

Compliance Report – Bruce Highway Upgrade Project - Caloundra Road to Sunshine Motorway, January 2024

EPBC Approval 2015/7464

Report 07

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Document control options

Departmental approvals

Refer to the appropriate Risk Assessment Tool for relevant reviewer and approver

Date	Name	Position	Action required (Review/endorse/ approve)
6/02/2024	Anita Haynes	Principal Environmental Officer	Review
29/02/2024	Simone Cameron	Senior Communications Officer	Review
07/03/2024	Joerg Schiemann	A/Regional Project Director	Review/Endorse
08/03/2024	Justin Valks	Deputy Regional Director	Approve

Risk level

GACC major GACC minor High risk (but not GACC) Medium risk

Prepared by	Tim Doherty
Title	Senior Environmental Officer
District & Region	North Coast
Branch & Division	PDO
Project/program	Bruce Highway Upgrade Program - Caloundra Road to Sunshine Motorway
Project number	280/10A/1
Project location	Glenview
Status	Revision 1
DMS ref. no.	450/01693

Proponent and Approval Action

Detail	Applicable Details
EPBC Reference Number:	2015/7464
Project Name:	Bruce Highway Upgrade – Caloundra Road to Sunshine Motorway
Proponent:	Department of Transport and Main Roads
ABN:	390 407 690 291
Proposed Action:	To upgrade a seven-kilometre section of the Bruce Highway between Caloundra Road at Meridan Plains and the Sunshine Motorway at Sippy Downs, Queensland. The upgrade will allow for the construction of a six-lane highway, the upgrade of two interchanges and the addition of a two-way service road.
Location of Action:	Between Caloundra Road at Meridan Plains and the Sunshine Motorway at Sippy Downs, Queensland
Reporting Period:	December 2022 – December 2023
Date Prepared:	January 2024

Declaration of Accuracy

In making this declaration, I am aware that sections 490 and 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed



Full name

Justin Valks

Position

Deputy Regional Director (North Coast)

Organisation

Department of Transport and Main Roads (ABN 39 407 690 291)

Date

08 March 2024

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Proponent and Approved Action

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1. Introduction

1.1 Purpose of this Report

The Department of Transport and Main Roads (TMR) has constructed a seven-kilometre upgrade of the Bruce Highway between Caloundra Road and Sunshine Motorway (hereafter referred to as “the Project”). The Project consisted of an upgrade to both the Sunshine Motorway and Caloundra Road interchanges, a six-lane upgrade of the Bruce Highway between the two interchanges, as well as a fully connected service road on the western side of the highway. TMR (as Administrator) awarded the Project to a Joint Venture of Fulton Hogan and Seymour Whyte (hereafter referred to as “the Contractor”) as a design and construct contract. All main construction-related works were completed by August 2022.

The Project was referred to the then-Department of Agriculture, Water and Environment (DoAWE), now known as the Department of Climate Change, Energy, the Environment and Water (DoCCEEW) on 15 April 2015 for determination of whether the Project was likely to have a significant impact on *Matters of National Environmental Significance* (MNES). Projects likely to cause a significant impact on MNES require approval under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Project was deemed a controlled action on 18 May 2015 and was approved, subject to conditions, on 2 September 2016 (reference number: 2015/7464). The approval conditions are provided in **Appendix A** of this report.

Condition 6 of the EPBC Act approval conditions requires that TMR prepares and publishes an annual report on its website that addresses compliance with each of the conditions of the approval for each year of construction. This report is the sixth annual compliance report for the Project that meets this condition.

1.2 Matters of National Environmental Significance

Under the EPBC Act, a project must be referred to DoCCEEW for actions that are likely to have a significant impact on MNES protected by Part 3 of the EPBC Act. These are known as “controlling provisions”. This project triggered one controlling provision: “*potential impacts to listed threatened species and communities* (Section 18 and Section 18A)”. The proposed action is likely to have a significant impact on the following matters protected by the EPBC Act.

- Lowland Rainforest of Subtropical Australia – critically endangered:
 - the proposed actions will reduce the extent of the critically endangered Lowland Rainforest of Subtropical Australia (LRSA) Threatened Ecological Community.
- Koala (*Phascolarctos cinerus*) – vulnerable (at the time of approval)¹:
 - the proposed action will reduce the extent of critical habitat for the Koala.

2. Description of Activity

2.1 Project location

The upgrade to the Bruce Highway involved major construction activities between the area extending south of Caloundra Road at Meridan Plains and north towards the Sunshine Motorway at Sippy Downs,

¹ In February 2022, the Koala was up-listed to endangered under the EPBC Act. However, at the time of referral, the Koala was listed as vulnerable and assessed accordingly.

Queensland. The Project also included areas on the Mooloolah River floodplain and areas north of Aussie World along Frizzo Connection Road.

The project was located within the Sunshine Coast Council (SCC) Local Government Area, approximately 15-kilometres west of Caloundra and 10-kilometres southwest of Mooloolaba. The project area encroached on a section of the former Beerwah State Forest, west of the Bruce Highway at Glenview.

Sections of the project area have been historically cleared along the Bruce Highway for residential and commercial purposes. The project area also included areas of remnant vegetation, within the former Beerwah State Forest, Palmview Regional Park and along the Mooloolah River.

2.2 Description of the Project

The Project consisted of an upgrade to a seven-kilometre section of the Bruce Highway between Caloundra Road and the Sunshine Motorway from four to six lanes, including major upgrades to the interchanges at Caloundra Road and the Sunshine Motorway. The major construction activities associated with the upgrade were completed in July 2021 and all main construction works finalised by August 2022. The completed Project works included the following key features:

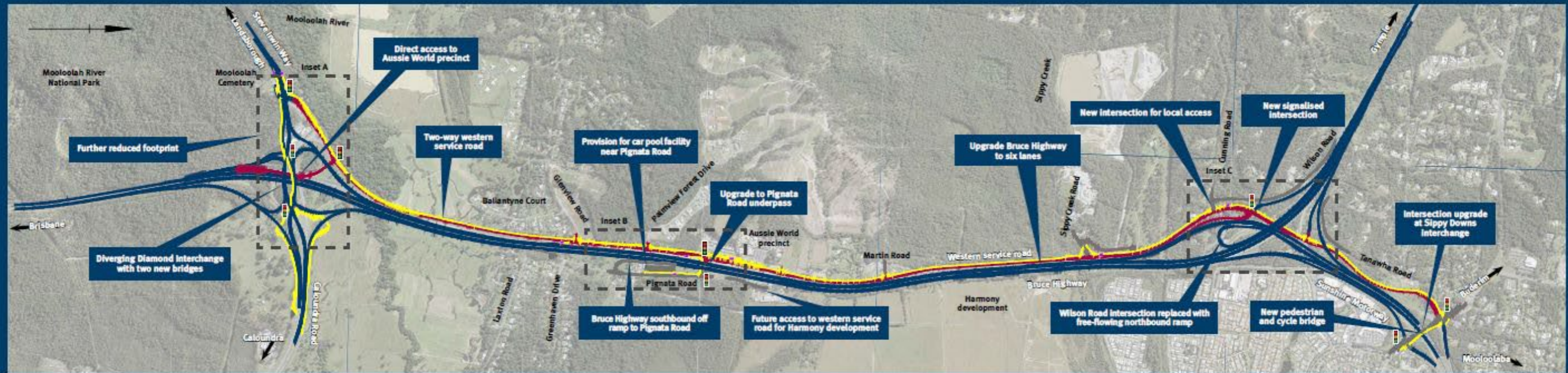
- upgrade of the historical Bruce Highway alignment from four to six lanes and to provide immunity for a 1 in 100-year flood event
- a “diverging diamond” interchange at the intersection of the Bruce Highway and Caloundra Road to better facilitate right-turn movements that are critical to the effective functioning of the interchange
- the western service road (Frizzo Connection Road) linking the Caloundra Road interchange with the Aussie World precinct and extending through to the Sunshine Motorway interchange
- a grade-separated interchange at the intersection of the Bruce Highway, the Sunshine Motorway and the new western service road to provide improved efficiency for all movements, reduce queuing and delays, and increase road safety by eliminating high speed at grade intersections
- a southbound off-ramp at Pignata Road providing access to the Aussie World precinct and the local road network
- replacement and upgrades of existing drainage structures (bridges and culverts) on the Bruce Highway to maintain the existing surface water hydrological and hydraulic characteristics of the area
- fauna passage structures, including an underpass, fauna fencing, a rope ladder and fauna escape structures for animals trapped on the Bruce Highway.

Figure 1 provides the Project’s final design layout as an overview of the completed project.

Bruce Highway Upgrade — Caloundra Road to Sunshine Motorway

design layout

May 2017



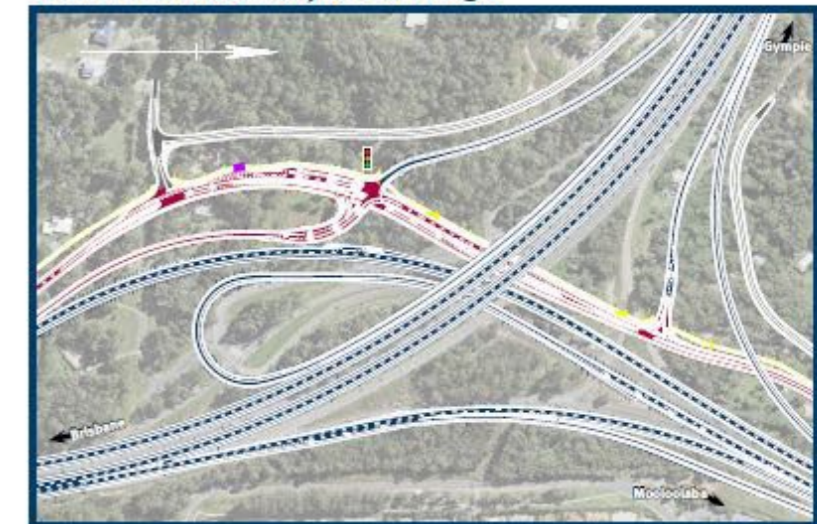
Inset A
Caloundra Road interchange



Inset B
Southbound off ramp to Pignata Road



Inset C
Sunshine Motorway interchange



Legend

- █ Main roads
- █ Western service road
- █ Local road/connection
- █ New pedestrian and/or cycle route
- █ Bus stop
- █ Signalised intersection



For a closer look at the Bruce Highway Upgrade design layout, visit www.tmr.qld.gov.au/brucehwycaloundrazsunshinemwy



Figure 1: Bruce Highway Upgrade—Caloundra Road to Sunshine Motorway, Final design layout

2.3 Project Progress

The Project achieved practical completion in July 2021, with the project completing all Conditions related to construction activities during the 2021 – 2022 reporting period.

The Project has continued monitoring the installed fauna infrastructure and detailed continued use of the fauna infrastructure during the period. The volume of data capture was reduced during this reporting period due to the theft of installed monitoring cameras.

One of the Project's offset sites has completed the objectives and measures of the offset management plan during the 2021 – 2022 reporting period and is now completed.

The remaining environmental offset sites are continuing with rehabilitation and maintenance activities as required under the approved Environmental Management Plans. The results from each specific BioCondition survey undertaken at the offset sites reported continued improvement.

The respective offset sites have been purchased with voluntary declarations in place, and one property legally secured under a Conservation Agreement from the Commonwealth with Department of Natural Resources, Mines and Energy (NRME), TMR and Sunshine Coast Council (SCC) as parties to the agreement.

2.4 Approval History

The date of the EPBC Approval, and the compliance reporting dates, and status of the Annual Compliance Reports are provided in Tables 1 and 2.

Table 1: Relevant Dates for EPBC Approval

Approval Number	Date of Decision	Expiry Date
EPBC 2015/7464	2 September 2016	31 December 2026

Table 2: Chronology of Compliance Reports

Reporting Dates	Report No.	Status
December 2016 – December 2017	01	Completed
December 2017 – December 2018	02	Completed
December 2018 – December 2019	03	Completed
December 2019 – December 2020	04	Completed
December 2020 – December 2021	05	Completed
December 2021 – December 2022	06	Completed
December 2022 – December 2023	07	Completed (this report)

3. EPBC Condition Compliance

Table 3 provides an overview of the conditions and compliance status. Where additional information is required, reference has been made to relevant sections of this report for further evidence of compliance.

Table 3: Summary of Compliance with EPBC Act Approval Conditions

No.	Condition	Timeframe	Status	Evidence of Compliance
1	For the protection of the EPBC Act listed vulnerable Koala (<i>Phascolarctos cinereus</i>) and Lowland rainforest of subtropical Australia Threatened Ecological Community, the approval holder must implement the “Overarching Environmental Management Plan” while undertaking the proposed action.	Progressive - for the period of construction.	Compliant and completed.	Refer to previous compliance reports. Closed reporting period 2021-2022.
2	For the protection of the EPBC Act listed critically endangered <i>Lowland Rainforest of Subtropical Australia</i> (LRSA) the approval holder must: <ul style="list-style-type: none"> (a) Not disturb more than 3.92ha of the LRSA Threatened Ecological Community (TEC) within and adjacent to the project site; (b) Legally secure and implement the offset of 16.64ha at the location shown and ensure that by the tenth anniversary of commencement of action, the offset meets the following condition thresholds: <ul style="list-style-type: none"> i. Canopy cover: at least 70% of canopy vegetation is native; ii. Species richness: contains 30 native woody species from the LRSA TEC listing advice; and iii. Total vegetation: At least 70% of total vegetation cover is native. (c) Legally secure and implement the offset of 4.65ha at the location shown by the first 12-month anniversary of the commencement of the action. 	<ul style="list-style-type: none"> (a) For the construction period. (b) By the tenth anniversary of commencement action <ul style="list-style-type: none"> (b)(i) (b)(ii) (b)(iii) (c) By the first 12-month anniversary of commencement. 	<ul style="list-style-type: none"> (a) Compliant and completed (b) Compliant (b)(i) Compliant (b)(ii) Compliant (b)(iii) In progress (c) Compliant 	<ul style="list-style-type: none"> (a) The action is compliant to the condition and now closed. Refer to previous compliance reports. (b) Lot 37 C3147, Lot 1 SP300404, and Lot 2 RP27760 have been legally secured. The implementation of offset actions relevant to Section (b) are currently works in progress. Local Government (Sunshine Coast Council) has been engaged to undertake management of the site to meet the condition thresholds. (b)(i) Data was collected from transects during the fourth quarter of 2023 for this Year 7 Report. Refer to Section 4.3 for detailed information. (b)(ii) BioCondition Assessment undertaken, Future-Plus Environmental 2004. “Lower Mooloolah River Environmental Reserve, Claymore Road, Sippy Downs”. This report has identified 56 native woody species from the Lowland Rainforest of Subtropical Australia threatened ecological community listing advice. (b)(iii) Data was collected from transects during the fourth quarter of 2023 for this Year 7 Report. Refer to Section 4.3 for detailed information.

