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ITEM 2.2 - YOUNGS CROSSING ROAD UPGRADE - FINAL APPROVAL - A20727400 (Cont.) #3 Attachment C - Vegetation Assessment (Final)



specialised ecological knowledge that reduces your risk

22/10/2020

Bernadette May Principal Planner – Green Infrastructure Networks Integrated Transport Planning and Design Moreton Bay Regional Council

Dear Bernadette,

RE: Vegetation Assessment for Youngs Crossing Road Bridge Upgrade, Joyner

Moreton Bay Regional Council (MBRC) requested Biodiversity Assessment and Management (BAAM) to undertake an assessment of vegetation potentially impacted by a proposed bridge upgrade for Youngs Crossing Road in Joyner (**Figure 1**), to verify its significance and inform any necessary approvals and offsets. Specifically, the scope of the assessment was to:

- Verify the State Government's mapping of regional ecosystems (REs) and associated essential habitat.
- Assess the presence and extent of any vegetation representative of a Threatened Ecological Community (TEC) listed under Commonwealth legislation.
- Map the extent of each distinct vegetation community and plot the location of all nonjuvenile Koala habitat trees (NJKHTs) within the Subject Area.
- Assess potential impacts to the identified values from the proposed works, including a
 determination of whether referral to the Commonwealth is warranted for impacts upon
 matters of national environmental significance (MNES).
- Determine potential offset obligations to compensate for unavoidable impacts, and an outline of what steps would need to be taken to progress approval.
- Provide advice as to whether two large fig trees onsite can be successfully relocated.

The following presents the results of the assessment, which was informed by a field assessment undertaken by BAAM Senior Botanist Dr Jarrah Will on 3 September 2020.

Yours sincerely

Jedd Appleton Director and Project Delivery Manager, CEnvP Biodiversity Assessment and Management Pty Ltd

File No	Author	Reviewer
0222-010	A	AS

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DESKTOP REVIEW

Current State Government mapping of vegetation and habitat within the Subject Area (**Figure 1**) is provided in **Attachment 1**. This indicates the Subject Area contains regulated vegetation in the form of remnant REs 12.3.16 and 12.3.7. These REs are described as follows:

- RE 12.3.16: Complex notophyll to microphyll vine forest on alluvial plains (currently listed as Endangered under the Queensland *Vegetation Management Act 1999* [VM Act]).
- RE 12.3.7: *Eucalyptus tereticornis, Casuarina cunninghamiana subsp. cunninghamiana* +/-*Melaleuca spp.* fringing woodland (currently listed as Least Concern under the VM Act).

This mapped vegetation is also within the defined distance of a mapped watercourse, and is mapped as Essential Habitat for Koala *Phascolarctos cinereus* and Tusked Frog *Adelotus brevis* (both of which are currently listed as Vulnerable under the Queensland *Nature Conservation Act 1992* [NC Act]), and as Core Habitat for Koala within a Koala Priority Area.

Koala is also listed as Vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), while RE 12.3.16 (previously categorised as RE 12.3.1) may be representative of the Lowland Rainforest of Subtropical Australia TEC (currently listed as Critically Endangered under the EPBC Act), subject to assessment against relevant diagnostic criteria and condition thresholds.

The Subject Area is not mapped by the State Government within a high risk protected plant trigger area, although there remains the potential for flora species listed as Endangered, Vulnerable or Near Threatened (EVNT) under the NC Act to occur, particularly within rainforest habitat.

A recent, preliminary assessment of environmental matters potentially impacted by the proposed works (Cardno 2020) investigated two alignment options for the proposed bridge upgrade, one of which is located immediately east of the alignment assessed as part of the current assessment. They found that the vegetation at the location surveyed had been subject to prior disturbances and subsequent rehabilitation and replanting efforts, and determined that the vegetation at the location surveyed did not meet the required key diagnostic characteristics to be the Lowland Rainforest of Subtropical Australia TEC, because:

- The expected dominant canopy was very discontinuous, with average heights at the low end of expected range, and the current Ecologically Dominant Layer was well below required height and below canopy cover expectations.
- The surveyed patch did not support the required number of specified woody species to achieve the species richness threshold.

It was also determined that EVNT flora species were unlikely to be impacted.

It is noted, however, that the vegetation surveyed as part of the Cardno assessment was immediately east of the vegetation mapped by the State, and was confirmed as non-remnant, whereas the alignment assessed as part of the current assessment will directly impact the mapped remnant vegetation.

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FIELD ASSESSMENT

Vegetation Mapping

The field assessment characterised and mapped the vegetation within the Subject Area in accordance with the methodology described in Neldner *et al.* (2020). This included the establishment of a Quaternary site and transect to measure the height, canopy cover and dominant species present in each stratum of a vegetation community, the results of which are presented in **Table 1**. Specifically, tree heights were measured using a laser range finder, and cover was measured using the line intercept method along a 100m transect (**Figure 2**).

Under the Queensland *Vegetation Management Act 1999*, <u>remnant</u> woody vegetation is defined as vegetation that has not been cleared, or vegetation that has been cleared but where the dominant canopy has greater than 70% of the height and greater than 50% of the cover relative to the undisturbed height and cover of that stratum and is dominated by species characteristic of the vegetation's undisturbed canopy.

In this case, the vegetation within the Subject Area was found to be dominated by species characteristic of RE 12.3.16, as described in the regional Ecosystem Description Database. The Biocondition Benchmark for RE 12.3.16 specifies an undisturbed canopy height of 25m and undisturbed canopy cover of 80%, and the average height (21m) and cover (65%) of the canopy vegetation present across the Subject Area exceeds 70% and 50% of these benchmarks, respectively (**Table 1**). Consequently, the field assessment confirmed the vegetation within the Subject Area is comprised of remnant RE 12.3.16.

The field survey also determined that the patch of remnant RE 12.3.16 extends further north than that mapped by the State. **Figure 2** shows the extent of remnant RE 12.3.16 within the Subject Area; the entire patch of remnant RE 12.3.16 would extend further north and west of that shown.

Non-remnant vegetation is located along the western boundary of Youngs Crossing Road; this area has been heavily planted following clearing of woody weeds.

Table 1. Description of vegetation within the Subject Area

lane	T. Description of vegetation within the Subject	LAIEd.
Site	Description	Representative photo
Q1	Description RE: 12.3.16 Cover: 65% Canopy (T1): Dense. Height range 13-25m; median height 21m. Co-dominant species: Ficus macrophylla, Ficus obliqua, Syzygium floribunda, Aphananthe philippinensis, Acacia disparrima Associated species: Cryptocarya triplinervis, C. obovatus, Cupaniopsis anacardioides, Cinnamomum camphora Shrub (S1): Sparse. Height range 1-2m; median height 1.5m. Co-dominant species: Mallotus claoxyloides, M. philippensis Associated species: Mallotus discolor, Melaleuca viminalis, Pittosporum revolutum Ground (G): Co-dominant species: Oplismenus aemulus, Pseuderanthemum variabile	Representative photo

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Lowland Rainforest of Subtropical Australia TEC Assessment

In recognising that many examples of the Lowland Rainforest of Subtropical Australia TEC now occur in a degraded or disturbed state, the Commonwealth Listing Advice on Lowland Rainforest of Subtropical Australia (TSSC 2011) provides Key Diagnostic Characteristics and Condition Thresholds for determining whether a patch of vegetation retains sufficient conservation values to be considered as a Matter of National Environmental Significance.

