Transport for NSW

# Koala Protection on Heathcote Road at Deadmans Creek

## REF submissions report

April 2025


NSW GOVERNMENT

transport.nsw.gov.au

# Acknowledgement of Country

Transport for NSW acknowledges the Gandangara and Tharawal people, the traditional custodians of the land on which the koala protection on Heathcote Road at Deadmans Creek is proposed.

We pay our respects to their Elders past and present and celebrate the diversity of Aboriginal people and their ongoing cultures and connections to the lands and waters of NSW.

Many of the transport routes we use today – from rail lines, to roads, to water crossings – follow the traditional Song lines, trade routes and ceremonial paths in Country that our nation's First Peoples followed for tens of thousands of years.

Transport for NSW is committed to honouring Aboriginal peoples' cultural and spiritual connections to the land, waters and seas and their rich contribution to society.

**Prepared by bd infrastructure and Transport for NSW.**

# Executive summary

## The proposal

Transport for NSW (Transport) proposes to construct about 1,153 metres of fencing along Heathcote Road (the proposal), which aims to prevent koalas accessing the road where they are susceptible to vehicle strike and guide them towards safe crossing points under the road. A high number of koala fatalities have been recorded along Heathcote Road near Deadmans Creek, where the road separates large areas of habitat within Georges River National Park to the east and Holsworthy Barracks military base to the west.

The proposal comprises several sections of fencing that would be constructed on both sides of Heathcote Road near Deadmans Creek, between St George Crescent in Menai and Pleasure Point Road in Pleasure Point. The proposal also involves the installation of structures and ground treatments to further improve the safe passage of animals under Heathcote Road. In combination with existing fencing located on the boundary of Holsworthy Barracks military base (on both sides of Heathcote Road), the proposal would provide a 1,495 metre-long continuous barrier to fauna attempting to access Heathcote Road, from 380 metres south of Deadmans Creek to 1,200 metres north of Deadmans Creek.

The proposal is located about 24 kilometres south-west of the Sydney Central Business District (CBD) and about 8.5 kilometres south-east of the Liverpool CBD. The proposal falls within both the Liverpool City and Sutherland Shire Local Government Areas. The location of the proposal is shown in Figure 1-1.

Key features of the proposal include:

- About 1,153 metres of new koala fencing that is 1.5 metres high, with galvanised steel sheeting along the top, comprising of:
  - About 360 metres (excluding the 170 metres of koala fence to be assessed by separate EIS) of continuous fencing on the eastern side of Heathcote Road, between existing Defence fencing to the north and Deadmans Creek Bridge to the south.
  - About 350 metres of fencing on the eastern side of Heathcote Road, south of Deadmans Creek Bridge. This fencing would be installed in three sections to tie into existing rock slopes and St George Crescent, to create a continuous barrier to Heathcote Road.
  - About 143 metres on the western side of Heathcote Road north of Deadmans Creek Bridge to direct fauna to cross under the road via two existing culverts and Deadmans Creek Bridge, and into the fauna access pipes installed in the Defence fencing.
  - About 300 metres on the western side of Heathcote Road, south of Deadmans Creek Bridge.
- A koala grid with a pedestrian gate across St George Crescent about 80 metres from the intersection with Heathcote Road, which aims to prevent koalas from accessing Heathcote Road.
- About six fauna escape structures, located near fence ends or other weak points, to allow any koalas or other fauna to move from roadside to the habitat side of the fence.
- Up to three metres of selective vegetation clearing on either side of koala fencing, including:
  - Trimming of overhanging trunks or branches (that may allow koalas to climb over the fence into the road corridor).
  - Removal of vegetation on existing rock slopes along the proposed fence alignment to deter animals from using the slopes to access the road.
- Fauna access improvements around Deadmans Creek Bridge including:
  - Koala refuge poles to offer refuge from predators where trees are absent.
  - Surface treatments (shotcrete/concrete) in drains around existing fauna crossing structures under Deadmans Creek bridge to assist fauna movements.
- Gates in the fencing for emergency and maintenance access.

Construction is expected to commence in 2025 and would take around four months to complete.