No.	Condition	Timeframe	Status	Evidence of Compliance
				<p>Refer to Appendix D for map of Lower Mooloolah River Environmental Reserve.</p> <p>(c) Lot 2 SP268457 has been legally secured by TMR. The implementation of offset actions relevant to Section (c) are currently works in progress. The management actions relevant to these conditions are being undertaken by the engaged TMR contractor.</p> <p>Refer to Appendix E for map of Mooloolah Valley property.</p> <p>Refer to Section 4.2 for additional information pertaining to Condition 2.</p>
3	<p>For the protection of the EPBC Act listed vulnerable Koala (<i>Phascolarctos cinereus</i>) the approval holder must:</p> <p>(a) Not disturb more than 35.3ha of Koala habitat within the Project site;</p> <p>(b) Implement the five Koala movement structures (Koala friendly underpasses) within the Project site, namely:</p> <ol style="list-style-type: none"> i. One new structure to facilitate Koala movement across Steve Irwin Way; ii. One new structure to facilitate Koala movement across the Bruce Highway south of the Mooloolah River; iii. One new structure to facilitate Koala movement across the Bruce Highway north of Sippy Creek; 	<p>(a) For the construction period.</p> <p>(b) Design and Implementation phase.</p>	<p>(a) Compliant and Closed</p> <p>(b) (i) - (v) Compliant and Closed</p>	<p>(a) Refer to previous compliance reports. Closed reporting period 2021-2022</p> <p>(b) Refer to previous compliance reports. Closed reporting period 2021-2022.</p>

No.	Condition	Timeframe	Status	Evidence of Compliance
	<p>iv. Improve the existing structure at Sippy Creek to facilitate Koala movement across the Bruce Highway; and</p> <p>v. Improve the existing structure at Mooloolah River to facilitate Koala movement across the Bruce Highway.</p> <p>(c) Legally secure and implement the offset of 50ha at the location shown by the first 12-month anniversary of the commencement of the action.</p>	<p>(c) By the first 12-month anniversary of commencement.</p>	<p>(c) Compliant and Closed</p>	<p>(c) The 50ha offset, Lot 2 RP51879 at Missing Link Road, Glenview has been legally secured by TMR.</p> <p>Refer to Appendix F or map of Glenview property.</p> <p>Refer to Section 4.3 for additional information pertaining to Condition 3.</p>
4	<p>Within 10 days of the commencement of the action, the approval holder must advise the Department in writing of the actual date of commencement of the action.</p>	<p>Within 10 days of commencement of construction.</p>	<p>Compliant and Closed</p>	<p>A letter was submitted to the Department on 23 December 2016 to formally notify of the commencement of works.</p> <p>Refer to Appendix G for this notice.</p>
5	<p>The approval holder must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval and make them available upon request to the Department.</p> <p>Such records may be subject to audit by the Department or an independent auditor in accordance with Section 458 of the EPBC Act or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits must also be published on the approval holder's website within two weeks of the Department's approval of the final audit.</p>	<p>Progressive.</p>	<p>Ongoing</p>	<p>All records associated with this condition are maintained and updated on a regular basis.</p>
6	<p>Within three months of every 12-month anniversary of the commencement of the action, the approval holder must publish a report on their website addressing compliance with each of the conditions of this approval over the previous 12 months. Documentary evidence providing</p>	<p>For the period of construction.</p> <p>The compliance report must be published within three months of</p>	<p>Compliant</p> <p>Seventh compliance report complete (this report).</p>	<p>This report provides the seventh compliance report. This report will be published on the TMR website concurrently with submission to the Department, satisfying this condition of approval.</p>

No.	Condition	Timeframe	Status	Evidence of Compliance
	proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the Department at the same time as the compliance report is published.	every 12-month anniversary.	<p>Sixth compliance report completed.</p> <p>Fifth compliance report completed.</p> <p>Fourth compliance report completed.</p> <p>Third compliance report completed.</p> <p>Second compliance report completed.</p> <p><i>Minor Non-Compliance</i></p> <p>The first compliance report was published on TMR's project website October 2018, which was not within the reporting period. DoAWE was notified of this non-compliance.</p>	The relevant documentary evidence will be provided to DoCCEEW at the time of publication.
7	Upon direction of the Minister, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Minister. The independent auditor must be approved by the Minister prior to the commencement of the audit. Audit criteria must be agreed to by the Minister and the audit report must address the criteria to the satisfaction of the Minister.	Following direction from the Minister.	To date, there has been no direction from the Minister to complete an independent audit.	Not applicable.

No.	Condition	Timeframe	Status	Evidence of Compliance
8	Condition 6 ceases to apply once the approval holder has demonstrated to the satisfaction of the Minister that all conditions have been achieved.	Not currently applicable	Not currently applicable.	Not currently applicable.

4. OEMP Conditions Compliance

4.1 EPBC Condition 1

*For the protection of the EPBC Act listed vulnerable Koala (*Phascolarctos cinereus*) and Lowland rainforest of subtropical Australia Threatened Ecological Community, the approval holder must implement the Overarching Environmental Management Plan while undertaking the proposed action.*

As detailed within the sixth annual compliance report this condition was completed within the 2021 – 2022 reporting period. Condition 1 is considered compliant and closed.

4.2 Condition 2

4.2.1 Condition 2(a)

Not disturb more than 3.92ha of the Lowland Rainforest of Subtropical Australia Threatened Ecological Community within and adjacent to the project site.

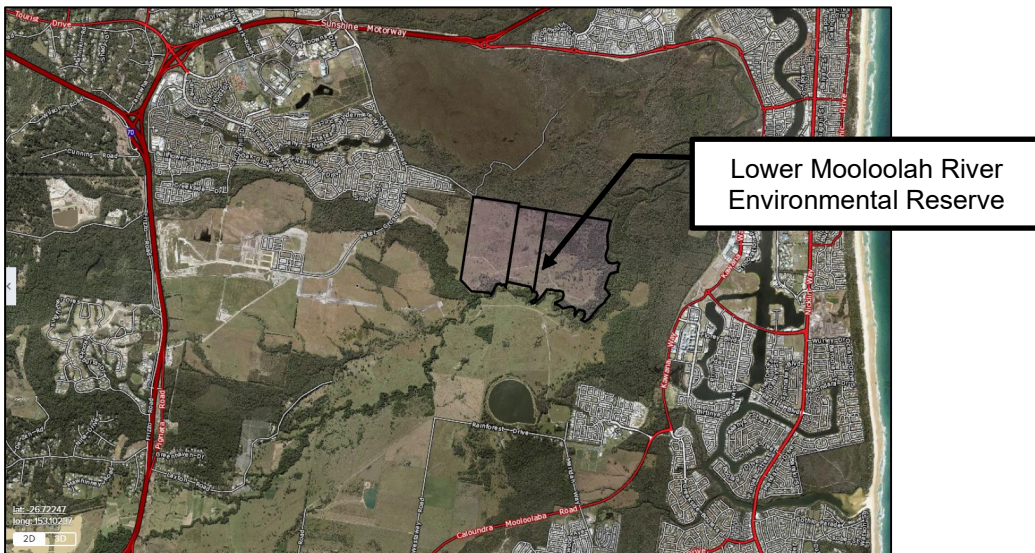
As detailed within the fifth annual compliance report this condition was completed within the 2020 – 2021 reporting period. Condition 2a is considered compliant and closed.

4.2.2 Condition 2(b)

Legally secure and implement the offset of 16.64ha at the location shown and ensure that by the tenth anniversary of commencement of action, the offset meets the following condition thresholds.

- i. Canopy cover – at least 70% of canopy vegetation is native;*
- ii. Species richness – contains 30 native woody species from the LRSA TEC listing advice;*
- iii. Total vegetation – at least 70% of total vegetation cover is native.*

An Offset Management Plan (OMP) has been developed by TMR to demonstrate the objectives of the EPBC Act Environmental Offsets Policy in compensating for impacts on the Lowland Rainforest of Subtropical Australia (LRSA) Threatened Ecological Community (TEC). The impacts on this TEC will result from works associated with the Project.



The scope of the OMP is to align specific environmental revegetation, regeneration, rehabilitation and protection measures for vegetation that occurs in a portion of the Lower Mooloolah River Environmental Reserve (LMRER) at Laxton Road, Palmview. These activities will deliver TMR's offset obligations under the EPBC Act, yielding an overall conservation outcome for the LRSA TEC.

An agreement between SCC and TMR to deliver and manage the Mooloolah River Rainforest Offset Project was signed on 1 June 2017. The SCC/TMR environmental offset delivery agreement will comply with and meet the EPBC conditions of approval and is part of the agreement.

A summary of works undertaken for this reporting period is provided below:

- Ongoing control of weed and exotic grass across entire 16.64-hectare offset area around naturally regenerating species as a key component to assisted natural regeneration. Ongoing maintenance of weeds along the edge of the remnant area (Lantana, Broadleaved pepper tree, Mile-a-minute, Singapore daisy in particular). Greater than 95% of weeds on the rainforest edges have been controlled. The ongoing maintenance will ensure close to 100% weed control along the remnant edge.

Weed density in the remnant rainforest has been reported as almost negligible. Weed density in the reconstruction zones has reported to have been reduced from approximately 80% down to less than 5%.

Weed control activities and reinforcement plantings have resulted in 100% of canopy vegetation being native, significantly more than 30 different native woody LSRA TEC species (56 species in total) and significantly greater than 70% total vegetation cover being native in these zones.

In total, 1718 replacement tubestock have been installed for the project to date, with 100 replacements within this reporting period to ensure original planting numbers are maintained.

- The bio-condition monitoring was undertaken at the six established transects locations across the offset area. Transects 1 and 2 were established within high quality LRSA remnant and will provide a direct comparison across all attributes monitored with Transects 3 to 6, that were established within the reconstruction zones and transitional zone. Both Transect 1 and 2 are only 25m long compared to the 100-metre Transects for BioCondition Assessment, this in turn has provided results with slightly lower species diversity.

T1 vegetation is a very good representation of RE 12.3.1 and is in excellent condition. The canopy cover is 100% native.

T2 vegetation is a very good representation of RE 12.3.1 and is in excellent condition. The canopy cover is 100% native.

Transects T3, T4 and T5 are located within a reconstruction zone of the offset area and as such are representative of the areas where exotic pasture grasses previously dominated. Natural recruitment is responsible for 16%, 21% and 14% within T3, T4 and T5 respectively of the native stem count for the transects, with the balance attributed to successful native tube stock installation during Stage 1 and Stage 2 reconstruction plantings. The vegetation assemblage at these transects continues on a positive trajectory towards a representation of LRSA. The vegetation cover at the transects was reported as being T3 100% native canopy with 5% non-native ground cover recorded, T4 100% native canopy with 5% non-native ground cover recorded, and T5 100% native canopy with 4% non-native ground cover recorded.

T6 is located within a transitional zone of the offset area where elements of RE 12.3.5 and RE 12.3.1 occur. Eucalypt, Allocasuarina and Melaleuca emergents exist as well as lower and mid-storey rainforest species and native shade-tolerant grasses. Reinforcement planting occurred throughout this zone as part of Stage 1 and Stage 2 plantings. As expected, natural recruitment is significantly higher in this zone than in the reconstruction zones. Natural recruitment is responsible for 30% (24/80) of the native stem count for this transect with the balance directly attributed to successful native tube stock installation during the Stage 1 and Stage 2 reinforcement plantings. The vegetation assemblage at T6 is on a positive trajectory towards a representation of LRSA. The vegetation cover was reported as being 100% native canopy with 2% non-native ground cover recorded.

- The SCC Pest Management Team has collected pest animal data and responded accordingly throughout the reporting period.

The following upcoming activities are scheduled to occur over the following twelve months:

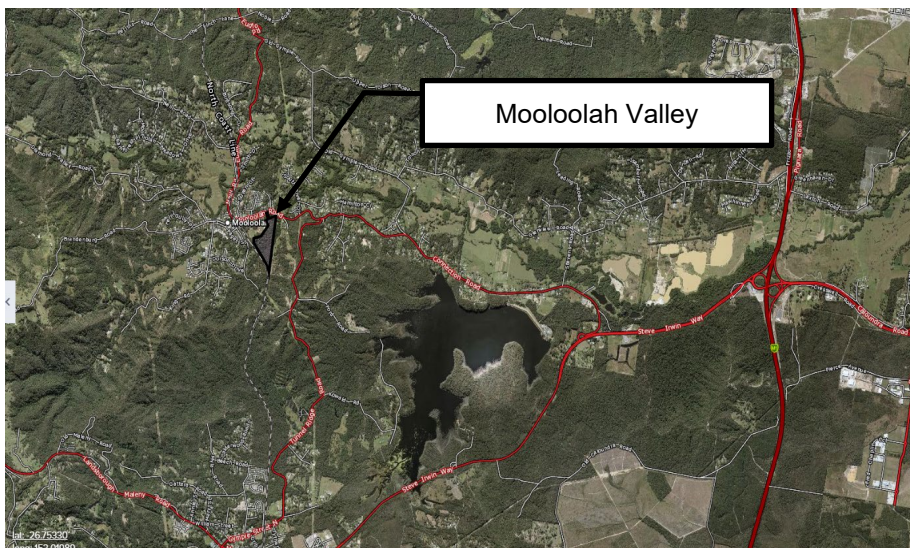
- ongoing monitoring and weed control throughout the rainforest remnant
- ongoing monitoring and data collection
- ongoing general maintenance works as required by the OMP and the SCC technical specification
- removal of tree guards as necessary.

Refer to **Appendix D** for location.

4.2.3 Condition 2(c)

Legally secure and implement the offset of 4.65ha at the location shown by the first 12-month anniversary of the commencement of the action.

TMR has purchased Lot 2 RP268457 (28 Mooloolah Road, Mooloolah Valley, Sunshine Coast) in Freehold in 2016 and a Voluntary Declaration is in place.



An Offset Management Plan (OMP) has been prepared and aims to protect and maintain in perpetuity 5.02-hectare of Lowland Rainforest of Subtropical Australia and manage to remnant status approximately 4.5-hectare of high value regrowth as a land-based offset for clearing works associated with the Project works.

The OMP details key risks and management actions and provides support for a Voluntary Declaration under the *Vegetation Management Act 1999*, and the requirements of the approval under the EPBC Act for the Project.

The primary management objective for the site is to conserve and improve the value of the area for the Lowland Rainforest of Subtropical Australia (LRSA). The overall management outcome will be to maintain current vegetation structure, composition and diversity, and improve the value of the area through management of high value regrowth. This will increase the total area of LRSA, and buffer core LRSA against weed invasion and fire.