Importantly, assessment against the Key Diagnostic Characteristics and Condition Thresholds is to be undertaken for each "patch" of vegetation at a particular location, which the Listing Advice defines as "a discrete and continuous area of the ecological community", and "may include small-scale disturbances, such as tracks or breaks, watercourses or small scale variations in vegetation that do not significantly alter its overall functionality". Consequently, the vegetation assessed against the Key Diagnostic Characteristics and Condition Thresholds as part of the current assessment was not restricted to that occurring within the proposed alignment or Subject Area; it included observations beyond these areas in the interests of assessing the broader "patch".

The assessment against the specified Key Diagnostic Characteristics and Condition Thresholds is summarised in **Tables 2 and 3**, respectively. This indicates the vegetation within the Subject Area forms part of a patch of Lowland Rainforest of Subtropical Australia TEC.

Table 2. Assessment of vegetation within the Subject Area against Key Diagnostic Characteristics for Lowland Rainforest of Subtropical Australia TEC.

Key Diagnostic Characteristics	Assessment of Vegetation within Subject Area
Distribution of the ecological community is primarily in the NSW North Coast and South Eastern Queensland bioregions, according to Interim Biogeographic Regionalisation for Australia (IBRA) version 6.1 (2004).	Occurs in south-east Queensland
The ecological community occurs on: soils derived from basalt or alluvium; or enriched rhyolitic soils; or basaltically enriched metasediments.	Occurs on alluvial soil (land zone 3)
The ecological community generally occurs at an altitude less than 300 m above sea level.	Occurs at or below 20m AHD (Cardno 2020)
The ecological community typically occurs in areas with high annual rainfall (>1300mm).	Annual rainfall usually between 1000m and 1500mm (Cardno 2020)
The ecological community is typically more than 2 km inland from the coast.	Occurs >10km from the coast
The structure of the ecological community is typically a tall (20 m–30 m) closed forest, often with multiple canopy layers.	Comprises multiple canopy layers, with heights up to 25m
Patches of the ecological community typically have high species richness (at least 30 woody species from Appendix A of listing advice).	Patch contains at least 39 native woody species from Appendix A of listing advice (refer Attachment 2)

Table 3. Assessment of vegetation within the Subject Area against Condition Thresholds for Lowland Rainforest of Subtropical Australia TEC.

Condition Thresholds	Assessment of Vegetation within Subject Area
Patch Type (evidence of remnant vegetation &	Patch Type B: Some residual trees from Appendix B of
regeneration status)	listing advice are present plus evidence of regeneration with
	active management
Patch Size (excludes buffer zone) ≥ 1 ha	Patch Size >1 ha
Emergent/canopy/subcanopy cover (over entire	Emergent/canopy/subcanopy cover over entire patch is >
patch) is ≥ 70%	70%
Species Richness (over entire patch) contains ≥ 30	Patch contains at least 39 native woody species from
native woody species from Appendix A of listing	Appendix A of listing advice (refer Attachment 2)
advice	
Percent of total vegetation cover that is native $\geq 50\%$	Percent of total vegetation cover that is native >50%

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Photo 1. A large *Ficus macrophylla* with a diverse understorey dominates the vegetation within the Subject Area.

Essential Habitat and Core Koala Habitat

The State's mapping of essential habitat for Tusked Frog within the Subject Area has been assessed as correct due to the presence of three essential habitat factors: RE 12.3.16 (a mandatory essential habitat factor), subtropical vine forest habitat, and an altitude of less than 1000m.

The area mapped as essential habitat for Koala was found not to contain any REs listed as mandatory essential habitat factors for the species, and it is unknown whether the State's mapping of Core Koala Habitat within the Subject Area would have occurred if the State's mapping of vegetation had reflected the ground-truthed mapping presented here (i.e. RE 12.3.16 – vine forest), rather than including RE 12.3.7 (i.e. eucalypt woodland). However, it is understood Koalas are well known to occur in the area, and the mapping of habitat for Koala may still be considered valid on this basis. A number of NJKHTs were also recorded within and around the Subject Area, as shown on **Figure 2**.

Threatened Flora Species

During the field assessment, *Rhodomyrtus psidioides* Native Guava (currently listed as Critically Endangered under the Queensland *Nature Conservation Act 1992*) was recorded approximately 300m north of the Subject Area. It was represented by a small patch of 12 root suckers with a dead canopy and main trunk (**Photo 2**). This species' recent elevation in conservation status is solely due to the fungal pathogen myrtle rust, and the species is experiencing widespread population decline.

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Photo 2. The Critically Endangered *Rhodomyrtus psidioides* was detected 300m north of the Subject Area, and was present as root suckers (A) with a dead canopy and main trunk (B).

Degraded Areas

Significant bush regeneration activities have occurred within the Subject Area, including the removal of woody weeds, vines and ground covers, and the planting of suitable species within areas devoid of native vegetation. The extent of degraded area is limited to a strip on the western side of Sideling Creek (**Photo 3**). This area is very steep, and the weeds were likely left to stabilise the bank while the planted seedlings within the upper bank become established.



Photo 3. Smaller degraded section on western bank of Sideling Creek that was presumably left untreated to avoid bank disturbance, while planted seedlings become established.

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IMPACT ASSESSMENT

Lowland Rainforest of Subtropical Australia TEC

The *Matters of National Environmental Significance: Significant Impact Guidelines 1.1* (DotE 2013) state an action is likely to have a significant impact on a Critically Endangered TEC if there is a real chance or possibility that it will:

- Reduce the extent of an ecological community;
- Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines;
- Adversely affect habitat critical to the survival of an ecological community;
- Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns;
- Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting;
- Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:
 - assisting invasive species, that are harmful to the listed ecological community, to become established, or
 - causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community;
- Interfere with the recovery of an ecological community.

The concept bridge alignment provided to inform this assessment (**Figure 2**) indicates the patch of Lowland Rainforest of Subtropical Australia TEC groundtruthed during the field survey will be partially cleared as a result of the bridge upgrade works, thereby reducing the extent of the community and fragmenting or increasing fragmentation of the ecological community. Consequently, the action is likely to be considered to have a significant impact on the Lowland Rainforest of Subtropical Australia TEC, based on the above criteria, and a referral to the Commonwealth is warranted for impacts upon this TEC.

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Regulated Vegetation

The concept bridge alignment provided to inform this assessment (**Figure 2**) indicates the following categories of regulated vegetation will be directly impacted (cleared) by the bridge upgrade works:

- Remnant Endangered RE 12.3.16.
- Remnant vegetation within the defined distance¹ of a watercourse.
- Essential Habitat.

In accordance with Schedule 10, Part 3, Division 2, Section 5 of the Queensland *Planning Regulation 2017*, operational work that is the clearing of native vegetation on prescribed land is assessable development, unless the clearing is exempt clearing work as outlined in Schedule 21 of the *Planning Regulation 2017*.

Possible exemptions that may apply on all or some land impacted by the proposed bridge upgrade include those defined under:

- Schedule 21, Part 1, Item 14, i.e.:
 - Clearing vegetation for the construction or maintenance of infrastructure stated in schedule 5, if — (a) the clearing is on designated premises; or (b) the infrastructure is government supported transport infrastructure.
- Schedule 21, Part 2, Item 2(d), i.e.
 - For freehold land, clearing vegetation (d) in a category X area.
- Schedule 21, Part 2, Item 5(a), i.e.
 - For land that is dedicated as a road under the Land Act, clearing vegetation (a) that
 is carried out by a local government, or by or for the chief executive (transport), if the
 clearing (i) is necessary to construct or maintain road transport infrastructure or to
 source construction material for roads; or (ii) is a category R area or category X area.