## Display of the Review of Environmental Factors

Transport for NSW prepared a review of environmental factors (REF) to assess the potential environmental impacts of the proposed works. The REF was publically displayed for 19 days online between Monday 25 November 2024 and Friday 13 December 2024. The REF was placed on the Transport for NSW project website at https://www.transport.nsw.gov.au/projects/current-projects/koala-protection-on-heathcote-road-around-deadmans-creek and made available for download.

A printed copy was made available at Liverpool City Council CBD Customer Service Hub, Yellamundie, located at Lower Ground Floor, 52 Scott Street, Liverpool NSW 2170

A staffed display was held at Sandy Point Community Centre, 200 St George Crescent, Sandy Point NSW 2172 on Saturday 7 December 2024 between 11.00am – 1.30pm.

## Summary of issues and responses

Public display of the REF, and the supporting consultation, resulted in a total of 95 submissions, of which 92 were from the community (including four from community groups) and three from government agencies. Of these submissions, 58 (62 per cent) were in support, 34 (36 per cent) were neutral and two (2 per cent) were in opposition. One submission was excluded due to lack of clarity.

The main issues raised and responses to those issues are summarised below.

### Proposal need

Forty-three submissions agreed with the proposal need.

One submission, which was in opposition, did not believe that the benefits of the proposal justified the cost.

Transport has noted support for the proposal.

The proposal offers an effective response to the koala vehicle strike hotspot at the proposal location in accordance with the NSW Koala Strategy.

### Proposal scope

Three submissions called for additional measures to protect other fauna. The proposal would be suitable for use by a range of native fauna species.

Five submissions stated that wildlife protection needs to be considered during construction. Measures would be implemented during construction to avoid creating or increasing risk of road strike including placement of temporary variable message signs during breeding season, staging fencing construction to reduce likelihood of increased vehicle strike (reflecting existing barriers and likely primary koala movements) and implementation of best practice measures in accordance with the Biodiversity Management Guideline (Transport for NSW, 2024).

Ten submissions raised concerns regarding the effectiveness of existing fauna crossings. These submissions raised issues regarding the suitability of materials used under the bridge and concerns that the existing culverts are not suitable for koalas to use. While monitoring has detected use of the existing bridge underpass by a range of species, Transport recognises that the existing scour protection rocks under the Deadmans Creek Bridge are not ideal for koalas to traverse. The proposal includes provision of ground treatments to improve access. Transport have also recorded koalas and a range of other native species with motion-senor cameras using the existing 1500 millimetre pipe culvert around 500 metres north of the bridge to cross under Heathcote Road.

Six submissions raise concerns regarding the effectiveness of fauna access pipes in the Department of Defence fencing and the ability of koalas to find and use them. Monitoring cameras have recorded koalas using the existing fauna access pipes and Transport is proposing to install additional fauna access pipes, including pipes which are located closer to the ground, and which are suitable for a wider range of fauna species.

One submission raised a query as to how koalas would be able to locate the one way escape structures. While there is no way to direct animals to the escape structures from within the road corridor, the proposed structures are strategically positioned near locations where animals may enter the corridor, therefore maximising the chance they would be found.

Nine submissions raised concerns regarding the effectiveness of the fencing in the proposal. These submissions included concerns that koalas may be able to climb over the fence or walk around the ends of the fencing extents. The proposed design aims to keep koalas off this specific section of Heathcote Road that has become a vehicle strike hotspot and improve access to the underpasses beneath the road. Transport's fauna fence design is intended to be a physical barrier, with features to stop animals from climbing over and burrowing under. The proposed fence design has been proven effective and is a product of Transport's implementation and improvement of vehicle strike mitigation.

One submission opposed the provision of the koala grid. The proposed koala grid is currently the only design feature available to deter koalas and other animals from accessing the road corridor at the intersection of Heathcote Road and St George Crescent.

## Proposal timing

Nineteen submissions addressed the timing of the proposal, generally expressing frustration with the amount of time it has taken for the proposal to be planned prior to construction works starting. These submissions highlight that delays in the construction of the proposal would result in continuing vehicle strikes.

Transport acknowledged community interest in seeing koala protection measures provided as soon as possible. The provision of fauna protection measures does however require careful planning and design. The proposal is also subject to mandatory environmental assessment processes which need to be completed. Subject to approval, construction is anticipated to begin in mid-2025 and would take approximately four months to construct.

## Options consideration

Nine submissions supported the extension of the proposal along Heathcote Road, some southwards towards the quarry, and some northwards towards Holsworthy.