TMR has engaged a separate Contractor to deliver the works required under the OMP and to meet the EPBC conditions of approval as part of the agreement. The purpose of the OMP and works is to protect and maintain in perpetuity 5.02ha of LRSA and manage to remnant status.

A summary of works undertaken for this reporting period is provided below:

- Weed control activities continued throughout the reporting period. The primary focus was to control resprouting and germinating weeds, particularly Madeira vine (*Anredera cordifolia*) and Singapore daisy (*Sphagneticola trilobata*). Other species treated throughout the reporting period included Wild tobacco (*Solanum mauritianum*), blue billygoat weed (*Ageratum houstonianum*), blue morning glory (*Ipomoea indica*), climbing nightshade (*Solanum seforthianum*), devil's fig (*Solanum torvum*), giant Parramatta grass (*Sporobolus fertilis*), large leaf privet (*Ligustrum lucidum*), paspalum (*Paspalum dilatatum*), inch plant (*Callisia repens*) and trad (*Tradescantia fluminensis*). Follow up weed control continued along the northern boundary of 1d, through 2a, 2c and 3c controlling larger woody weeds and vines such as Easter cassia (*Senna pendula* var. *glabrata*), broad leaf pepper tree (*Schinus terebinthifolius*), glycine (*Neonotonia wightii*), lantana (*Lantana camara*), large leaf privet, Alexander palm (*Archontophoenix alexandrae*), giant devil's fig (*Solanum chrysotrichum*), green cestrum (*Cestrum parqui*), camphor laurel (*Cinnamomum camphora*), cat's claw creeper (*Dolichandra unguis-cati*) and wild tobacco.
- Frequently recorded native species observed germinating by the team include guioa (*Guioa semiglauca*), blackwood (*Acacia melanoxylon*), rough-leaved elm (*Aphananthe philippinensis*), cheese tree (*Glochidion ferdinandi*), bleeding heart (*Homalanthus populifolius*), pink doughwood (*Melicope elleryana*), white bolly gum (*Neolitsea dealbata*), native peach (*Trema tomentosa*), weeping lily pilly, (*Waterhousea floribunda*), creek sandpaper fig (*Ficus coronata*), macaranga (*Macaranga tanarius*), roseleaf bramble (*Rubus rosifolius*), water vine (*Cissus hypoglauca*) and cunjevoi (*Alocasia brisbanensis*).
- BioCondition surveys were completed in December 2023, at the completion of Year 5, as per the project specifications. Improvement in the total scores was observed across most plots when compared to previous years. Four out of the six plots achieved higher total scores from the previous monitoring in 2021, while BC2 maintained the same score and BC6 decreased from 72.5 in 2021 to 62.5 in 2023. Of note is the improvement in the classification level of BC1 and BC3 from 3 to 2. All other plots maintained the same classification level from 2020, meaning that all plots but one (BC5) are now a class 2. Notable results included:
 - Non-native plant cover decreased in BC2, BC3, BC4 and BC5, BC1 maintained the same score and BC6 only slightly increased.
 - There was a significant increase in shrub layer cover in BC5 due to the high level of native germination in the plot.
 - Scoring in BC6 was greatly impacted by a decrease in native perennial grass cover and diversity, possibly due to the very dry conditions over the last six months and the dense native canopy cover in this plot.

- All plots received maximum scoring for coarse woody debris, except for BC4 and BC6 where woody debris levels were too high due to several large tree falls.

The site continues to respond to assisted regeneration works, as is demonstrated in the series of photos in Figure 1 below.

The following upcoming activities are scheduled to occur over the next 12 months:

- Ongoing maintenance and weed control of site.
- Further planting.

Refer to **Appendix E** for location.



Figure 1: Photo monitoring at Bio-Condition plots

4.3 Condition 3

4.3.1 Condition 3(a)

Not disturb more than 35.3ha of Koala habitat within the project site.

As detailed within the fifth annual compliance report this condition was completed within the 2020 – 2021 reporting period. Condition 3a is considered compliant and closed.

4.3.2 Condition 3(b)

Implement five koala movement structures (Koala friendly underpasses) within the project area.

As detailed within the sixth annual compliance report this condition was completed within the 2021 – 2022 reporting period. Condition 3b is considered compliant and closed.

Photos of the installed fauna structures are shown in **Appendix H**.

4.3.3 Monitoring Fauna Infrastructure

As part of the Project's requirements to mitigate its impacts on the Koala, five Koala movement structures (fauna underpasses) were required to be incorporated into design. In addition to these, the project installed a new fauna rope ladder along Steve Irwin Way, and 45 Koala escape poles located along 13-kilometres of Koala exclusion fencing.

These were successfully installed in July 2021 and a separate contractor has been engaged to monitor for fauna movement. A total of 88 passive infrared cameras traps were installed in April 2022 across the fauna infrastructure to monitor their use by fauna. During the 2023 monitoring period, three separate theft events occurred where deployed cameras were stolen, which reduced the amount of data captured for some locations. A total of 233 fauna crossings were recorded, with 43 confirmed crossings. The following data was compiled and analysed for this reporting period (first and second quarterly monitoring reported in previous reporting period):

Third monitoring review:

- There were 69 crossing events, including 7 confirmed crossings, 61 probable crossings.
- One instance where fauna entered the bridge, culvert or rope ladder but turned around (did not cross).

Fourth monitoring review:

- There were 67 crossing events, including 12 confirmed crossings, 53 probable crossings.
- Two instances where fauna entered the bridge, culvert or rope ladder but turned around (did not cross).

Fifth monitoring review:

- There were 18 crossing events, including 2 confirmed crossings, 14 probable crossings.
- One instance where fauna entered the bridge, culvert or rope ladder but turned around (did not cross).
- One escape pole use (short-eared Brushtail possum).

Sixth monitoring review:

- There were 79 crossing events, including 22 confirmed crossings, 53 probable crossings.
- Four instances where fauna entered the bridge, culvert or rope ladder but turned around (did not cross).

Fauna species recorded on the monitoring cameras:

- One Koala was recorded on a camera facing the bushland, on the eastern side of the Northern Underpass during the fifth (May – August) monitoring period (Photo 3.1). No Koalas were recorded on the cameras within the fauna mitigation structures during the 2023 monitoring.
- Arboreal fauna other than Koalas recorded on and around the fauna infrastructure included Common Brushtail Possum (*Trichosurus vulpecula*), Ringtail Possum (*Pseudocheirus peregrinus*), Short-eared Brushtail Possum (*Trichosurus caninus*), and Squirrel Glider (*Petaurus norfolcensis*). These results are consistent with the results of the 2022 monitoring periods.
- Terrestrial fauna species recorded on and around the fauna mitigation structures, that are likely to use the fauna mitigation structures based on their ecology, included Yellow-footed Antechinus (*Antechinus flavipes*), Brush Turkey (*Alectura lathami*), Eastern Grey Kangaroo (*Macropus giganteus*), Eastern Water Dragon (*Intellagama lesueurii*), Long-nosed Bandicoot (*Perameles nasuta*), Northern Brown Bandicoot (*Isodon macrourus*), Short-beaked Echidna (*Tachyglossus aculeatus*), and Swamp Wallaby (*Wallabia bicolor*). These results are consistent with the results of the 2022 monitoring periods, with the only additional terrestrial fauna species recorded likely to use the fauna mitigation structures being the Long-nosed Bandicoot.
- Other individual macropods were recorded but could not be identified, as these individuals were often captured moving past the camera at speed and at night resulting in a lack of detail for any distinguishing features. During the 2022 monitoring period, two species listed under state and Commonwealth legislation were recorded around the fauna infrastructure:
 - Koala (*Phascolarctos cinereus*) – listed as Endangered under both the EPBC Act and *Nature Conservation Act 1992* (NC Act)
 - Short-beaked Echidna (*Tachyglossus aculeatus*) – listed as Special Least Concern under the NC Act — recorded eight times, at several locations, namely the Northern underpass, Sippy Creek Underpass and around an escape pole at Frizzo Connection Road.

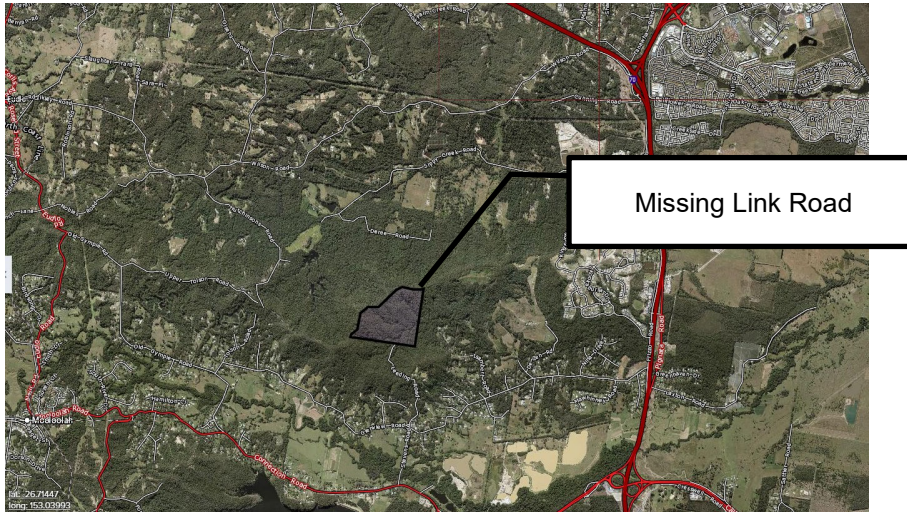
Monitoring will continue for a two-year monitoring period and trends will be assessed for fauna activity and usage of the infrastructure.

Images taken throughout this monitoring period can be found in **Appendix I**.

4.3.4 Condition 3(c)

Legally secure and implement the offset of 50ha by the first 12-month anniversary of the commencement of action.

TMR purchased Lot 2 RP51879 (Missing Link Road, Glenview) in Freehold in 2016 from a private landowner, a Voluntary Declaration is now in place.



An Offset Management Plan (OMP) has been prepared for the property to protect and maintain in perpetuity 50.07ha of Koala habitat as a land-based offset for clearing works associated with the Project. The OMP details key risks management actions, provides support for a Voluntary Declaration under the *Vegetation Management Act 1999* and outlines the requirements for management of Koala habitat offsets.

As detailed within the sixth annual compliance report this condition was completed within the 2021 – 2022 reporting period by meeting the intent of the objectives and measures within the OMP. Condition 3c is considered compliant and closed.

Refer to **Appendix F** offset site locality map.

4.4 Condition 5

Condition 5 of the EPBC Act Approval states:

The approval holder must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval and make them available upon request to the Department.

TMR acknowledges this condition. All records pertaining to activities associated with or relevant to the EPBC Act conditions of approval are maintained and updated on a regular basis.

4.5 Conclusion

The Project reached final Practical Completion in the 2021 – 2022 reporting period. The proposed Action “to upgrade a seven-kilometre section of the Bruce Highway between Caloundra Road to Sunshine Motorway, Queensland” is considered to be completed.

Condition 1 of the approval was closed in the 2021-2022 reporting period.

This reporting period covers the progress status of the environmental offset site management and compliance to the associated approval conditions.

The Glenview environmental offset site delivered compliance in the 2021-2022 reporting period.

The Lower Mooloolah River and Mooloolah Valley environmental offset site are continuing to show positive improvements and compliance to the approval conditions.

Monitoring of the fauna infrastructure has shown fauna movement of the structures. There were limitations of data collected for this reporting due to theft of monitoring cameras.

As of the end of the 2023-2024 reporting period, approval conditions 1, 2a, 3a,3b,3c and 4 are compliant and closed. Approval conditions 2b(i-ii) and 2c remain compliant, and approval conditions 2b(iii), 5 and 6 are still in progress.

4.6 References

Department of Transport and Main Roads (2016), *Offset Management Plan – Lowland Rainforest of Subtropical Australia: Lower Mooloolah River Environmental Reserve*.

Ecosure Pty Ltd (2023), *Mooloolah Valley Offset Year 5 Annual Report: December 2023*, report prepared for the Department of Transport and Main Roads.

Ecosure Pty Ltd (2023), *Mooloolah Valley Offset Year 5 Report: July 2023 to December 2023*, report prepared for the Department of Transport and Main Roads.

Future-Plus Environmental (2018), *Fire Management Plan*, report prepared for the Department of Transport and Main Roads.

Future-Plus Environmental (2023), *BioCondition Assessment Report 2023 Lower Mooloolah River Environment Reserve, Sippy Downs*, report prepared for the Department of Transport and Main Roads.

Sunshine Coast Council (2023), *Annual Report – Year 7 (2022-2023) Lowland Rainforest of Subtropical Australia Threatened Ecological Community offset; Lower Mooloolah River Environmental Reserve*, report prepared for the Department of Transport and Main Roads.

WSP (2023), *2023 Annual Fauna Monitoring Report*, report prepared for the Department of Transport and Main Roads.

Appendix A –EPBC Approval Decision Notice

APPROVAL

**BRUCE HIGHWAY UPGRADE, CALOUNDRA ROAD TO SUNSHINE MOTORWAY,
QUEENSLAND (EPBC 2015/4764)**

Proposed action

person to whom the approval is granted	Department of Transport and Main Roads
proponent's ABN	39 407 690 291
proposed action	To upgrade a 7km section of the Bruce Highway between Caloundra Road to Sunshine Motorway, Queensland (see EPBC referral 2015/7464)

Approval decision

Controlling Provision	Decision
Listed threatened species and communities (sections 18 & 18A)	Approved

Conditions of Approval

This approval is subject to the conditions specified below.

Expiry date of approval

This approval has effect until 31 December 2026

Decision maker

Name and position James Barker
Assistant Secretary
Assessments (Qld, Tas, Vic) and Sea Dumping Branch

Signature

Date of Decision

Conditions attached to the approval

General

1. For protection of the **EPBC Act** listed koala (*Phascolarctos cinereus*) and **Lowland rainforest of subtropical Australia threatened ecological community** the **approval holder** must implement the **Overarching Environmental Management Plan** while undertaking the proposed action.

Lowland rainforest of subtropical Australia threatened ecological community management

2. For the protection of the **EPBC Act** listed critically **endangered rainforest of subtropical Australia** the **approval holder** must:
 - a. Not disturb more than 3.92ha of the **Lowland rainforest of subtropical Australia** threatened ecological community within and adjacent to the **project site**, as shown in Attachment A;
 - b. Enter into a **Conservation Agreement** over the offset of 16.64 ha at the location shown in Attachment B, and ensure that by the tenth anniversary of **commencement of the action**, the offset meets the following condition thresholds:
 - i. Canopy Cover: at least 70 per cent of canopy vegetation is native;
 - ii. Species Richness: contains 30 woody species from the **Lowland rainforest of subtropical Australia threatened ecological community listing advice**; and
 - iii. Total vegetation: At least 70 per cent of total vegetation cover is native.
 - c. **Legally secure** and implement the offset of 4.65 ha at the location shown in Attachment C by the first 12 month anniversary of the **commencement of the action**.