Where no exemption applies, it is understood the proposed development will need to address State Code 16: Native vegetation clearing, one of the purposes of which is to ensure development avoids impacts on vegetation that is a matter of state environmental significance, and where avoidance is not reasonably possible, minimises and mitigates impacts and provides an offset for any acceptable significant residual impacts, where appropriate.

A determination of whether any residual impacts from the proposed bridge upgrade upon regulated vegetation are "significant" will be subject to an assessment of final, detailed designs (including any proposed rehabilitation of currently degraded areas and/or areas subject to temporary clearing) against the criteria outlined in the Department of State, Development, Infrastructure and Planning's Significant Residual Impact Guideline for matters of state environmental significance and prescribed activities assessable under the Planning Act (hereafter referred to as the "Significant Residual Impact Guideline"). These criteria are summarised in the following sections, for reference.

¹ North Pine river is categorised as Stream Order 6, with a "defined distance" of 50m. Sideling Creek is categorised as Stream Order 4, with a "defined distance" of 25m.

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It should also be noted that, for any significant residual impacts to be considered acceptable, it will need to be demonstrated that avoidance of impacts to regulated vegetation is not reasonably possible, and that impacts have been reasonably minimised and mitigated.

Remnant Endangered REs

The Significant Residual Impact Guideline states an action is LIKELY to have an SRI on an 'endangered' RE if the action will result in:

- (a) clearing of more than 5ha of 'endangered' RE vegetation;
- (b) clearing that results in an overall area (not confined to property boundaries) of 'endangered' RE vegetation of less than 5ha; OR
- (c) clearing that results in the physical separation of 'endangered' RE communities within and on adjoining sites.

Notwithstanding the above, an action is UNLIKELY to have an SRI on an 'endangered' RE if the action will result in:

- (a) lineal clearing (that is for a purpose under section 22A of the Vegetation Management Act 1999 [VMA]) within 'endangered' REs not exceeding the width and area thresholds specified in Table 1, SDAP Module 8² by more than 25%; where an equivalent area which can be mapped as 'endangered' in the future is being rehabilitated on the subject site;
- (b) clearing of less than 10% of the total mapped area of 'endangered' REs intersecting the property boundaries of the project, if total clearing is under 5ha; and where an equivalent area which can be mapped as endangered in the future, is rehabilitated through other locations on the subject site;
- (c) clearing of 'endangered' REs not exceeding the width thresholds specified in Table 1, SDAP Module 8 by more than 100% or the area threshold by 50%; where rehabilitated on the subject site;
- (d) clearing of 'endangered' REs within width thresholds specifies in Table 1, SDAP Module 8 and not exceeding the area threshold by more than 50%, to a maximum area of 5ha;
- (e) removal of up to 5% of the total mapped area of endangered' REs intersecting the property boundaries of the project, where not greater than 25m in width; for the purposes of removing fragments, patches, uneven edges or protruding vegetation;
- (f) removal of up to 10% of the total mapped area of 'of concern' RE intersecting the property boundaries of the project, where not greater than 50m in width; for the purposes of removing fragments, patches, uneven edges or protruding vegetation;
- (g) clearing of 'endangered' vegetation that is equivalent in size/area to existing exempt clearing to be protected via the proposal (i.e. realignment of a boundary which results in a shorter length of exempt clearing through an existing endangered or of concern area than allowed via the existing boundary); OR
- (h) clearing of REs less than 1.1ha in size where surrounding land uses are zoned for urban purposes or future urban purposes under a local planning instrument.

² For RE 12.3.16, the relevant thresholds are 10m in width and 0.5ha in area.

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Remnant REs within the Defined Distance of a Watercourse

The Significant Residual Impact Guideline states an action is LIKELY to have an SRI on remnant vegetation within the defined distance of a watercourse if the action will result in:

- (a) permanent removal of vegetation within the defined distance of a stream order 3 or higher³ where no rehabilitation is proposed;
- (b) building of an online detention basin greater than 1ha in size or other similar works that result in the clearing of vegetation which fragments up and downstream remnant areas on any stream order; OR
- (c) permanent clearing of more than 0.5ha of an endangered or of concern RE, within the defined distance of a watercourse.

Notwithstanding the above, an action is UNLIKELY to have an SRI on remnant vegetation within the defined distance of a watercourse, if the action will result in:

- (a) lineal clearing of vegetation (that is for a purpose under section 22A of the VMA) less than 25m in width on a stream order 1 or 2 mapped watercourse, where the works include:
 - i. revegetation of exposed embankment areas(e.g. from a new road crossing and culvert installation) in accordance with a vegetation management or rehabilitation plan,
 - ii. temporary erosion and sediment control until construction is completed or stream banks have been stabilised, AND
 - iii. a crossing design which can be demonstrated (through a site specific study or similar) not to interfere with existing aquatic and terrestrial habitat of the watercourse;
- (b) temporary clearing of 'least concern' RE of up to 1 ha on a stream order 1 or 2 where erosion and sediment measures are in place and the area is to be rehabilitated on the subject site;
- (c) removal of vegetation from a partially vegetated / degraded stream order 1 or 2 where revegetation greater than the area removed occurs on other stream order areas within or adjoining the site;
- (d) clearing of 'least concern' RE not containing Essential Habitat up to 1ha for lineal infrastructure (e.g. roads and rail); OR
- (e) removal of understorey vegetation of up to 3ha within a remnant area (excluding clearing within the high bank of the watercourse) for the purposes of open space or safety where not removing any trees with a trunk Diameter at Breast Height (DBH) greater than 150mm in diameter.

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³ North Pine river is categorised as Stream Order 6, with a "defined distance" of 50m. Sideling Creek is categorised as Stream Order 4, with a "defined distance" of 25m.

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Essential Habitat

The Significant Residual Impact Guideline states an action is LIKELY to have an SRI on Essential Habitat (EH) if the action will result in clearing of EH exceeding the thresholds specified in Table 1, SDAP Module 8⁴, and resulting in a greater than 10% permanent reduction in the extent of EH mapped onsite.

Notwithstanding the above, an action is UNLIKELY to have a SRI on EH if the action will result in:

- (a) lineal clearing (that is for a purpose under section 22A of the VMA) within EH not exceeding the width and area thresholds specified in Table 1, SDAP Module 8 by more than 25%, and where an equivalent area which can be mapped as EH in the future is rehabilitated on the subject site;
- (b) clearing of less than 10% of the total mapped areas of EH on-site; where the remaining 90% is protected through a legally binding agreement (or similar) in order to maintain ecosystem function(e.g. to continue to support the species for which the EH is derived);
- (c) temporary clearing of EH vegetation not exceeding the width thresholds specified in Table 1, SDAP Module 8 by more than 100% or the area threshold by more than 50%;where cleared EH vegetation is rehabilitated, on the subject site;
- (d) clearing of EH vegetation complying with the width thresholds specified in Table 1, SDAP Module 8 and exceeding the area threshold by less than 50%;
- (e) removal of EH vegetation exceeding the width and area thresholds specified in Table 1, SDAP Module 8 and where through the remapping of other vegetation the site results in an increase in the extent of mapped EH vegetation; OR
- (f) removal of fragmented or isolated areas of EH where the equivalent area of EH can be added to a larger retained vegetated area displaying the same EH factors, by revegetation.

⁴ For RE 12.3.16, the relevant thresholds are 10m in width and 0.5ha in area.

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Core Koala Habitat

In accordance with Schedule 10, Part 10, Division 2, Section 16A of the *Planning Regulation 2017*, development interfering with Koala habitat in mapped Koala habitat areas within a mapped Koala priority area is prohibited development, unless otherwise assessable or exempt.