Transport has worked with koala specialists to develop the most effective length of fencing to address the koala vehicle strike hotspot at Deadmans Creek. Transport biodiversity specialists have continued to monitor vehicle strike records along Heathcote Road since development of the 2021 options report, including recent records shared by NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) before they are in BioNet. From 2018 to March 2025, all but one of the 17 vehicle strike records around Deadmans Creek are located along an approximate 625 metre section of Heathcote Road, which includes Deadmans Creek Bridge.

## Consultation

Six submissions addressed consultation, five of which related to consultation with wildlife experts. These submissions generally made recommendations that Transport consult with wildlife experts to ensure the proposal would work as intended and would not negatively impact biodiversity. One submission related to the amount of public awareness of the proposal.

Transport has developed the proposal in consultation with koala specialists. The public display of the REF for 19 days in November and December 2024 provided an opportunity for the community and wildlife protection groups, to provide feedback on the proposal. During the preparation of the REF, the Sutherland Shire Environment Centre, National Parks Association of NSW, Sandy Point Residents Association, Georges River Environmental Alliance, and Sydney Basin Koala Network were consulted.

## Biodiversity

Nine submissions raised concerns regarding the proposal's impacts on fauna connectivity. Transport would continue to monitor the movement of koalas within the proposal area.

Five submissions address vegetation clearing for the proposal. These submissions have expressed concern regarding the amount of vegetation clearing required for the fencing, which provides habitat both for koalas and other fauna. Transport has selected a fence alignment for the proposal which includes use of existing cleared areas and elsewhere, runs as close to Heathcote Road as is safe to do so to minimise vegetation clearing. Proposed fencing must maintain a minimum clearance from safety barriers and trafficable lanes to meet safety requirements. The proposed changes to the fencing alignment would further minimise vegetation clearing.

Two submissions recommended that further biodiversity surveys be carried out. A range of flora and fauna surveys have occurred for the proposal consistent with Transport's Biodiversity Assessment Guidelines

(Transport for NSW, 2024), which closely follows the NSW Biodiversity Assessment Method (Department of Planning, Industry and Environment, 2020). These surveys are described in Appendix E of the REF.

## Landscape character and visual impact

Five submissions are concerned with the visual impact of the fencing, particularly around the intersection of Heathcote Road and St George Crescent.

The proposal has been amended to set back the fence from Heathcote Road and St George Crescent, reducing the visual impact at the entrance to Sandy Point, and increasing the amount of vegetation screening between the road and the the fence. The fence would be a black PVC coated chain-link fence with black pre-painted galvanised sheeting to make the fence less visually prominent.

## Monitoring and maintenance

Two submissions addressed maintenance of the fence and monitoring to date. Seven submissions addressed post construction monitoring. These submissions raised queries as to how often the monitoring cameras are being checked, and whether Transport would continue to monitor the effectiveness and condition of the fence and maintain it, if required.

Wildlife cameras have been deployed in various locations around Heathcote Road and Deadmans Creek since 2021. These are typically checked at one to two-month intervals. Cameras have been moved around a few times to ensure they are capturing the most valuable data.

Transport would continue to monitor aspects of the proposal following the completion of construction, including vehicle strike and species utilising the underpasses. Transport responds to identified issues with an adaptive approach, as required. Maintenance of the proposal would be undertaken by Transport's maintenance contractors. Transport would appropriately budget for long-term maintenance of this proposal.

## Opposition

Two submissions were in opposition to the proposal. One submission was in opposition to the proposal based on the proposal cost, visual impact, impacts on other fauna and koala grid. The other submission is in opposition based largely on visual impacts.

The proposal would effectively reduce koala vehicle strike along Heathcote Road, reduce the barrier effects of Heathcote Road and enhance regional connectivity for fauna movement by promoting safe passage of animals under the road.

Changes have been made to the proposal since the exhibition of the REF which would reduce the visual impacts of the fence, particularly around St George Crescent.

## Out of scope

Ten submissions made requests for the proposal to include additional fauna crossings. The crossing under Deadmans Creek bridge is expected to be effective in facilitating fauna movement across Heathcote Road. Retrofitting a fauna overpass over Heathcote Road would not result in positive biodiversity outcomes due to the amount of additional vegetation clearing involved.