Koala management

3. For the protection of the **EPBC Act** listed vulnerable Koala (*Phascolarctos cinereus*) the **approval holder** must:
 - a. Not disturb more than 35.3 ha of **Koala habitat** within the **project site** (Attachment D);
 - b. Implement five koala movement structures (koala friendly underpasses) within the project area, namely:
 - i. One new structure to facilitate movement across Steve Irwin Way;
 - ii. One new structure to facilitate koala movement across the Bruce Highway south of Mooloolah River;
 - iii. One new structure to facilitate koala movement across the Bruce Highway north of Sippy Creek;
 - iv. Improve the existing structure at Sippy Creek (at the location identified in Attachment E) to facilitate koala movement across the Bruce Highway

- c. **Legally secure** and implement the offset of 50ha at the location shown in Attachment F by the first 12 month anniversary of the **commencement of action**.

Administrative conditions

4. Within 10 days of the **commencement of action**, the **approval holder** must advise the **Department** in writing of the actual date of **commencement of action**.
5. The **approval holder** must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval and make them available upon request to the **Department**. Such records may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the **EPBC Act**, or used to verify the compliance with the conditions of approval. Summaries of audits will be posted on the **Department's** website. The results of the audits must also be published on the **approval holder's** website within two weeks of the **Department's** approval of the final audit.
6. Within three months of every 12 month anniversary of the **commencement of the action**, the **approval holder** must publish a report on their website addressing compliance with each of the conditions of this approval over the previous 12 months. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the **Department** at the same time as the compliance report is published.
7. Upon the direction of the **Minister**, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the **Minister**. The independent auditor must be approved by the **Minister** prior to the commencement of the audit. Audit criteria must be agreed to by the **Minister** and the audit report must address the criteria to the satisfaction of the **Minister**.

Definitions

Approval holder means the person to whom the approval is granted, or any person acting on their behalf, or to whom the approval is transferred under section 145B of the EPBC Act.

Commencement of the action means the disturbance of any vegetation identified as **Lowland rainforest of subtropical Australia** or **Koala habitat**, as defined in this approval notice. Commencement of the action includes physical disturbance of this vegetation for any purpose including clearing of vegetation, earthworks, establishment of site offices and fencing, and new road works.

Conservation Agreement means an agreement established under s.305 of the *Environment Protection and Biodiversity Conservation Act 1999*.

Department means the Australian Government Department administering the *Environment Protection and Biodiversity Conservation Act 1999*.

EPBC Act means the *Environment Protection and Biodiversity Conservation Act 1999*.

Koala habitat means the areas identified as 'high koala habitat values' and 'medium koala habitat values' in Attachment D.

Legally secure means placing on the land title a voluntary declaration under the *Vegetation Management Act 1999* (Qld).

Lowland rainforest of subtropical Australia means the areas identified as 'ground-truthed TEC within the project area' and '50m buffer' in Attachment A.

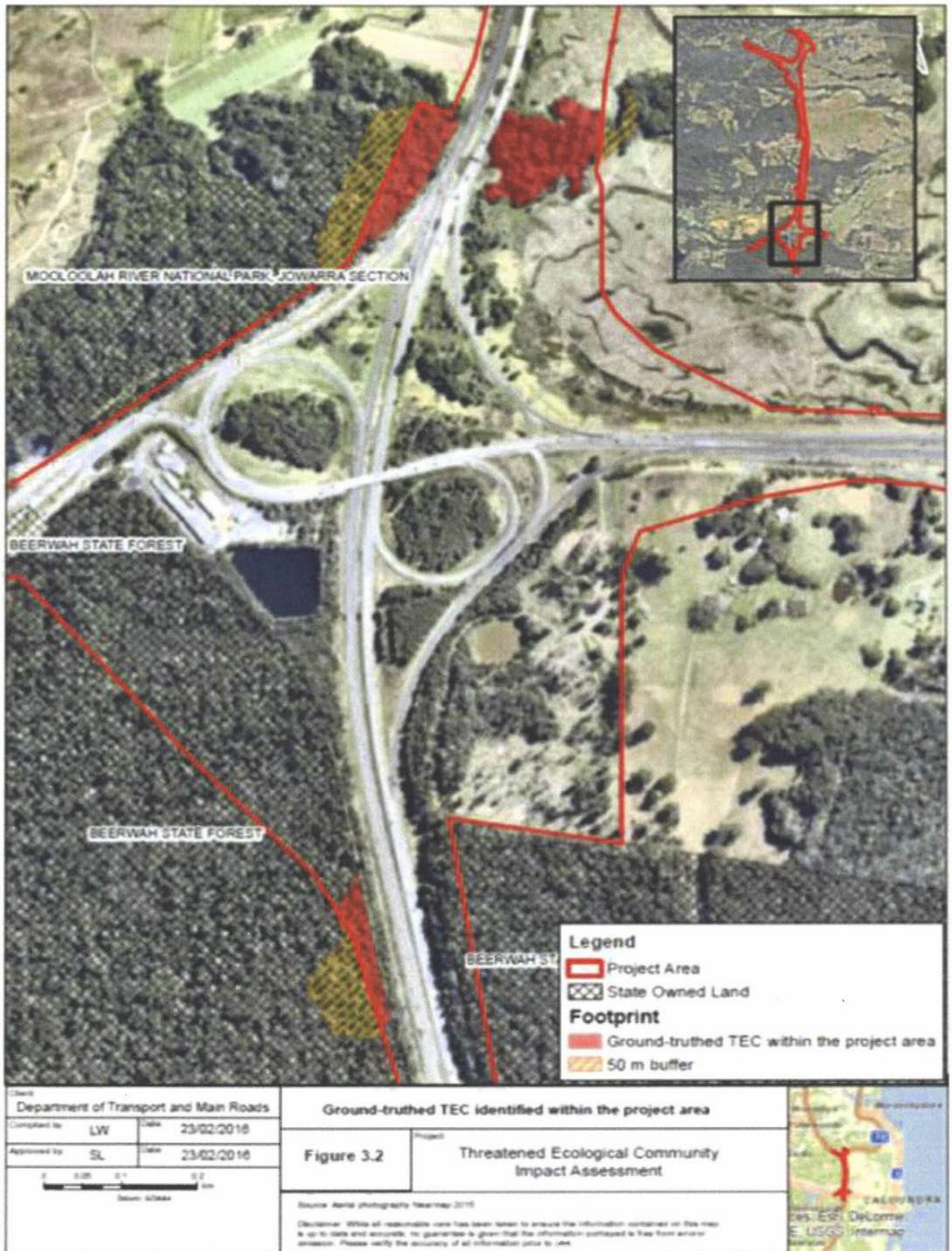
Lowland rainforest of subtropical Australia threatened ecological community listing advice means Appendix A of the TSSC (2011a) Commonwealth Listing Advice on Lowland Rainforest of Subtropical Australia
<http://www.environment.gov.au/biodiversity/threatened/communities/pubs/101-listing-advice.pdf>

Minister means the Commonwealth **Minister** administering the **EPBC Act** and includes a delegate of the **Minister**.

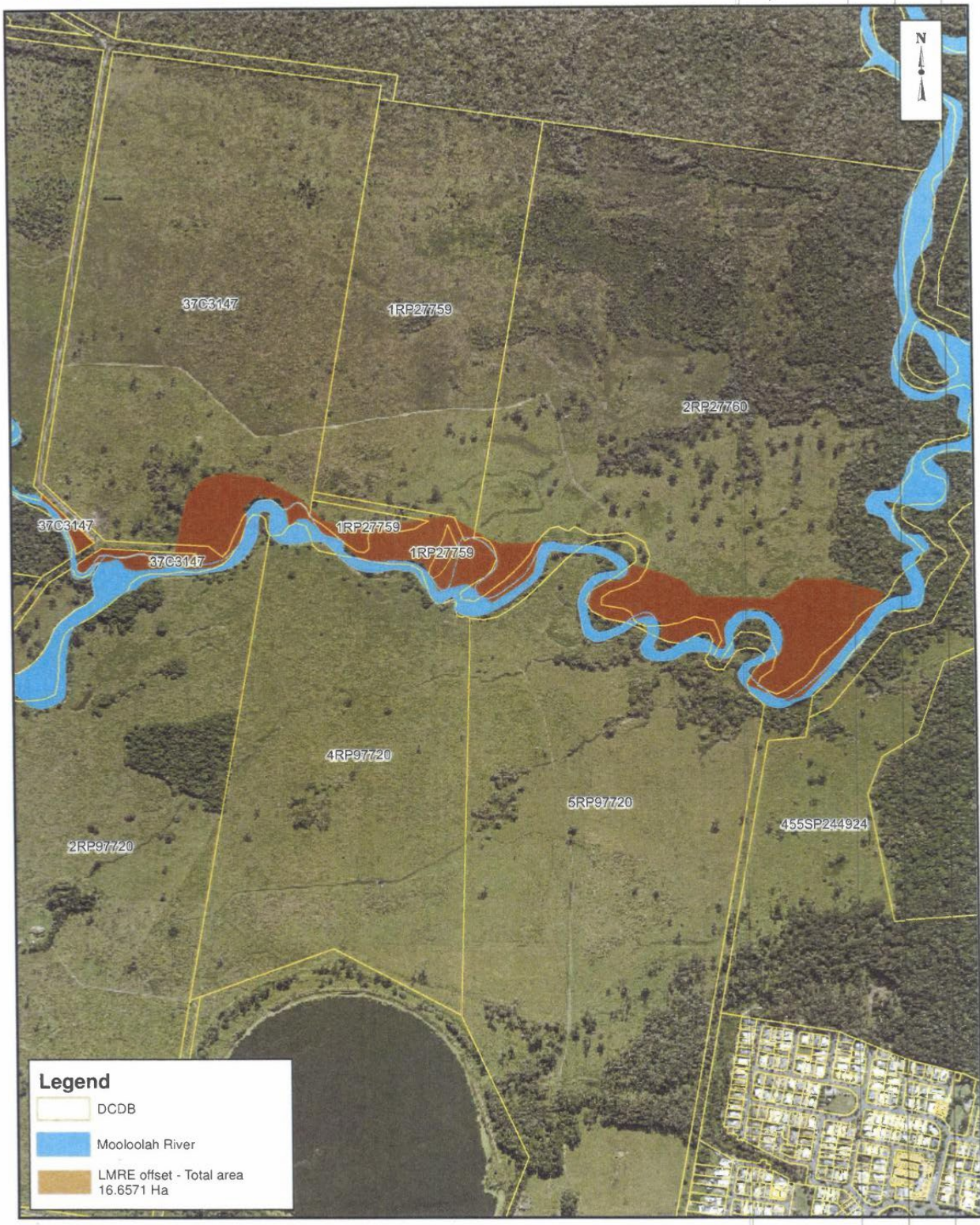
Overarching Environmental Management Plan means the documents *Bruce Highway Upgrade – Caloundra Road to Sunshine Motorway Project: Overarching Environmental Management Plan*, version 2, Final/March 2016.

Project site means the 'updated referral area (March 2016)' as identified in Attachment G.

Attachment A



Attachment B.



Legend

- DCDB
- Mooloolah River
- LMRE offset - Total area
16.6571 Ha

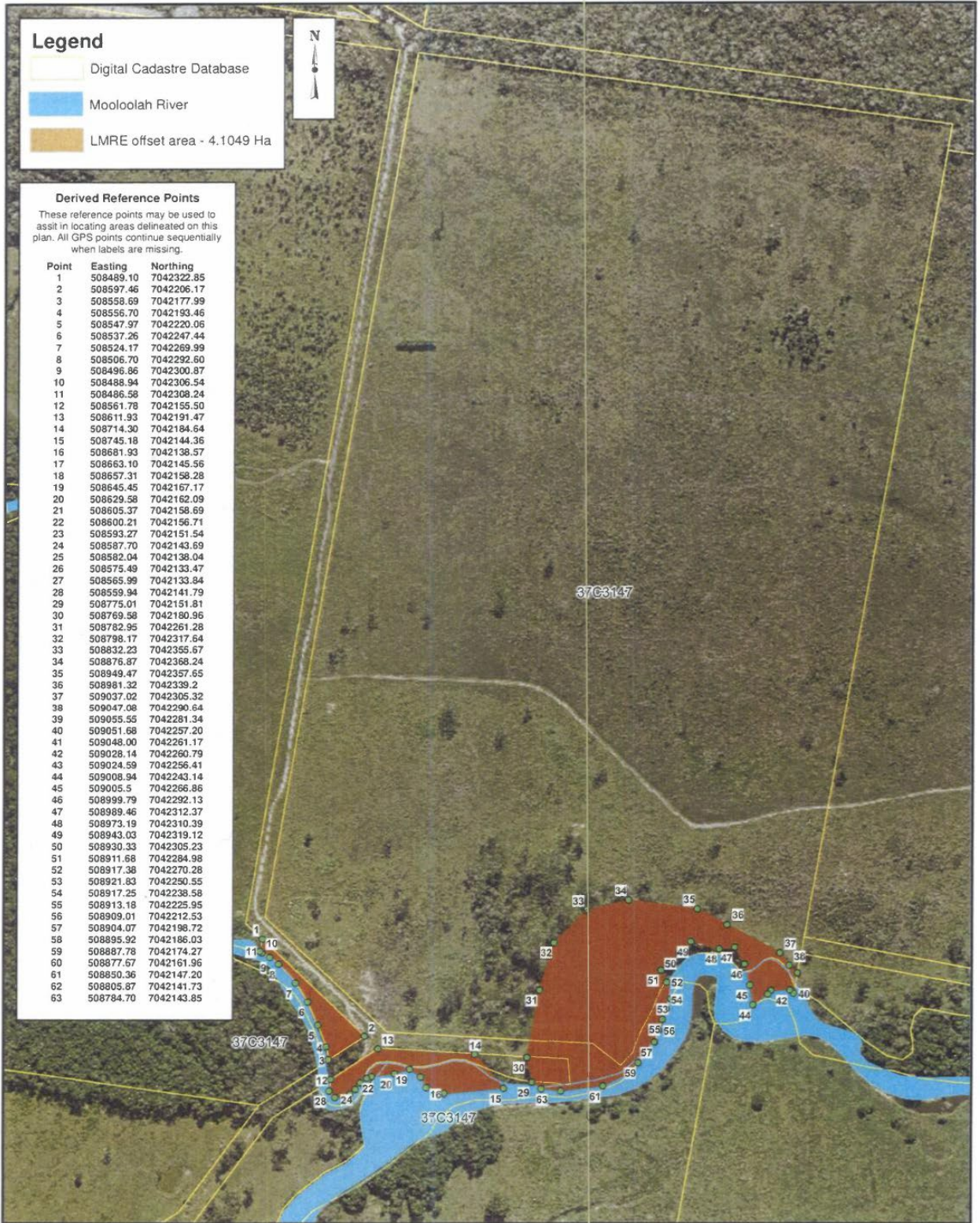
Projection/ Datum : Map Grid of Australia (MGA) Zone 56, Geocentric Datum of Australia (GDA) 1994

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**Mooloolah River
Lower Mooloolah River Environment
Reserve (LMRE Reserve)**

Plan No/ Job No:	Map1
Issue:	A
Date:	13/03/2017
Drawn by:	R Friend
Checked by:	S Scott





Legend

- Digital Cadastre Database
- Mooloolah River
- LMRE offset area - 4.1049 Ha

Derived Reference Points
 These reference points may be used to assist in locating areas delineated on this plan. All GPS points continue sequentially when labels are missing.