The definition of "Exempted Development", as stated in Schedule 24 of the *Planning Regulation* 2017, includes:

(d) development for infrastructure stated in schedule 5, if the development is carried out by or for the State or a public sector entity.

Infrastructure state in Schedule 5, Part 1 includes transport infrastructure and ancillary works and encroachments for a road, and "public sector entities" include local governments. Consequently, it is understood the proposed bridge upgrade would meet the definition of exempted development, and development approval (and associated impact assessment) is not required in relation to interfering with mapped Koala habitat.

Even so, the proposed bridge upgrade will result in the removal of NJKHTs, and it is understood Koalas are well know from the area. Consequently, there will be an impact on the local Koala population, and measures to avoid and minimise the impact as much as possible are warranted.

It is also noted that, if the project is referred to the Commonwealth in relation to impacts upon the Lowland Rainforest of Subtropical Australia TEC, potential impacts upon all other MNES of relevance to the location (including Koala) will also need to be addressed. In this instance, it is considered the proposed bridge upgrade would not result in a significant impact on Koala based on the criteria outlined in the Commonwealth's referral guidelines for the species, particularly as the proposed action is within an urbanised area and the field survey determined that the Subject Area comprises predominantly vine forest vegetation.

Threatened Flora Species

The concept bridge alignment provided to inform this assessment indicates the recorded specimen of *Rhodomyrtus psidioides* will not be directly impacted by the proposed works. However, if any clearing of native vegetation is proposed within 100m of this plant, a protected plant clearing permit will first need to be obtained from the Department of Environment and Science (DES). The protected plant clearing permit application will need to be accompanied by the results of the survey during the which the plant was recorded, and an impact management plan outlining how indirect impacts upon the plant and its habitat will be managed to ensure no net loss of the species.

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POTENTIAL OFFSETS

Lowland Rainforest of Subtropical Australia TEC

As noted previously, the concept bridge alignment provided to inform this assessment (**Figure 2**) indicates the patch of Lowland Rainforest of Subtropical Australia TEC groundtruthed during the field survey will be significantly impacted by the proposed works, and a referral to the Commonwealth is warranted for assessment of impacts upon this TEC.

If the Commonwealth determines that the project is a "controlled action", a determination may also be made as to whether the action will result in significant impacts upon MNES, or further information will be requested to make this determination. If it is confirmed that the action will result in significant impacts upon the Lowland Rainforest of Subtropical Australia TEC, the Commonwealth may decide not to approve the project due to unacceptable impacts upon MNES, or offsets will be required to compensate for the impact.

Offsets for MNES must be primarily land-based offsets, the suitability and size of which is determined through the use of the Commonwealth's Offsets Assessment Guide.

Regulated Vegetation

If it is determined that impacts upon regulated vegetation are assessable by the State, and that the project will result in acceptable significant residual impacts upon remnant Endangered REs, remnant vegetation within the defined distance of a watercourse and/or essential habitat, offsets to compensate for the impacts will or may need to be provided in accordance with the Queensland Environmental Offsets Policy, subject to the outcome of the Commonwealth assessment⁵.

Under the Queensland Environmental Offsets Policy, the proponent must provide a "notice of election" to the administering agency either prior to the issuing of the authority (i.e. before or during the assessment process for the authority) or after the authority has been issued, seeking the administering agency's agreement to the proposed offset delivery approach.

Offsets for impacts upon regulated vegetation may be provided as a proponent-driven offset (comprising a land-based offset, or actions in a Direct Benefit Management Plan [DBMP], or both); a financial settlement offset; or a combination of a proponent-driven offset and a financial settlement offset.

When choosing to deliver a proponent-driven offset, the notice of election must also include a proposed offset delivery plan that identifies how the offset will be undertaken.

⁵ The State cannot require offsets for an environmental matter if the same or essentially the same matter has been subject to assessment by the Commonwealth. Hence, if the project is deemed a "controlled action" by the Commonwealth due to impacts upon the Lowland Rainforest of Subtropical Australia TEC, it is understood the State would not be able to require offsets for impacts upon remnant endangered RE 12.3.16, but could still require offsets for impacts upon remnant vegetation within the defined distance of a watercourse and/or essential habitat.

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Land-Based Offsets

For land-based offsets, the size and scale of the offset is determined by conducting a habitat quality assessment at both the impact and the offset site.

In relation to endangered REs, the offset site must be:

- of the same broad vegetation group as the impacted RE;
- of the same RE status; and
- within the same bioregion.

In relation to vegetation within the defined distance of a watercourse, the offset site must be:

- of the same broad vegetation group as the impacted RE;
- within the same bioregion; and
- associated with a watercourse or drainage feature.

In relation to essential habitat, the offset site must contain, or be capable of containing, a selfsustaining population of the impacted species.

DBMPs

A DBMP is a pre-approved plan that outlines priority actions for addressing threats to, and providing substantial benefits for, a particular prescribed environmental matter. A DBMP may include direct actions as well as indirect actions such as research and education programs. A DBMP endorses actions and an approved methodology for achieving a conservation outcome

Land-Based Offsets

For financial settlement offsets, the size and scale of the offset is determined by using the State's financial settlement calculator.

PROPOSED FIG TREE RELOCATIONS

It is understood two large fig trees previously recorded within the Subject Area are proposed to be relocated to areas outside of the project footprint, to allow for their ongoing survival. Indicative locations for the proposed relocations are shown in **Figure 3**, subject to the final construction footprint of the bridge.

The field survey confirmed that both trees are large trees meeting the definition of significant "habitat trees"⁶ under Moreton Bay regional Council's Planning Scheme Policy - Environmental Areas and Corridors.

⁶ Native trees with a diameter greater than 80cm at 1.3metres above the ground.

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Figure 3. Proposed Fig relocations (source: MBRC)

Figs of this size have been successfully relocated at other locations, although success is heavily reliant on the methods used for translocation, including the initial preparation of the trees and translocation sites, the experience of the translocation team, and the health and resilience of the trees themselves. The proposed paths and positions for the relocation are considered the most suitable, given the existing vegetation and landform, although the smaller *Ficus obliqua* will need to be moved over Sideling Creek (**Photo 4**).

It is also important to note that both Figs are currently performing a significant bank stabilising function for the North Pine River and Sideling Creek, particularly the *Ficus macrophylla* (**Photo 5**). Given the rooting depth and architecture of Fig species, the disturbance of the root zone associated with the relocation will have major implications in relation to stream bank erosion and sedimentation, and consequently stream health, both within and downstream of the Subject Area. Loss of bank stability may also further reduce the extent of the Lowland Rainforest of Subtropical Australia TEC and regulated vegetation, beyond that resulting from the proposed bridge upgrade. Further specialist investigations into these potential impacts from transplanting the Fig trees are recommended.



Photo 4. The path of proposed relocation for the larger *Ficus macrophylla* approximately 65m west (A) and for the smaller *Ficus obliqua* approximately 30m east over Sideling Creek (B).

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Photo 5. The roots of the large *Ficus macrophylla* are currently stabilizing the upper and lower banks along the North Pine River.