Nine submissions requested broader strategies for koala vehicle strike mitigation, generally in other areas of Sydney, while seven submissions requested further information regarding Transport's strategy to protect koalas in Southern Sydney. Transport, in partnership with NSW DCCEEW, is looking at ways to reduce the impact of the existing NSW state road network on koalas as part of the NSW Koala Strategy. The proposal is one of these initiatives. These works are in addition to several other koala protection projects across southwest Sydney and actions undertaken for new infrastructure development projects across other parts of the state.

Ten submissions called for additional koala protection measures, which included general requests for more measures to be used to protect koalas in addition to a request for specific measures such as a reduction in speed limit, increased signage, speed cameras, warning lights and increased lighting on Heathcote Road. Feedback about speed limits and speed signs in NSW may be lodged online via the NSW Centre for Road Safety website https://www.transport.nsw.gov.au/roadsafety. The proposal does not include a reduction of the speed limit. Other additional measures including signage, flashing lights and increased lighting are not proposed as the proposal is expected to adequately address this koala vehicle strike hotspot. Construction is expected to overlap with the koala breeding season. The construction contractor would deploy Variable

Message Signs (VMS) during the breeding season in consultation with Transport to warn drivers of potential koala activity. Locations and messaging of VMS would be assessed and confirmed prior to deployment during the breeding season. It is expected that VMS would not be required at this location once construction of the proposal has been completed.

One submission raised concerns regarding illegal dumping and littering. Preparation works for the proposal would include the removal of illegally dumped items in the proposal area. Both Liverpool and Sutherland Shire Councils have implemented measures to manage illegal dumping in their areas.

Ten submissions made comments about koala protection on other projects, including near the Woronora River, Appin Road, Picton Road and in Lucas Heights. These are beyond the scope of the current proposal.

Two submissions suggested the implementation of a walking track along the fence, within the clearing boundary. A formal walking track is not part of the proposal scope. The proposal is aiming to minimise the amount of vegetation clearing required. Where possible, a minimum of one metre clearance would be maintained along the fence.

## Changes to the proposal

Transport for NSW is proposing the following changes to the proposal:

- Changes to the fence alignment to the north and south of St George Crescent to reduce vegetation clearing and visual impacts.
- The installation of additional fauna access pipes in the Defence fencing. These would not have any additional environmental impacts.
- Potential modification of the three existing fauna access pipes to make them easier for fauna to pass through. This would not have any additional environmental impacts.

## Next steps

Transport, as the determining authority, would consider the information in the REF and this Submissions Report and make a decision whether or not to proceed with the proposal.

Transport would inform the community and stakeholders of this decision and, where a decision is made to proceed, would continue to consult with the community and stakeholders prior to and during the construction phase.

# Table of contents

# Tables



# Figures



# Appendices

# 1. Introduction and background

## 1.1 The proposal

Transport for NSW (Transport) is delivering two stages of works which aim to prevent koalas accessing this road section where they are susceptible to vehicle strike, and to guide them towards safe crossing points under the road. Stage 1 was completed in 2023 and comprised of construction of a raised ledge attached to the northern abutment of Deadmans Creek bridge and a concrete pathway along the southern abutment. The Stage 1 works and the two existing culverts north of the bridge facilitate safe fauna crossing under Heathcote Road. It is noted that the eastern end of the twin 950mm pipe culverts north of the bridge is currently inundated and therefore, fauna crossing through these culverts is unlikely unless conditions change.

Transport now proposes to deliver Stage 2 (the overall proposal), which would involve the construction of koala fencing along both sides of Heathcote Road, from 50 metres south of St George Crescent in Menai to Pleasure Point Road in Pleasure Point (refer to Chapter 3 of the REF). Together with existing Department of Defence (Defence) fencing along the boundary of Holsworthy Barracks military base and existing rock cuttings, this koala fencing would form a continuous barrier to koalas attempting to access and cross Heathcote Road. Fencing would instead direct koalas to the safe crossing locations.

The proposal is located about 24 kilometres south-west of the Sydney Central Business District (CBD) and about 8.5 kilometres south-east of the Liverpool CBD. The proposal falls within both the Liverpool City and Sutherland Shire local government areas. The location of the proposal is shown in Figure 1-1.