Point	Easting	Northing
1	508489.10	7042322.85
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9	508496.86	7042300.87
10	508488.94	7042306.54
11	508486.58	7042308.24
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17	508663.10	7042145.56
18	508657.31	7042158.28
19	508645.45	7042167.17
20	508629.58	7042162.09
21	508605.37	7042158.69
22	508600.21	7042156.71
23	508593.27	7042151.54
24	508587.70	7042143.69
25	508582.04	7042138.04
26	508575.49	7042133.47
27	508565.99	7042133.84
28	508559.94	7042141.79
29	508775.01	7042151.81
30	508769.58	7042180.96
31	508782.95	7042261.28
32	508798.17	7042317.64
33	508832.23	7042355.67
34	508876.87	7042368.24
35	508949.47	7042357.65
36	508981.32	7042339.2
37	509037.02	7042305.32
38	509047.06	7042290.64
39	509055.55	7042281.34
40	509051.68	7042257.20
41	509048.00	7042261.17
42	509028.14	7042260.79
43	509024.59	7042256.41
44	509008.94	7042243.14
45	509005.5	7042266.86
46	508999.79	7042292.13
47	508989.46	7042312.37
48	508973.19	7042310.39
49	508943.03	7042319.12
50	508930.33	7042305.23
51	508911.68	7042284.98
52	508917.38	7042270.28
53	508921.83	7042250.55
54	508917.25	7042238.58
55	508913.18	7042225.95
56	508909.01	7042212.53
57	508904.07	7042198.72
58	508895.92	7042186.03
59	508887.78	7042174.27
60	508877.67	7042161.96
61	508850.36	7042147.20
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Projection/ Datum : Map Grid of Australia (MGA) Zone 56, Geocentric Datum of Australia (GDA) 1994

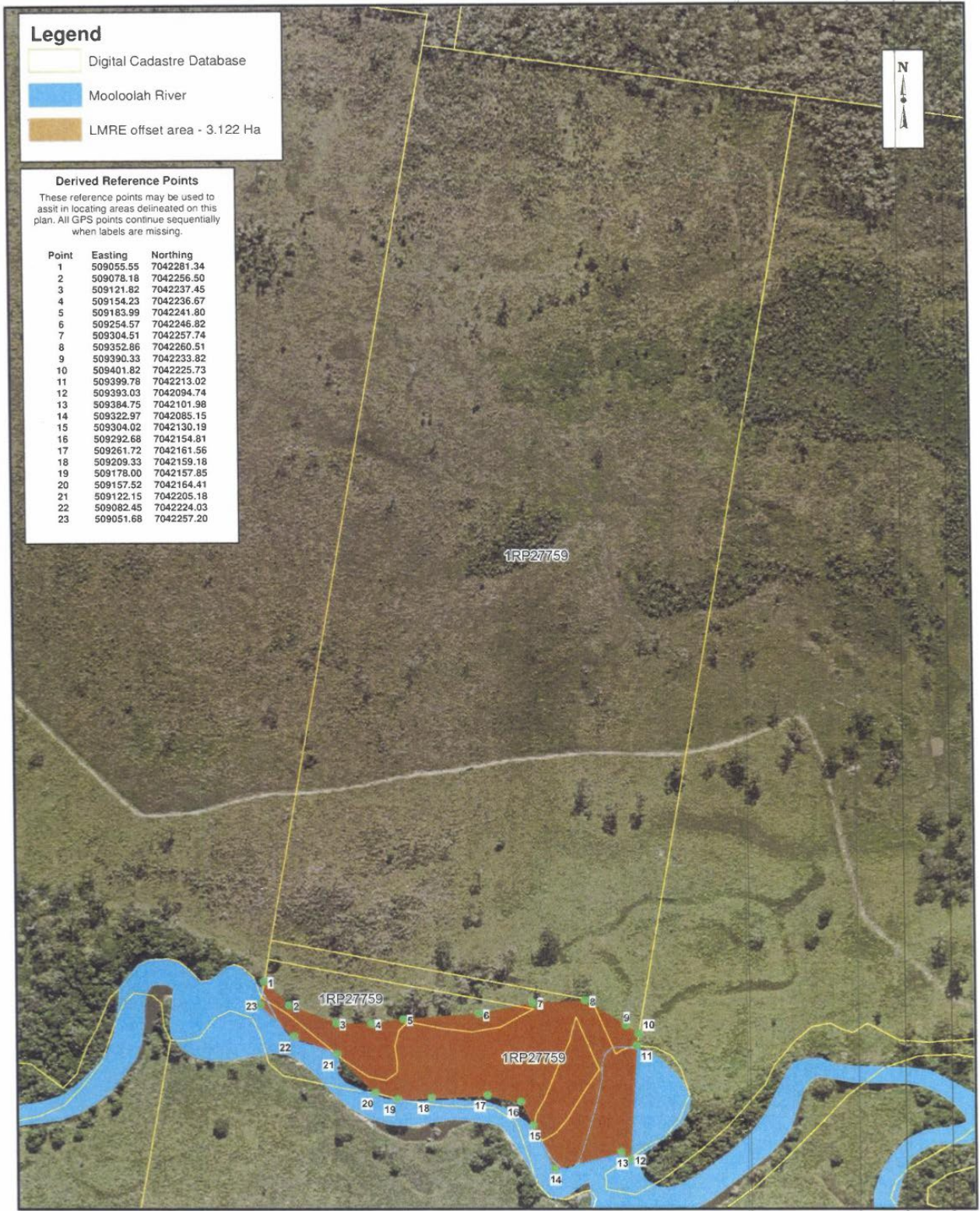
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**Mooloolah River
 Lower Mooloolah River Environment
 Reserve (LMRE Reserve)**

Plan No/ Job No: **Map3**
 Issue: **A** Date: 13/03/2017
 Drawn by: R Friend
 Checked by: S Scott





Legend

- Digital Cadastre Database
- Mooloolah River
- LMRE offset area - 3.122 Ha

Derived Reference Points

These reference points may be used to assist in locating areas delineated on this plan. All GPS points continue sequentially when labels are missing.

Point	Easting	Northing
1	509055.55	7042281.34
2	509078.18	7042256.50
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7	509304.51	7042257.74
8	509352.86	7042260.51
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10	509401.82	7042225.73
11	509399.78	7042213.02
12	509393.03	7042094.74
13	509384.75	7042101.98
14	509322.97	7042085.15
15	509304.02	7042130.19
16	509292.68	7042154.81
17	509261.72	7042161.56
18	509209.33	7042159.18
19	509178.00	7042157.85
20	509157.52	7042164.41
21	509122.15	7042205.18
22	509082.45	7042224.03
23	509051.68	7042257.20

Projection/ Datum : Map Grid of Australia (MGA) Zone 56, Geocentric Datum of Australia (GDA) 1994

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**Mooloolah River
Lower Mooloolah River Environment
Reserve (LMRE Reserve)**

Plan No/ Job No: **Map3**

Issue: **A** Date: 13/03/2017

Drawn by: R Friend

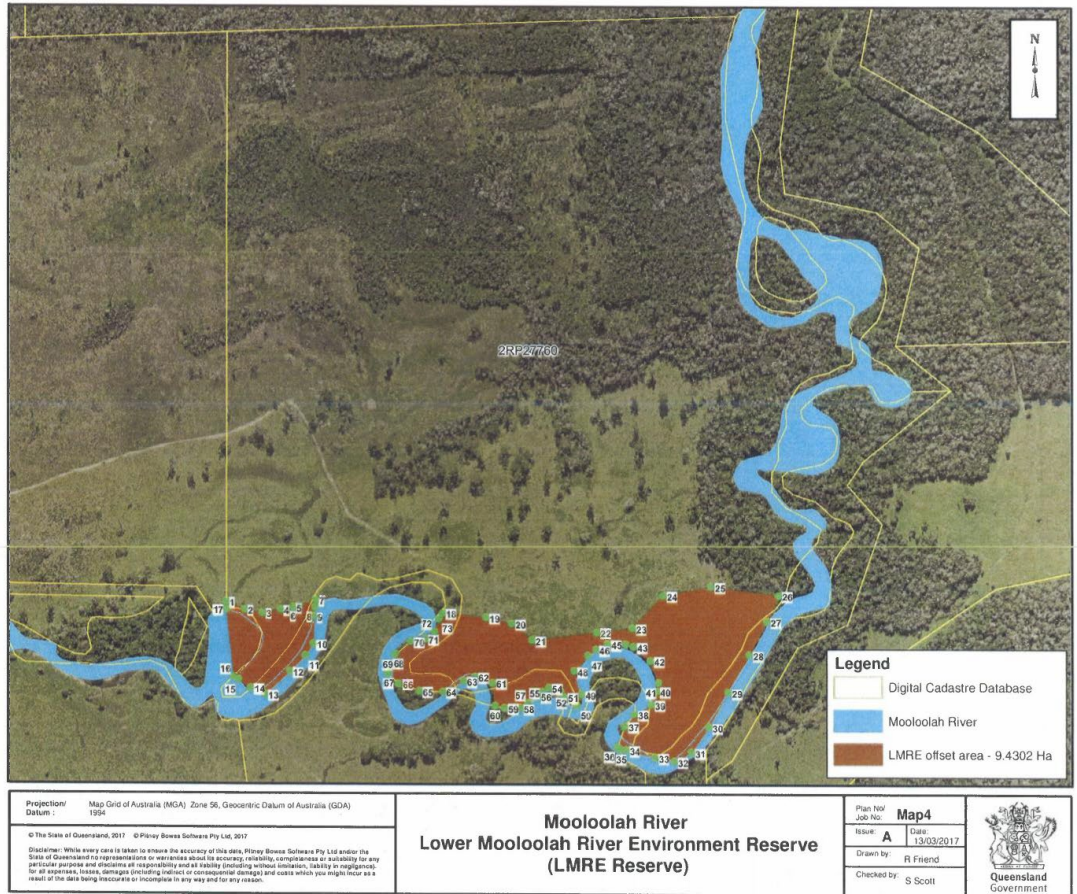
Checked by: S Scott



Derived Reference Points

These reference points may be used to assist in locating areas delineated on this plan. All GPS points continue sequentially when labels are missing.

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8	509537.35	7042189.29
9	509534.18	7042174.22
10	509524.65	704217.29
11	509509.52	7042109.61
12	509481.57	7042067.38
13	509437.02	7042055.53
14	509415.45	7042070.4
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17	509399.78	7042213.02
18	509735.27	7042140.91
19	509802.16	7042115.24
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25	510162.05	7042104.62
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33	510026.41	7041829.3
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42	510046.09	7041956.02
43	510023.43	7042025.14
44	510011.7	7042031.82
45	509983.63	7042037.5
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50	509918.95	7041942.08
51	509901.37	7041959.95
52	509897.52	7041969.1
53	509893.95	7041978.04
54	509879.85	7041960.35
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61	509794.93	7042005.62
62	509768.73	7042021.5
63	509749.68	7042017.93
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71	509700.45	7042102.06
72	509717.48	7042111.21
73	509727.85	7042132.15



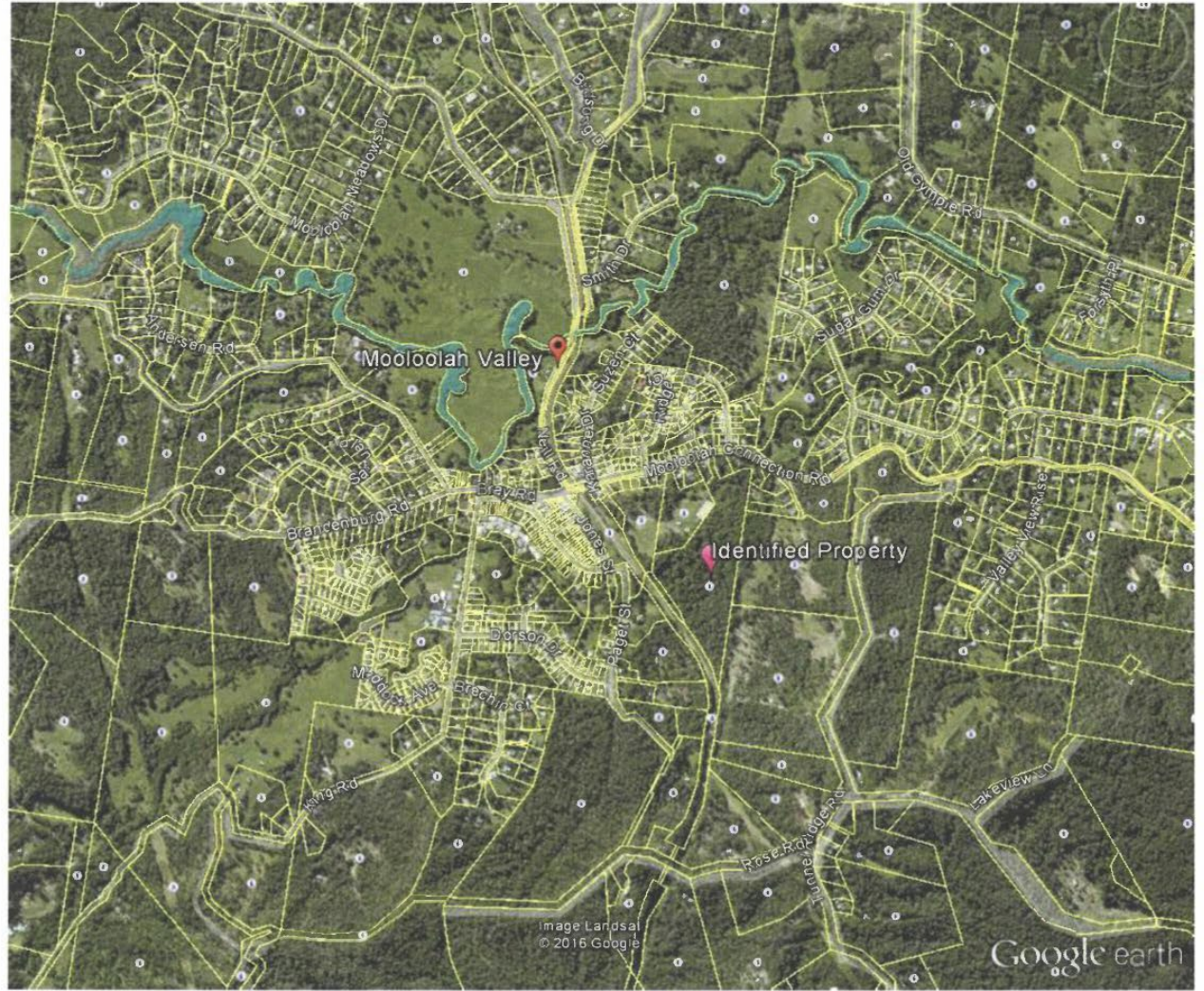
Projection:	Map Grid of Australia (MGA) Zone 56, Geocentric Datum of Australia (GDA)
Datum:	1994
© The State of Queensland, 2017 © Pitney Bowes Software Pty Ltd, 2017	
Disclaimer: While every care is taken to ensure the accuracy of this data, Pitney Bowes Software Pty Ltd and/or the State of Queensland do not warrant or represent the accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all errors, losses, damages (including indirect or consequential damages) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.	