CONCLUSIONS

The following conclusions have been made throughout this report in relation to the relevant matters assessed:

- The field assessment has determined that the vegetation within the Subject Area forms part of a patch of Lowland Rainforest of Subtropical Australia TEC, currently listed as Critically Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.
- The confirmed patch of Lowland Rainforest of Subtropical Australia TEC is likely to be significantly impacted by the project, and a referral to the Commonwealth is warranted for impacts upon this TEC. Any such referral to the Commonwealth would also need to address potential impacts upon all other matters of national environmental significance of relevance to the location, including Koala.
- If it is confirmed that the action will result in significant impacts upon the Lowland Rainforest of Subtropical Australia TEC, the Commonwealth may decide not to approve the project due to unacceptable impacts, or offsets will be required to compensate for the impact. Any such offsets must be primarily land-based offsets, the suitability and size of which is determined through the use of the Commonwealth's Offsets Assessment Guide.
- The field assessment has confirmed the vegetation within the Subject Area is comprised of remnant RE 12.3.16, currently listed as Endangered under the Queensland *Vegetation Management Act 1999*. This remnant vegetation extends further north than the patch of remnant RE 12.3.16/12.3.7 mapped by the State, and was found not to contain any vegetation characteristic of RE 12.3.7.
- The State's mapping of essential habitat for Tusked Frog within the Subject Area has been assessed as correct.
- The State's mapping of essential habitat and Core Habitat for Koala within the Subject Area has been assessed as potentially incorrect due to the absence of RE 12.3.7. However, it is understood Koalas are well known to occur in the area, and the mapping of habitat for Koala may still be considered valid on this basis. A number of non-juvenile Koala habitat trees were also recorded within and around the Subject Area.

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- Unless exempt from assessment under Queensland *Planning Regulation 2017*, the project will need to address State Code 16: Native vegetation clearing, including a determination of whether any residual impacts from the proposed bridge upgrade upon remnant endangered RE 12.3.16 and associated essential habitat are "significant", based on the criteria outlined in the State's Significant Residual Impact Guideline.
- If it is determined that impacts upon regulated vegetation are assessable by the State, and that the project will result in acceptable significant residual impacts upon regulated vegetation, offsets to compensate for the impacts will or may need to be provided in accordance with the Queensland Environmental Offsets Policy, subject to the outcome of the Commonwealth assessment⁷.
- Under the Queensland Environmental Offsets Policy, the proponent must provide a "notice of election" to the administering agency either prior to the issuing of the authority or after the authority has been issued, seeking the administering agency's agreement to the proposed offset delivery approach. Offsets may be provided as a proponent-driven offset, a financial settlement offset; or a combination of both. A proposed offset delivery plan must also be prepared that identifies how the offset will be undertaken.
- It is understood the project would meet the definition of exempted development for purposes of interfering with Koala habitat in mapped Koala habitat areas within a mapped Koala priority area under the Queensland *Planning Regulation 2017*. Even so, the proposed bridge upgrade will result in the removal of non-juvenile Koala habitat trees, and it is understood Koalas are well known from the area. Consequently, there will be an impact on the local Koala population, and measures to avoid and minimise the impact as much as possible are warranted.
- The field assessment also confirmed the presence of *Rhodomyrtus psidioides* Native Guava (currently listed as Critically Endangered under the Queensland *Nature Conservation Act 1992*) to the north of the Subject Area. Although the recorded specimen will not be directly impacted by the proposed works, if any clearing of native vegetation is proposed within 100m of this plant, a protected plant clearing permit will first need to be obtained from the Department of Environment and Science.
- The successful relocation of two large fig trees to areas outside of the project footprint will be heavily reliant on the methods used for translocation, including the initial preparation of the trees and translocation sites, the experience of the translocation team, and the health and resilience of the trees themselves. The proposed paths and positions for the relocation are considered the most suitable, given the existing vegetation and landform.
- It is also important to note that both Figs are currently performing a significant bank stabilising function for the North Pine River and Sideling Creek, and the disturbance of the root zone associated with the relocation will have major implications in relation to stream bank erosion and sedimentation, and consequently stream health. Loss of bank stability may also further reduce the extent of the Lowland Rainforest of Subtropical Australia TEC and regulated vegetation, beyond that resulting from the proposed bridge upgrade. Further specialist investigations into these potential impacts from transplanting the Fig trees are recommended.

⁷ The State cannot require offsets for an environmental matter if the same or essentially the same matter has been subject to assessment by the Commonwealth. Hence, if the project is deemed a "controlled action" by the Commonwealth due to impacts upon the Lowland Rainforest of Subtropical Australia TEC, it is understood the State would not be able to require offsets for impacts upon remnant endangered RE 12.3.16, but could still require offsets for impacts upon remnant vegetation within the defined distance of a watercourse and/or essential habitat.

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- **Department of the Environment (DotE) (2013).** Matters of National Environmental Significance: Significant Impact Guidelines 1.1. Commonwealth of Australia, Canberra.
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- **Threatened Species Scientific Committee (TSSC) (2011).** Commonwealth Listing Advice on Lowland Rainforest of Subtropical Australia. Department of Sustainability, Environment, Water, Population and Communities. Canberra, ACT: Department of Sustainability, Environment, Water, Population and Communities.

Attachment 1

State Government Mapping of Vegetation and Habitat

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Vegetation Management Act 1999 - Extract from the essential habitat database

Essential habitat is required for assessment under the:

• State Development Assessment Provisions - State Code 16: Native vegetation clearing which sets out the matters of interest to the state for development assessment under the Planning Act 2016; and

Accepted development vegetation clearing codes made under the Vegetation Management Act 1999

Essential habitat for one or more of the following species is found on and within 1.1 km of the identified subject lot/s on the accompanying essential habitat map

This report identifies essential habitat in Category A, B and Category C areas.

The numeric labels on the essential habitat map can be cross referenced with the database below to determine which essential habitat factors might exist for a particular species.

Essential habitat is compiled from a combination of species habitat models and buffered species records.

The Department of Natural Resources, Mines and Energy website (http://www.dnrme.gld.gov.au) has more information on how the layer is applied under the State Development Assessment Provisions - State Code 16: Native vegetation clearing and the Vegetation Management Act 1999.

Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated.

Essential habitat, for protected wildlife, means a category A area, a category B area or category C area shown on the regulated vegetation management map-

1) that has at least 3 essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat

database; or

2) in which the protected wildlife, at any stage of its life cycle, is located.

Protected wildlife includes endangered, vulnerable or near-threatened native wildlife prescribed under the Nature Conservation Act 1992.

Essential habitat in Category A and/or Category B and/or Category C

Label	Scientific Name	Common Name	NCA Status Vegetation Community Alt		Altitude	Soils	Position in Landscape
860	Phascolarctos cinereus	koala	v	SEQ: Open eucalypt forest and woodland that has: a) multiple strata layers containing Eucalyptus, Corymbia, Angophora, Lophostemon or Melaleuca trees that-at 1.3 metres above the ground-have a diameter both greater and less than 30 centimetres; and b) at least 1 of the following species: Eucalyptus tereticornis, E. fibrosa, E. propinqua; E. umbra, E. grandis, E. microcorys, E. tindaliae, E. resinifera, E. populnea, E. robusta, E. nigra, E. racemosa, E. crebra, E. exserta, E. seeana, Lophostemon confertus, L. suaveolens, Melaleuca quinquenervia. Outside SEQ: Open eucalypt forest and woodland that contains Eucalyptus &/or Corymbia spp. Tree species used for food varies across State and can include Eucalyptus tereticornis, E. camaldulensis, E. coolabah; E. drepanophylia, E. platyphylla, E. nelliodora, E. dealbata, E. melanophiloia, E. populnea, E. melliodora, E. dealbata, G. microtheca, E. crebra, E. exserta, E. blakelyi, E. papuana, Corymbia tessellaris, C. diriodora, Melaleuca quinquenervia, M. leucadendra.	Sea level to 1000m.	None	Riparian areas, plains and hill/escarpment slopes.
706	Adelotus brevis	tusked frog	V	In cavities, under debris (logs, stones) in subtropical vine forest, tall open moist forest, heaths, Melaleuca swamp and pasturelands near puddles and streams.	Sea level to 1000m.	None	None