The key features of the proposal include:

- About 1,153 metres of new koala fencing that is 1.5 metres high, with galvanised steel sheeting along the top, comprising of:
  - About 360 metres of continuous fencing on the eastern side of Heathcote Road, between existing Defence fencing to the north and Deadmans Creek Bridge to the south.
  - About 350 metres of fencing on the eastern side of Heathcote Road, south of Deadmans Creek Bridge. This fencing would be installed in three sections to tie into existing rock slopes and St George Crescent, to create a continuous barrier to Heathcote Road.
  - About 143 metres on the western side of Heathcote Road north of Deadmans Creek Bridge to direct fauna to cross under the road via two existing culverts and Deadmans Creek Bridge, and into the fauna access pipes installed in the Defence fencing.
  - About 300 metres on the western side of Heathcote Road, south of Deadmans Creek Bridge.
- A koala grid with a pedestrian gate across St George Crescent about 80 metres from the intersection with Heathcote Road, which aims to prevent koalas from accessing Heathcote Road.
- About six fauna escape structures, located near fence ends or other potentially accessible locations, to allow any koalas or other fauna to move from within the road corridor to habitat on the other side of the koala fence.
- Up to three metres of selective vegetation clearing on either side of koala fencing, including:
  - Trimming of overhanging trunks or branches (that may otherwise allow koalas to climb over the fence into the road corridor).
  - Removal of vegetation on existing rock slopes along the proposed fence alignment to deter animals from using the slopes to access the road.
- Fauna access improvements around Deadmans Creek Bridge including:
  - Koala refuge poles to offer refuge from predators where trees are absent.
  - Surface treatments (shotcrete/concrete) in drains around existing fauna crossing structures under Deadmans Creek bridge to assist fauna movements.
- Gates in the fencing for emergency and maintenance access.

Key features of the proposal are shown in Figure 1-2.