**Mooloolah River
Lower Mooloolah River Environment Reserve
(LMRE Reserve)**

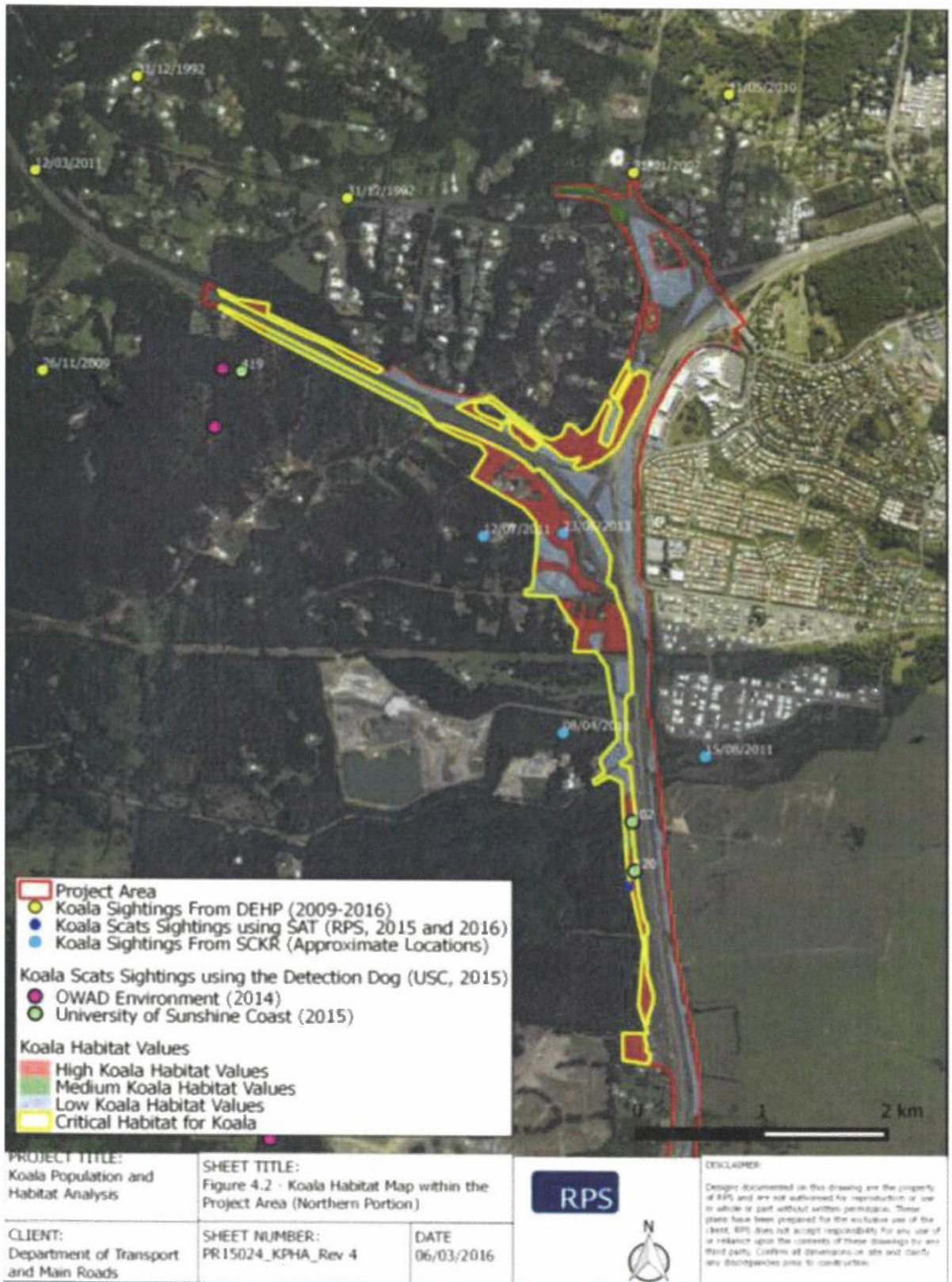
Plan No/Job No:	Map4	
Issue:	A Date: 13/03/2017	
Drawn by:	R Friend	
Checked by:	S Scott	

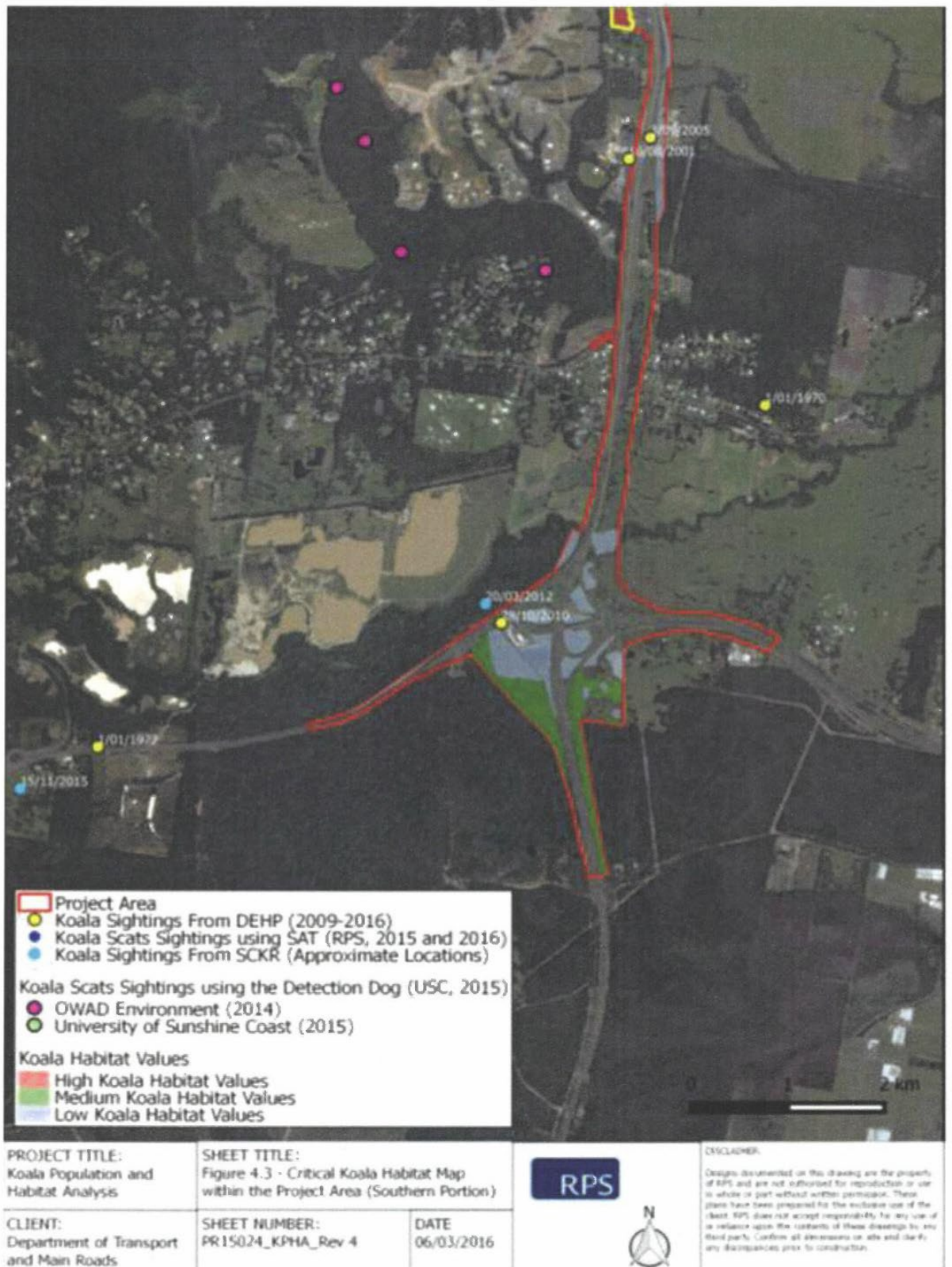
Attachment C

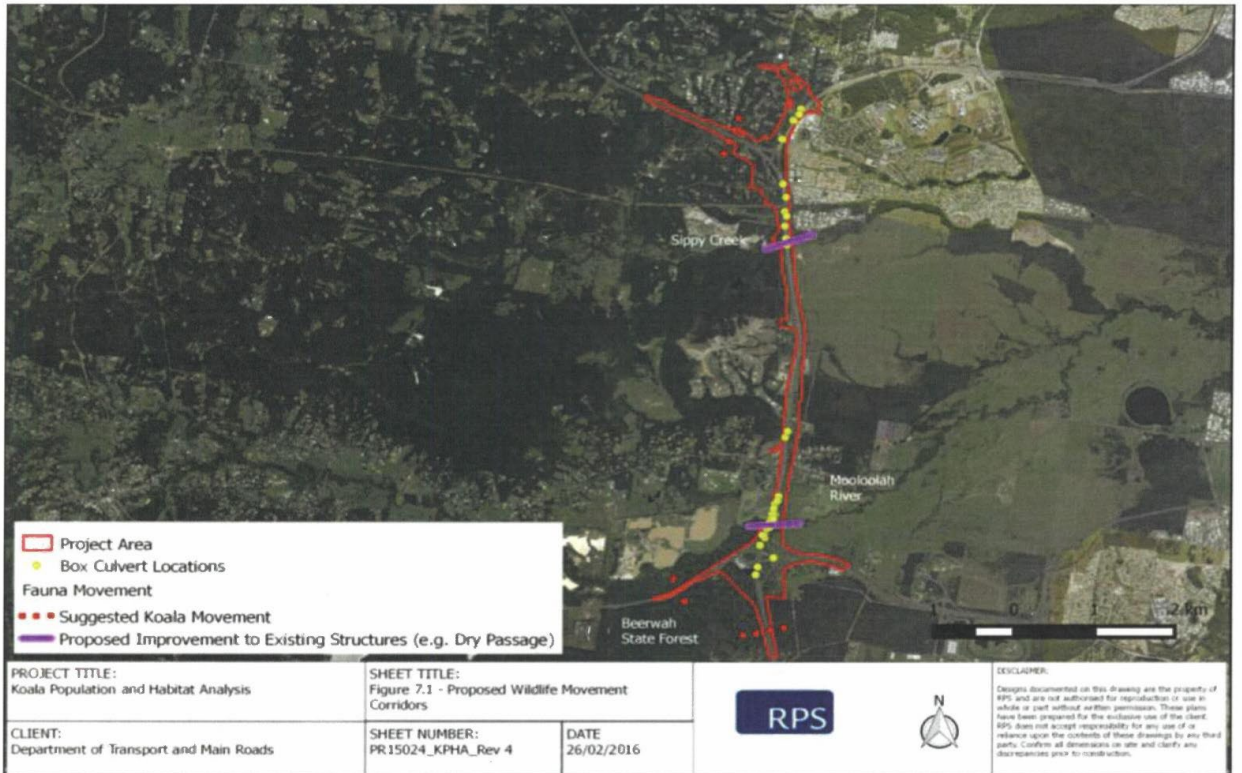
Lot 2 RP268457 (28 Mooloolah Road, Mooloolah Valley, Sunshine Coast)