Label	Regional Ecosystem (mandatory unless otherwise specified)
860	SEQ: 11.32, 11.34, 11.326, 11.326, 11.32, 11.84, 11.85, 11.88, 11.99, 12.25, 12.26, 12.27, 12.28, 12.21, 12.23, 12.33, 12.34, 12.35, 12.36, 12.37, 12.39, 12.31, 12.314, 12.314, 12.316, 12.320, 12.320, 12.51, 12.52, 12.54, 12.56, 12.57, 12.510, 12.57, 12.81, 12.88, 12.88, 12.88, 11.81, 11.28, 12.12, 12.14, 12.115, 12.116, 12.116, 12.117, 12.116, 12.116, 12.117, 12.118, 12.116, 12.116, 12.117, 12.118, 12.116, 12.116, 12.117, 12.118, 12.112, 12.116, 12.116, 12.117, 12.118, 12.116, 12.116, 12.117, 12.118, 12.116, 12.116, 12.117, 12.118, 12.116, 12.116, 12.117, 12.118, 12.116, 12.116, 12.117, 12.118, 12.116, 12.117, 12.118, 12.116, 12.116, 12.117, 12.118, 12.116, 12.116, 12.117, 12.118, 12.116, 12.116, 12.117, 12.118, 12.116, 12.116, 12.117, 12.118, 12.116, 12.116, 12.117, 12.118, 12.116, 12.116, 12.117, 12.118, 12.116, 12.116, 12.117, 12.118, 12.116, 12.116, 12.117, 12.118, 12.116, 12.116, 12.117, 12.118, 12.116, 12.116, 12.117, 12.118, 12.116, 12.116, 12.117, 12.118, 12.116, 12.116, 12.117, 12.118, 12.116, 12.117, 12.118, 12.116, 12.117, 12.118, 12.116, 12.117, 12.118, 12.116, 12.117, 12.118, 12.126, 12.127, 12.128, 12.129, 12.121, 12.
706	821, 822, 823, 824, 825, 826, 827, 828, 8211, 8212, 8213, 8214, 831, 832, 833, 835, 836, 838, 839, 8310, 8311, 8313, 851, 852, 853, 855, 856, 881, 891, 810, 8111, 8112, 8113, 8114, 8115, 8118, 8112, 8112, 8125, 8126, 8125, 8126, 8127, 8126, 8129, 8120, 81211, 81212, 81214, 81216, 81217, 81218, 8129, 81220, 81222, 81223, 81222, 81223, 81224, 81217, 1131, 11313, 11311, 11313, 11313, 11313, 1131, 11313, 1131, 11313, 1131, 11313, 1131, 11
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Department of Environment and Science

Environmental Reports

Matters of State Environmental Significance

For the selected area of interest Longitude: 152.9565 Latitude: -27.2671 with 2 kilometre radius

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Environmental Reports - General Information

The Environmental Reports portal provides for the assessment of selected matters of interest relevant to a user specified location, or area of interest (AOI). All area and derivative figures are relevant to the extent of matters of interest contained within the AOI unless otherwise stated. Please note, if a user selects an AOI via the "central coordinates" option, the resulting assessment area encompasses an area extending for a 2km radius from the point of interest.

All area and area derived figures included in this report have been calculated via reprojecting relevant spatial features to Albers equal-area conic projection (central meridian = 146, datum Geocentric Datum of Australia 1994). As a result, area figures may differ slightly if calculated for the same features using a different co-ordinate system.

Figures in tables may be affected by rounding.

The matters of interest reported on in this document are based upon available state mapped datasets. Where the report indicates that a matter of interest is not present within the AOI (e.g. where area related calculations are equal to zero, or no values are listed), this may be due either to the fact that state mapping has not been undertaken for the AOI, that state mapping is incomplete for the AOI, or that no values have been identified within the site.

The information presented in this report should be considered as a guide only and field survey may be required to validate values on the ground.

Please direct queries about these reports to: Planning.Support@des.qld.gov.au

Disclaimer

Whilst every care is taken to ensure the accuracy of the information provided in this report, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness, or suitability, for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which the user may incur as a consequence of the information being inaccurate or incomplete in any way and for any reason.

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Assessment Area Details

The following table provides an overview of the area of interest (AOI) with respect to selected topographic and environmental values.

Table 1: Summary table, details for AOI Longitude: 152.9565 Latitude: -27.2671

Size (ha)	1,256.55
Local Government(s)	Moreton Bay Regional
Bioregion(s)	Southeast Queensland
Subregion(s)	Sunshine Coast - Gold Coast Lowlands, Burringbar - Conondale Ranges
Catchment(s)	Pine



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Matters of State Environmental Significance (MSES)

MSES Categories

Queensland's State Planning Policy (SPP) includes a biodiversity State interest that states:

'The sustainable, long-term conservation of biodiversity is supported. Significant impacts on matters of national or state environmental significance are avoided, or where this cannot be reasonably achieved; impacts are minimised and residual impacts offset.'

The MSES mapping product is a guide to assist planning and development assessment decision-making. Its primary purpose is to support implementation of the SPP biodiversity policy. While it supports the SPP, the mapping does not replace the regulatory mapping or environmental values specifically called up under other laws or regulations. Similarly, the SPP biodiversity policy does not override or replace specific requirements of other Acts or regulations.

The SPP defines matters of state environmental significance as:

- Protected areas (including all classes of protected area except coordinated conservation areas) under the *Nature Conservation Act 1992*;

- Marine parks and land within a 'marine national park', 'conservation park', 'scientific research', 'preservation' or 'buffer' zone under the *Marine Parks Act 2004*;

- Areas within declared fish habitat areas that are management A areas or management B areas under the Fisheries Regulation 2008;

- Threatened wildlife under the *Nature Conservation Act 1992* and special least concern animals under the Nature Conservation (Wildlife) Regulation 2006;

- Regulated vegetation under the Vegetation Management Act 1999 that is:

• Category B areas on the regulated vegetation management map, that are 'endangered' or 'of concern' regional ecosystems;

• Category C areas on the regulated vegetation management map that are 'endangered' or 'of concern' regional ecosystems;

· Category R areas on the regulated vegetation management map;

• Regional ecosystems that intersect with watercourses identified on the vegetation management watercourse and drainage feature map;

• Regional ecosystems that intersect with wetlands identified on the vegetation management wetlands map;

- Strategic Environmental Areas under the Regional Planning Interests Act 2014;

- Wetlands in a wetland protection area of wetlands of high ecological significance shown on the Map of Queensland Wetland Environmental Values under the Environment Protection Regulation 2019;

- Wetlands and watercourses in high ecological value waters defined in the Environmental Protection (Water) Policy 2009, schedule 2;

- Legally secured offset areas.

