
14. mnes_assessment_part_13.pdf
15. mnes_assessment_part_14.pdf
16. pimpama_coomera-proposed_protection_zone.pdf
17. protection_zone_aerials_1.1.pdf
18. protection_zone_aerials_2.1.pdf
19. protection_zone_aerials_3.1.pdf