Attachment D

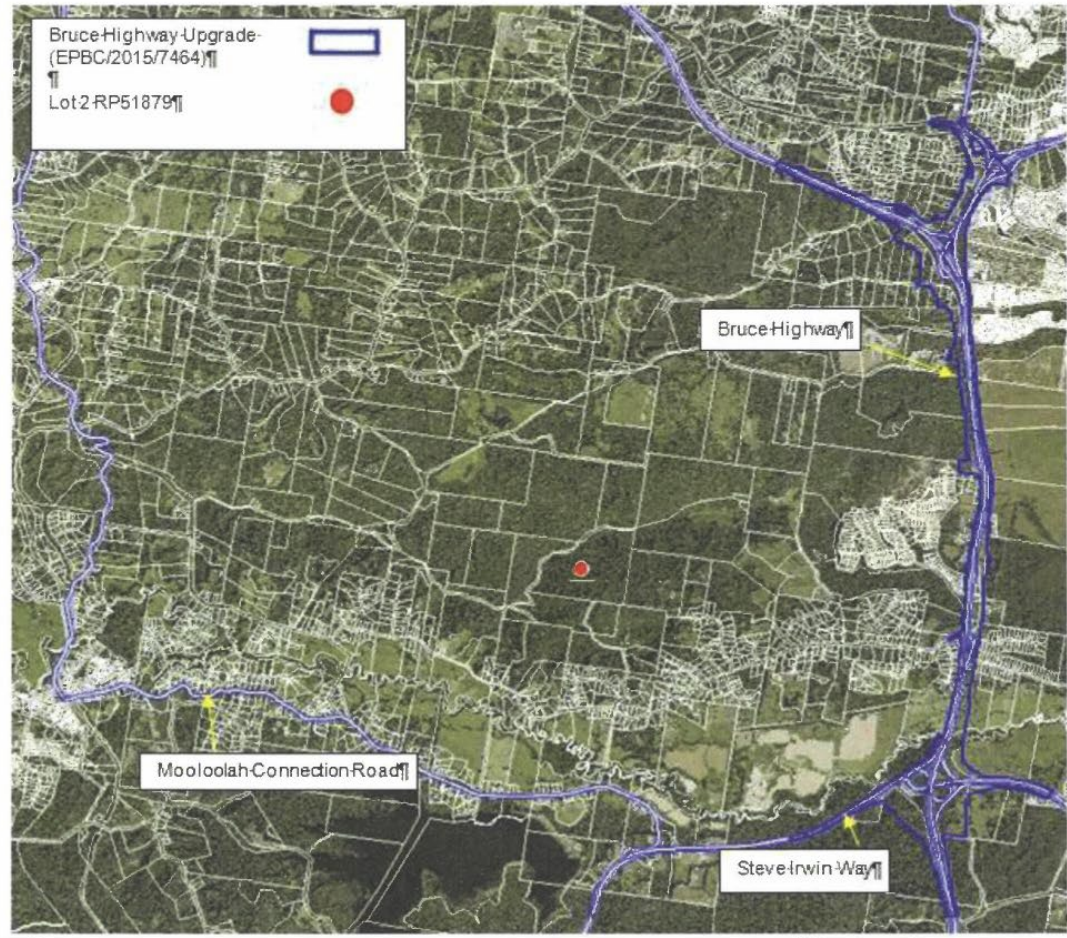




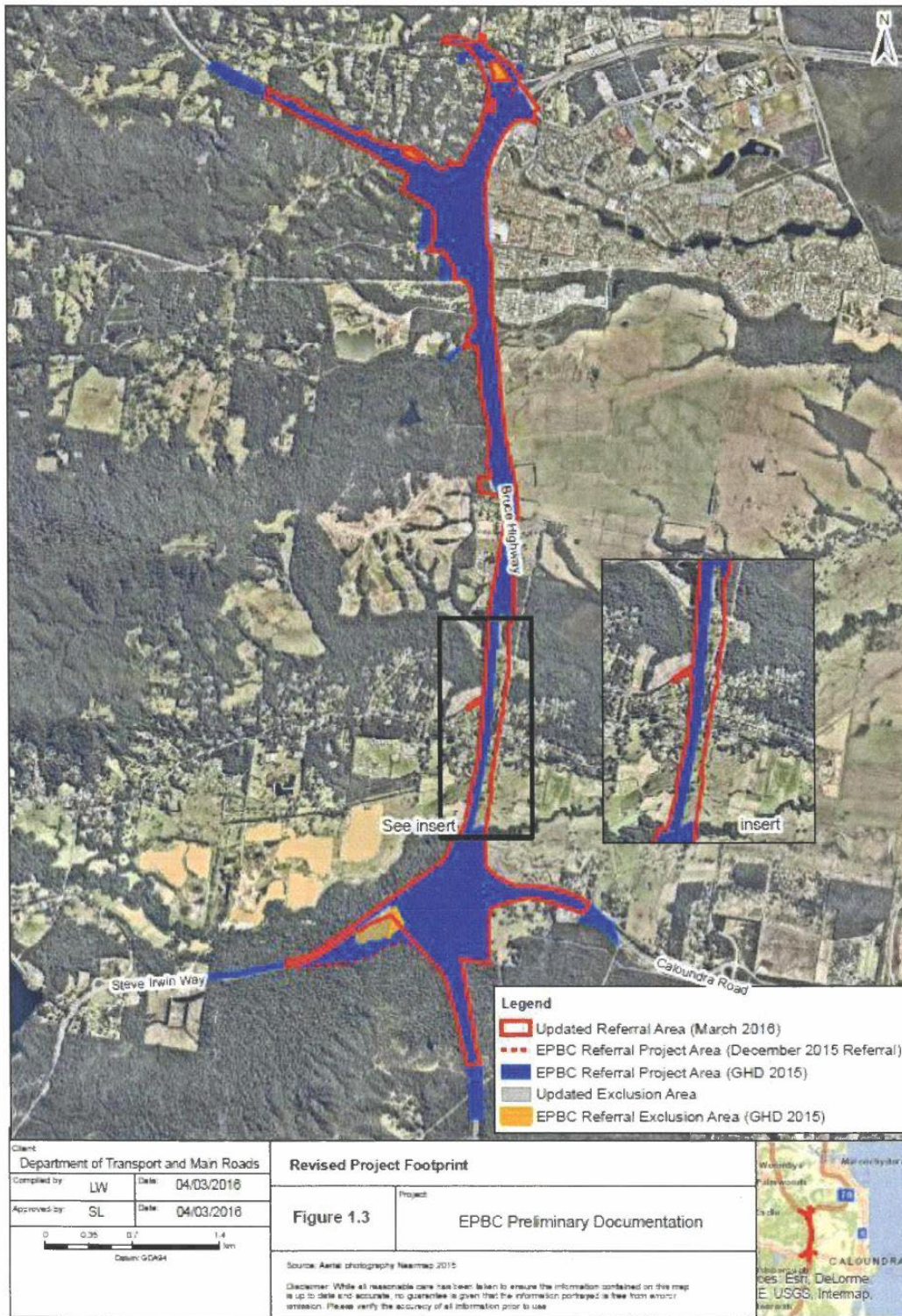


Attachment F

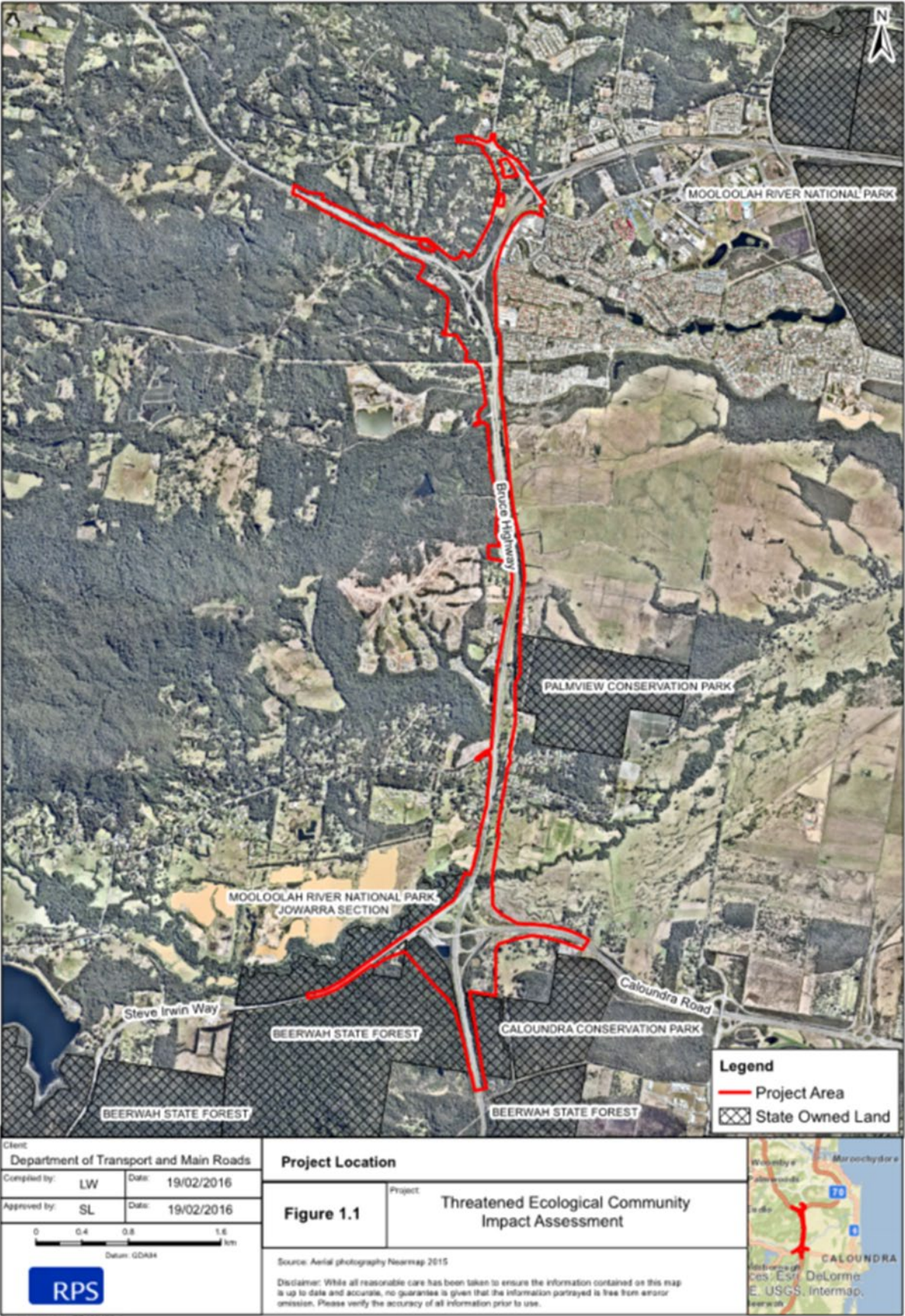
Lot 2 RP51879 (Missing Link Road, Glenview)