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MSES Values Present

The MSES values that are present in the area of interest are summarised in the table below:

Table 2: Summary of MSES present within the AOI

1a Protected Areas- estates	0.0 ha	0.0 %
1b Protected Areas- nature refuges	6.15 ha	0.5%
2 State Marine Parks- highly protected zones	0.0 ha	0.0 %
3 Fish habitat areas (A and B areas)	0.0 ha	0.0 %
4 Strategic Environmental Areas (SEA)	0.0 ha	0.0 %
5 High Ecological Significance wetlands on the map of Referable Wetlands	37.99 ha	3.0%
6a High Ecological Value (HEV) wetlands	0.0 ha	0.0 %
6b High Ecological Value (HEV) waterways **	0.0 km	Not applicable
7a Threatened (endangered or vulnerable) wildlife	65.14 ha	5.2%
7b Special least concern animals	148.22 ha	11.8%
7c i Koala habitat area - core (SEQ)	126.91 ha	10.1%
7c ii Koala habitat area - locally refined (SEQ)	2.21 ha	0.2%
8a Regulated Vegetation - Endangered/Of concern in Category B (remnant)	39.29 ha	3.1%
8b Regulated Vegetation - Endangered/Of concern in Category C (regrowth)	16.85 ha	1.3%
8c Regulated Vegetation - Category R (GBR riverine regrowth)	0.0 ha	0.0 %
8d Regulated Vegetation - Essential habitat	126.27 ha	10.0%
8e Regulated Vegetation - intersecting a watercourse **	41.8 km	Not applicable
8f Regulated Vegetation - within 100m of a Vegetation Management Wetland	0.0 ha	0.0 %
9a Legally secured offset areas- offset register areas	0.0 ha	0.0 %
9b Legally secured offset areas- vegetation offsets through a Property Map of Assessable Vegetation	0.0 ha	0.0 %

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Matters of State Environmental Significance

Additional Information with Respect to MSES Values Present

MSES - State Conservation Areas

1a. Protected Areas - estates

(no results)

1b. Protected Areas - nature refuges

Name
Kurwongbah Park Nature Refuge

2. State Marine Parks - highly protected zones

(no results)

3. Fish habitat areas (A and B areas)

(no results)

Refer to Map 1 - MSES - State Conservation Areas for an overview of the relevant MSES.

MSES - Wetlands and Waterways

4. Strategic Environmental Areas (SEA)

(no results)

5. High Ecological Significance wetlands on the Map of Queensland Wetland Environmental Values

Natural wetlands that are 'High Ecological Significance' (HES) on the Map of Queensland Wetland Environmental Values are present.

6a. Wetlands in High Ecological Value (HEV) waters

(no results)

6b. Waterways in High Ecological Value (HEV) waters

(no results)

Refer to Map 2 - MSES - Wetlands and Waterways for an overview of the relevant MSES.

MSES - Species

7a. Threatened (endangered or vulnerable) wildlife

Values are present

7b. Special least concern animals

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Values are present

7c i. Koala habitat area - core (SEQ)

Values are present

7c ii. Koala habitat area - locally refined (SEQ)

Values are present

Threatened (endangered or vulnerable) wildlife habitat suitability models

Species	Common name	NCA status	Presence
Boronia keysii		V	None
Calyptorhynchus lathami	Glossy black cockatoo	V	None
Casuarius casuarius johnsonii	Sthn population cassowary	E	None
Crinia tinnula	Wallum froglet	V	None
Denisonia maculata	Ornamental snake	V	None
Litoria freycineti	Wallum rocketfrog	V	None
Litoria olongburensis	Wallum sedgefrog	V	None
Melaleuca irbyana		E	None
Petaurus gracilis	Mahogany Glider	E	None
Petrogale persephone	Proserpine rock-wallaby	E	None
Phascolarctos cinereus	Koala - outside SEQ*	V	None
Pezoporus wallicus wallicus	Eastern ground parrot	V	None
Taudactylus Pleione	Kroombit tinkerfrog	E	None
Xeromys myoides	Water Mouse	V	None

*For koala model, this includes areas outside SEQ. Check 7c SEQ koala habitat for presence/absence.

Threatened (endangered or vulnerable) wildlife species records

Scientific name	Common name	NCA status	EPBC status	Migratory status
Adelotus brevis	tusked frog	V		
Rostratula australis	Australian painted snipe	E	E	

Special least concern animal species records

Scientific name	Common name	Migratory status
Tachyglossus aculeatus	short-beaked echidna	
Gallinago hardwickii	Latham's snipe	M-J/R/B/E
Ornithorhynchus anatinus	platypus	
Limosa limosa	black-tailed godwit	M-C/J/R/B/E
Pluvialis fulva	Pacific golden plover	M-C/J/R/B/E
Calidris acuminata	sharp-tailed sandpiper	M-C/J/R/B/E
Pandion cristatus	eastern osprey	M-B/E

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Matters of State Environmental Significance

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Scientific name	Common name	Migratory status
Calidris melanotos	pectoral sandpiper	M-J/R/B/E
Tringa stagnatilis	marsh sandpiper	M-C/J/R/B/E
Tringa nebularia	common greenshank	M-C/J/R/B/E

*Nature Conservation Act 1992 (NCA) Status- Endangered (E), Vulnerable (V) or Special Least Concern Animal (SL). Environment Protection and Biodiversity Conservation Act 1999 (EPBC) status: Critically Endangered (CE) Endangered (E), Vulnerable (V)

Migratory status (M) - China and Australia Migratory Bird Agreement (C), Japan and Australia Migratory Bird Agreement (J), Republic of Korea and Australia Migratory Bird Agreement (R), Bonn Migratory Convention (B), Eastern Flyway (E)

To request a species list for an area, or search for a species profile, access Wildlife Online at: https://www.qld.gov.au/environment/plants-animals/species-list/

Refer to Map 3a - MSES - Species - Threatened (endangered or vulnerable) wildlife and special least concern animals and Map 3b - MSES - Species - Koala habitat area (SEQ) for an overview of the relevant MSES.

MSES - Regulated Vegetation

For further information relating to regional ecosystems in general, go to:

https://www.gld.gov.au/environment/plants-animals/plants/ecosystems/

For a more detailed description of a particular regional ecosystem, access the regional ecosystem search page at: https://environment.ehp.qld.gov.au/regional-ecosystems/

8a. Regulated Vegetation - Endangered/Of concern in Category B (remnant)

Regional ecosystem	Vegetation management polygon	Vegetation management status
12.3.16/12.3.7	E-dom	rem_end
12.3.11	O-dom	rem_oc
12.3.16	E-dom	rem_end

8b. Regulated Vegetation - Endangered/Of concern in Category C (regrowth)

Regional ecosystem	Vegetation management polygon	Vegetation management status
12.3.11/12.3.7	O-dom	hvr_oc
12.11.18/12.11.25	O-subdom	hvr_oc
12.3.16/12.3.7	E-dom	hvr_end
12.3.11	O-dom	hvr_oc
12.3.16/12.3.11/12.3.7	E-dom	hvr_end

8c. Regulated Vegetation - Category R (GBR riverine regrowth)

Not applicable

8d. Regulated Vegetation - Essential habitat

Values are present

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8e. Regulated Vegetation - intersecting a watercourse**

A vegetation management watercourse is mapped as present

8f. Regulated Vegetation - within 100m of a Vegetation Management wetland

Not applicable

Refer to Map 4 - MSES - Regulated Vegetation for an overview of the relevant MSES.

MSES - Offsets

9a. Legally secured offset areas - offset register areas

(no results)

9b. Legally secured offset areas - vegetation offsets through a Property Map of Assessable Vegetation

(no results)

Refer to Map 5 - MSES - Offset Areas for an overview of the relevant MSES.