Attachment G



Appendix B – CR2SM Project Site Threatened Ecological Community



Appendix C – As-Built Clearing Diagrams

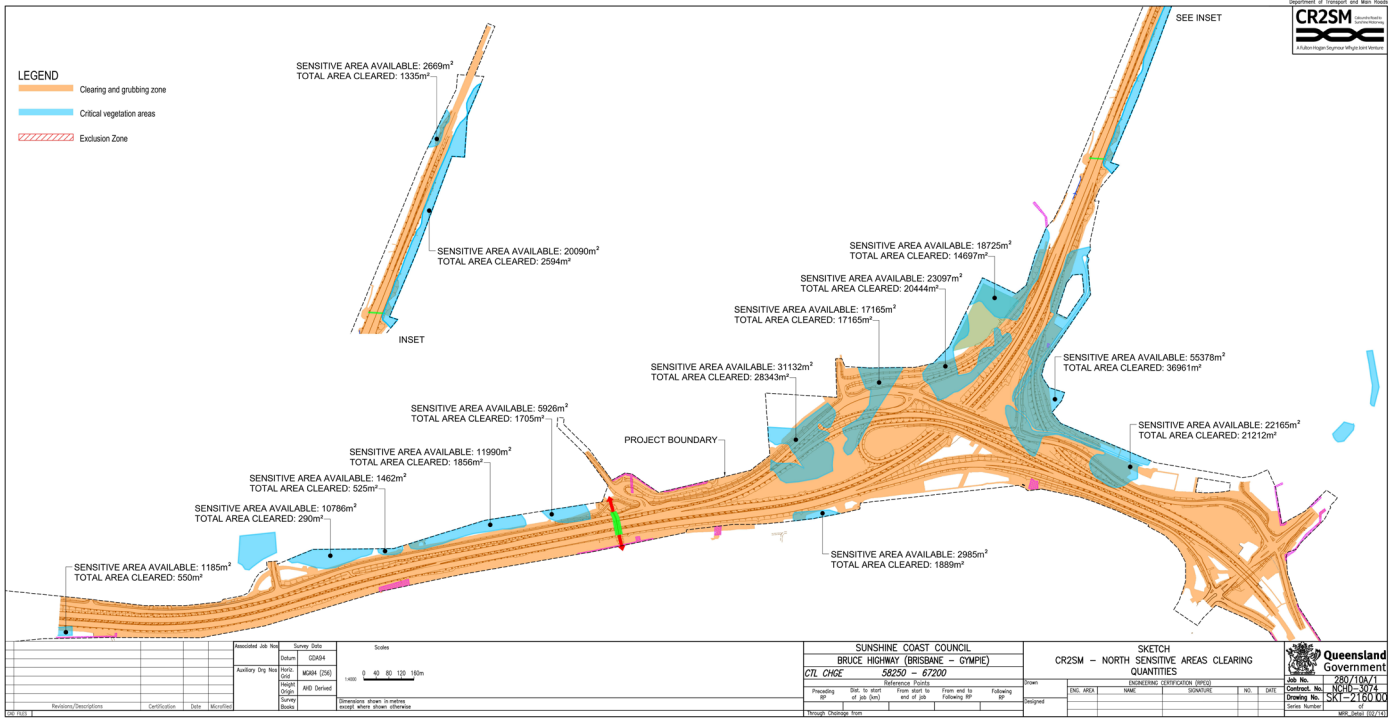


Figure 1: Medium and high value Koala habitat cleared to date - north

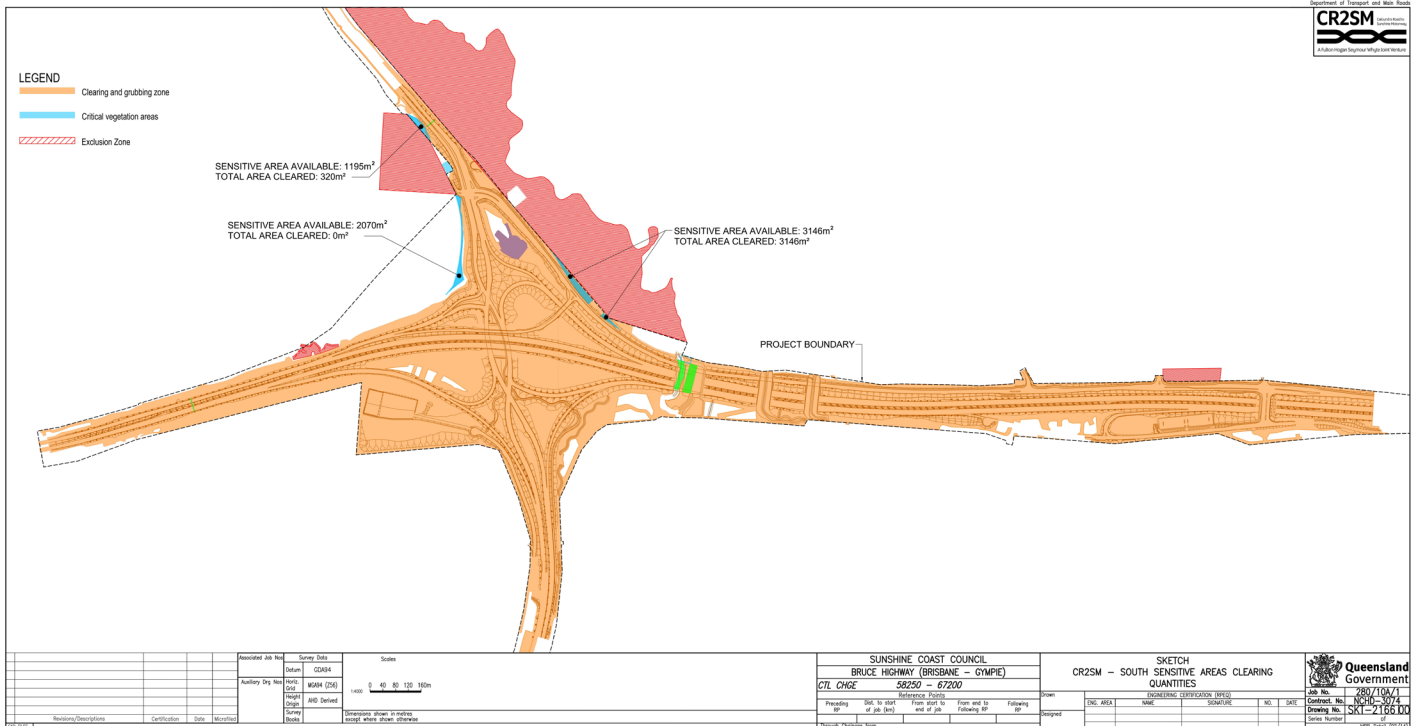


Figure 2: Medium and high value Koala habitat cleared to date - south

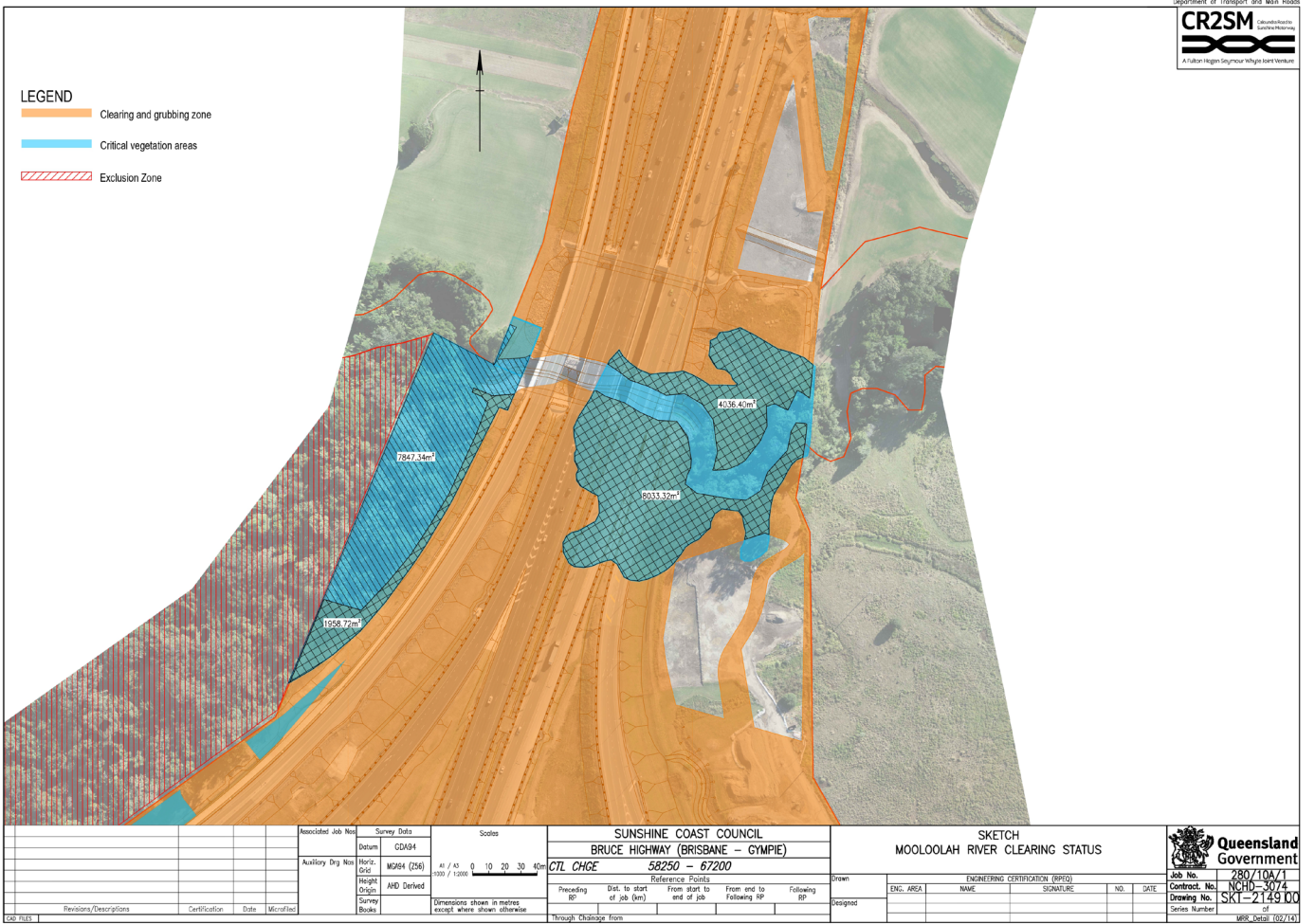
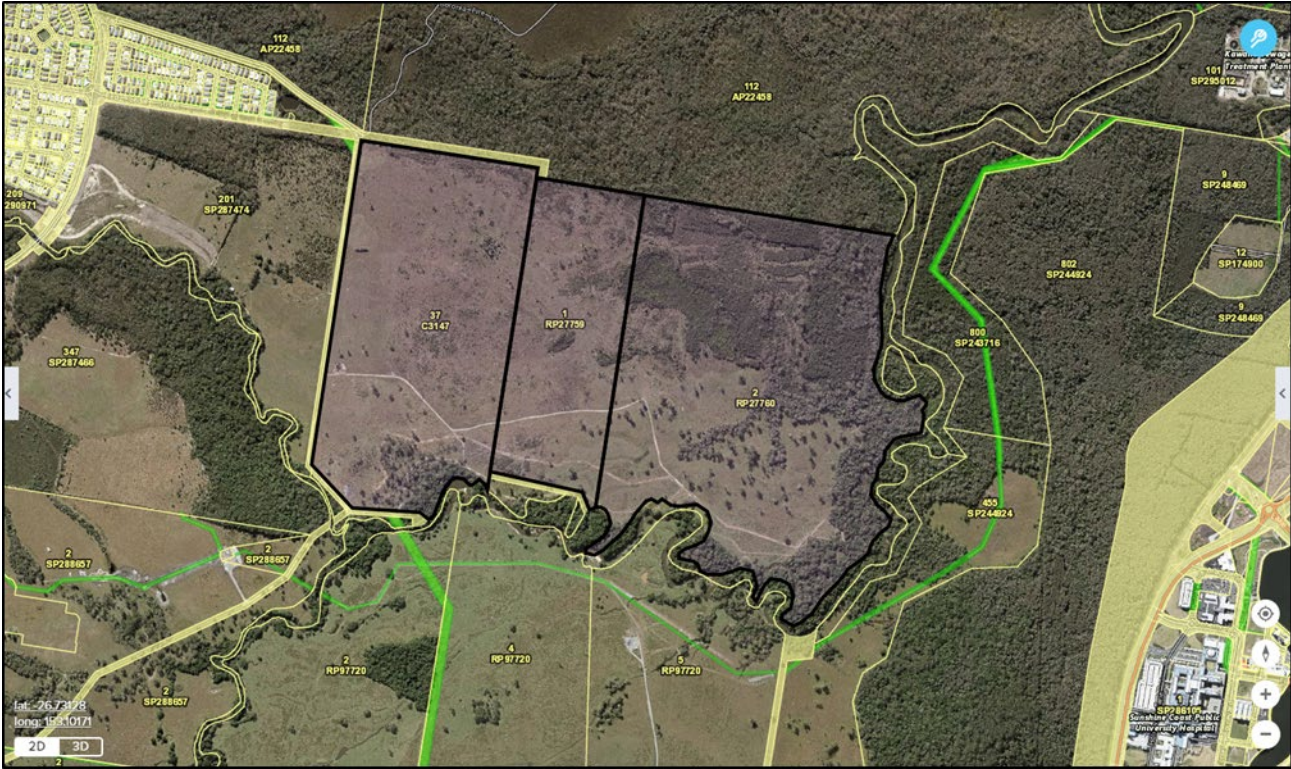
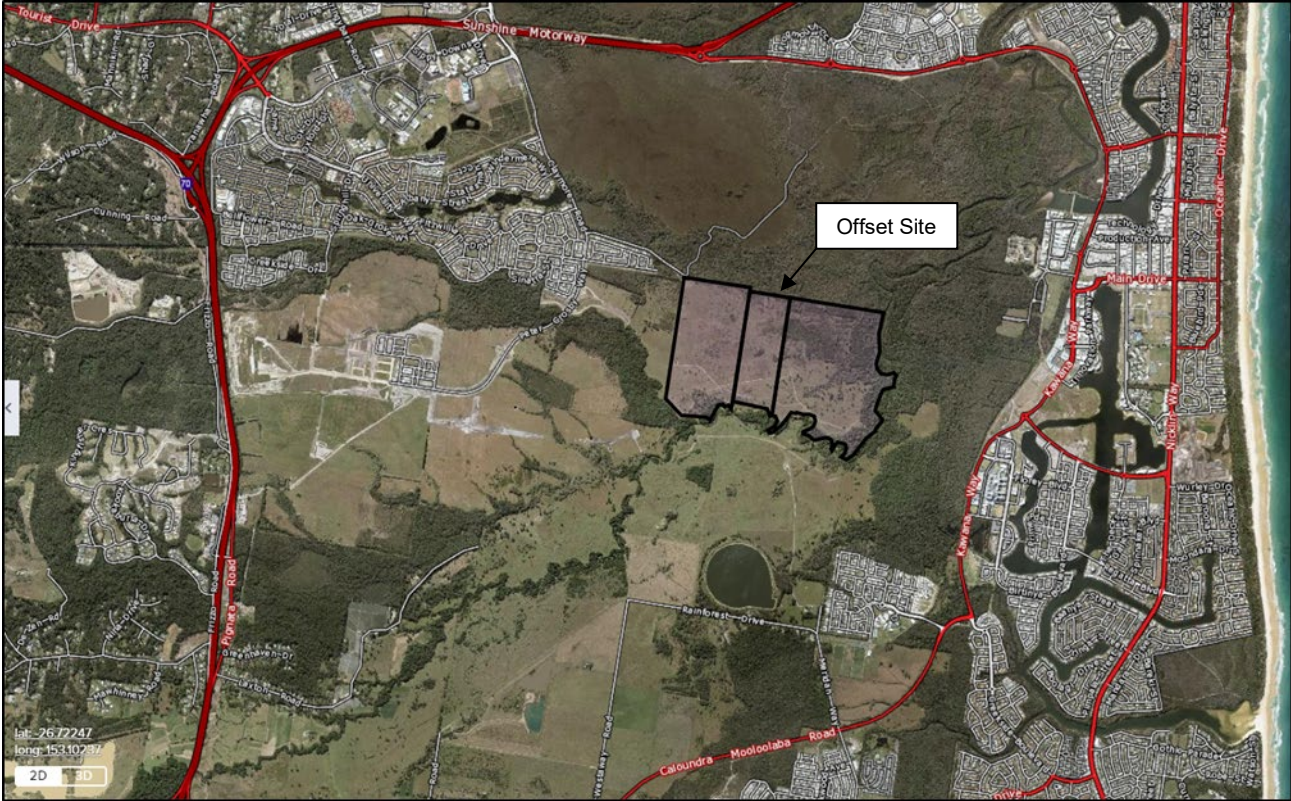


Figure 3: Total TEC cleared

Appendix D – Lower Mooloolah River Environmental Reserve Offset Site (16.64ha)



Lower Mooloolah River Environmental Reserve Offset Site.



Lower Mooloolah River Environmental Reserve Offset Site general locale.

Appendix F – Missing Link Road, Glenview Offset Site (50ha)



Missing Link Road, Glenview Offset Site.



Missing Link Road, Glenview Offset Site general locale.

Appendix G – Notification of Commencement of the Action

Our ref 450/01352
Your ref EPBC 2015/7464
Enquiries Ms Amy Kirkpatrick



Department of
Transport and Main Roads

23 December 2016

Compliance and Enforcement Branch
Environment Standards Division
Department of Environment and Energy
GPO Box 787
CANBERRA ACT 2601

Sent by email: postapprovals@environment.gov.au

Attn: Imogen Moore

Dear Ms Moore

With reference to condition 4 of EPBC Approval 2015/7464, this letter is to formally notify your Department of the commencement of works for The Bruce Highway Upgrade Project – Caloundra Road to Sunshine Motorway (CR2SM).

Access to the site was granted to the Contractor on 2 December 2016 for preliminary works including geotechnical investigations, building demolitions and site compound establishment.

Ancillary to the geotechnical investigations and site compound establishment, minor vegetation clearing commenced in locations applicable to this approval on 8 December 2016.

If you have any questions, or require further information in relation to the above works, please contact Mr Mark Asang on 0418 795 871 or Ms Amy Kirkpatrick on 0428 103 578. Information and on the project including project updates are also available on our website at: <http://www.tmr.qld.gov.au/Projects/Name/B/Bruce-Highway-Caloundra-Road-to-Sunshine-Motorway-upgrade>.

Yours sincerely

A handwritten signature in blue ink that reads "M. Asang".

Mark Asang
Project Manager

for Gavin Soward
Project Director

Program Delivery and Operations Branch
North Coast Region
PO Box 1600
Maroochydore Queensland 4558

Telephone 1800 749 022
Website www.tmr.qld.gov.au
Email brucehwycr2sm@tmr.qld.gov.au
ABN 39 407 690 291

Appendix H – Fauna furniture locations



Figure 1. Permanent fauna fence with frog exclusion fencing and Koala escape pole adjacent to Bruce Highway



Figure 2. Completed Steve Irwin Way fauna passage



Figure 3 and 4. Completed southern fauna passage



Figure 5. Completed northern fauna passage



Figure 6, 7 and 8. Fauna structures installed at Sippy Creek



Figure 9 and 10. Fauna structures installed at Mooloolah River



Figure 11. Rope bridge across Steve Irwin Way

Appendix I – Fauna Infrastructure Monitoring Photos



Figure 1: Koala recorded during the August 2023 monitoring period at the northern underpass bushland.



Figure 2: Short-beaked Echidna recorded walking past the northern underpass.



Figure 3: Sequence showing a Lace Monitor crossing through the northern underpass using the log rail (from east to west), captured on all four cameras, confirming a complete crossing event.



Figure 4: Short-eared Brushtail Possum shown entering the Mooloolah River Underpass east (left) and exiting on the western side (right) confirming a complete crossing event via the log rails.



Figure 5: Series showing a Short-eared Brushtail Possum climbing an escape pole at Frizzo Connection Road.



Figure 6: Probable Sugar Glider crossing event captured on the original eight-metre rope ladder (northern camera).

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