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Map 1 - MSES - State Conservation Areas



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Map 2 - MSES - Wetlands and Waterways



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Map 3a - MSES - Species - Threatened (endangered or vulnerable) wildlife and special least concern animals



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Map 3b - MSES - Species - Koala habitat area (SEQ)



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Map 4 - MSES - Regulated Vegetation



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Map 5 - MSES - Offset Areas



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Appendices

Appendix 1 - Matters of State Environmental Significance (MSES) methodology

MSES mapping is a regional-scale representation of the definition for MSES under the State Planning Policy (SPP). The compiled MSES mapping product is a guide to assist planning and development assessment decision-making. Its primary purpose is to support implementation of the SPP biodiversity policy. While it supports the SPP, the mapping does not replace the regulatory mapping or environmental values specifically called up under other laws or regulations. Similarly, the SPP biodiversity policy does not override or replace specific requirements of other Acts or regulations.

The Queensland Government's "Method for mapping - matters of state environmental significance for use in land use planning and development assessment" can be downloaded from:

http://www.ehp.qld.gov.au/land/natural-resource/method-mapping-mses.html .

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Appendix 2 - Source Data

The datasets listed below are available on request from:

http://qldspatial.information.qld.gov.au/catalogue/custom/index.page

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Note: MSES mapping is not based on new or unique data. The primary mapping product draws data from a number of underlying environment databases and geo-referenced information sources. MSES mapping is a versioned product that is updated generally on a twice-yearly basis to incorporate the changes to underlying data sources. Several components of MSES mapping made for the current version may differ from the current underlying data sources. To ensure accuracy, or proper representation of MSES values, it is strongly recommended that users refer to the underlying data sources and review the current definition of MSES in the State Planning Policy, before applying the MSES mapping.

Individual MSES layers can be attributed to the following source data available at QSpatial:

MSES layers	current QSpatial data (http://qspatial.information.qld.gov.au)
Protected Areas-Estates and Nature Refuges	- Protected areas of Queensland - Nature Refuges - Queensland
Marine Park-Highly Protected Zones	Moreton Bay marine park zoning 2008
Fish Habitat Areas	Queensland fish habitat areas
Strategic Environmental Areas-designated	Regional Planning Interests Act - Strategic Environmental Areas
HES wetlands	Map of Queensland Wetland Environmental Values
Wetlands in HEV waters	 HEV waters: - EPP Water (multiple locations) intent for waters Source Wetlands: - Queensland Wetland Mapping (Current version 4, 2015) Source Watercourses: - Vegetation management watercourse and drainage feature map (1:100000 and 1:250000)
Wildlife habitat (threatened and special least concern)	-WildNet database species records - habitat suitability models (various) - SEQ koala habitat areas under the Koala Conservation Plan 2019
VMA regulated regional ecosystems	Vegetation management regional ecosystem and remnant map
VMA Essential Habitat	Vegetation management - essential habitat map
VMA Wetlands	Vegetation management wetlands map
Legally secured offsets	Vegetation Management Act property maps of assessable vegetation. For offset register data-contact DES
Regulated Vegetation Map	Vegetation management - regulated vegetation management map

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Appendix 3 - Acronyms and Abbreviations

AOI	- Area of Interest
DES	- Department of Environment and Science
EP Act	- Environmental Protection Act 1994
EPP	- Environmental Protection Policy
GDA94	- Geocentric Datum of Australia 1994
GEM	- General Environmental Matters
GIS	- Geographic Information System
MSES	- Matters of State Environmental Significance
NCA	- Nature Conservation Act 1992
RE	- Regional Ecosystem
SPP	- State Planning Policy
VMA	- Vegetation Management Act 1999

Attachment 2

Species Lists from Survey

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Table A2.1. List of Native Flora Species Recorded During Survey.

Species	Common Name	Listed in Appendix A of TEC Listing Advice
Acacia disparrima	Salwood	
Acacia leiocalyx	Early flowering wattle	
Acronychia imperforata	Beach Acronychia	
Acrostichum speciosum	Mangrove Fern	
Adiantum sp.	Maidenhair Fern	
Alchornea ilicifolia	Holly	
Alectryon coriaceus	Beach Birds Eye	
Alectryon tomentosus	Hairy Birds Eye	
Alphitonia excelsa	Red Ash	
Alpinia caerulea	Native Ginger	
Aphananthe philippinensis	Rough Leaved Elm	Х
Archontophoenix cunninghamiana	Australian Palm	Х
Backhousia myrtifolia	Grey Mytle	
Breynia oblongifolia	Coffee Bush	Х
Castanospermum australe	Chestnut	Х
Casuarina cunninghamiana	Beefwood	
Cissus antarctica	Kangaroo Vine	Х
Cissus hypoglauca	Australian Vine	Х
Commelina diffusa	Day flower	
Commersonia bartramia	Kurrajong	
Cordyline congesta	Palm Lilly	Х
Corymbia tessellaris	Morton Bay Ash	
Cryptocarya laevigata	Glossy Laural	
Cryptocarya obovata	Pepper Berry	Х
Cryptocarya triplinervis	Three-veined Laurel	
Cupaniopsis anacardioides	Tuckeroo	
Dioscorea transversa	Native Yam	Х
Drypetes deplanchei	Grey Bark	
Elaeocarpus grandis	Quandong	Х
Elaeocarpus obovatus	Hard Quandong	Х
Eucalyptus siderophloia	Iron Bark	
Eucalyptus tereticornis	Forset Red Gum	
Eupomatia laurina	Bolwarra	
Eustrephus latifolius	Wombat Berry	Х
Ficus coronata	Sandpaper Fig	Х
Ficus macrophylla	Moreton Bay Fig	Х
Ficus obliqua	Small-leaved Fig	Х
Ficus rubiginosa	Rusty Fig	Х
Geitonoplesium cymosum	Scrambling Lily	Х
Glochidion ferdinandi	Cheese Tree	Х
Grevillea robusta	Southern silky oak	Х
Guioa semiglauca	Guioa	Х
Jagera pseudorhus	Foam Bark	Х

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Species	Common Name	Listed in Appendix A of TEC Listing Advice
Livistona australis	Cabbage Tree Palm	Х
Lobelia purpurascens	White Root	
Lomandra hystrix	Creek Mat Rush	
Lomandra longifolia	Mat rush	
Lophostemon confertus	Brush Box	Х
Lophostemon suaveolens	Swamp Box	
Macaranga tanarius	Macaranga	
Maclura cochinchinensis	Cock spur	Х
Mallotus claoxyloides	Green Kamala	
Mallotus discolor	White Kamala	Х
Mallotus philippensis	Red Kamala	Х
Melaleuca bracteata	Black Tea Tree	
Melaleuca viminalis	Creek Bottle Brush	
Melia azedarach	White Ceder	Х
Neolitsea dealbata	Bolly Gum	Х
Notelaea longifolia	Large Olive	Х
Oplismenus aemulus	Beard Grass	
Parsonsia straminea	Monkey Rope	Х
Pittosporum multiflorum	Moch Orange	Х
Pittosporum revolutum	Spiny Moch Orange	Х
Pittosporum undulatum	Moch Orange	Х
Podocarpus elatus	Plum Pine	
Pseuderanthemum variabile	Pastel Flower	
Rhodomyrtus psidioides*	Native Gauva	
Sloanea woollsii	Yellow Carabeen	Х
Smilax australis	Barbed Wire Vine	Х
Stephania japonica	Snake Vine	
Streblus brunonianus	Whalebone Tree	Х
Syzygium australe	Lilly Pilly	Х
Syzygium smithii	Lilly Pilly	Х
Syzygium floribundum	Weeping Lilly Pilly	Х
Toechima tenax	Brush teak	
Trema orientalis	Charcoal tree	
Tristaniopsis laurina	Water Gum	
Trophis scandens	Burny Vine	

*Currently listed as Critically Endangered under the Queensland Nature Conservation Act 1992