Figure 1-1: Location of the REF proposal area

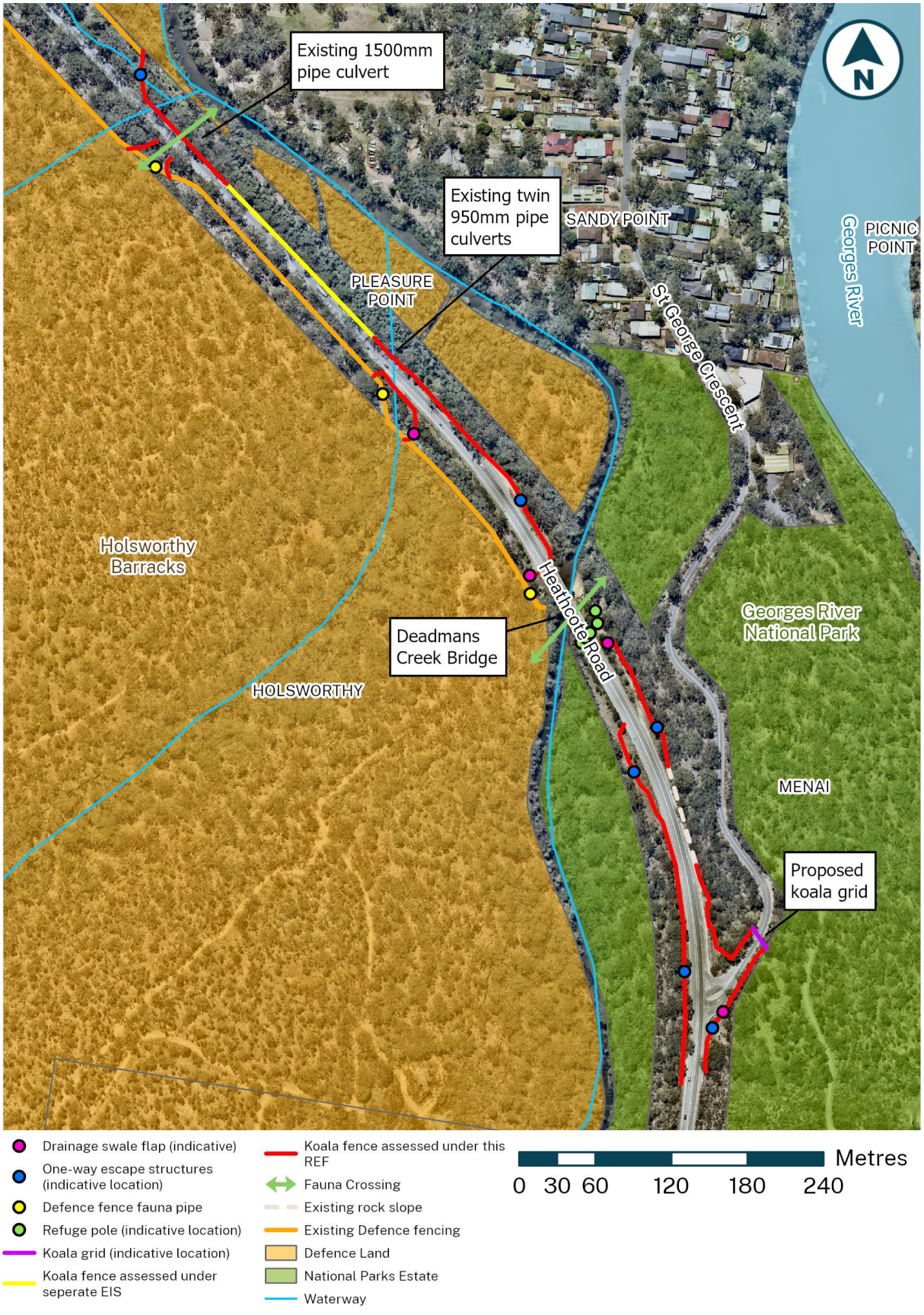



Figure 1-2: Key features of the proposal

A more detailed description of the proposal is found in the Koala Protection on Heathcote Road at Deadmans Creek Review of Environmental Factors (REF) prepared by Transport in November 2024.

## 1.2 REF display

Transport prepared a review of environmental factors (REF) to assess the potential environmental impacts of the proposed works. The REF was publically displayed for 19 days online between Monday 25 November 2024 and Friday 13 December 2024. The REF was placed on the Transport for NSW project website at https://www.transport.nsw.gov.au/projects/current-projects/koala-protection-on-heathcote-road-around-deadmans-creek and made available for download.

A printed copy was made available at the Liverpool City Council CBD Customer Service Hub, Yellamundie, Lower Ground Floor, 52 Scott Street, Liverpool NSW 2170.

A staffed display was held at Sandy Point Community Centre, 200 St George Crescent, Sandy Point NSW 2172 on Saturday 7 December 2024 between 11.00am – 1.30pm. This was advertised by a community notification delivered to just under 10,000 neighbouring properties to the proposal; Facebook posts; advertisements in the St George and Sutherland Shire Leader and published on the Transport for NSW Heathcote Road Koala Protection webpage.

There were 95 submissions relating to the proposal and the REF received by Transport. This submissions report summarises the issues raised and provides responses to each issue (Section 2).

Three changes to proposal described in the REF are proposed. These changes are described and assessed in Section 3.

## 1.3 Purpose of this report

This Submissions Report relates to the REF prepared for the Koala Protection on Heathcote Road at Deadmans Creek proposal and should be read in conjunction with that document.

The REF was placed on public display online and submissions relating to the proposal and the REF were received by Transport. This Submissions Report summarises the issues raised and provides responses to each issue (Section 2). It also describes and assesses the proposed changes to the proposal shown in the REF (Section 3).

Minor revisions and additions have been made to the environmental management measures as described in the REF (Section 4) to reflect policy and guideline updates.

# 2. Response to issues

Transport received 95 submissions. Table 2-1 lists the respondents and each respondent's allocated submission number. The table also indicates where the issues from each submission have been addressed in Section 2 of this report.

Table 2-1: Respondents

| Respondent | Submission No. | Section number where issues are addressed |
|---|---|---|
| Individual | 1 | 2.4, 2.11.2 |
| Individual | 2 | 2.4, 2.11.2 |
| Individual | 3 | 2.11.5 |
| Individual | 4 | 2.2.1 |
| Individual | 5 | 2.11.5 |
| Individual | 6 | 2.2.1 |
| Individual | 7 | 2.11.3 |
| Individual | 8 | 2.4 |
| Individual | 9 | 2.2.1 |
| Individual | 10 | 2.2.1, 2.4 |
| Individual | 11 | 2.2.1, 2.3.1 |
| Individual | 12 | 2.2.1 |
| Individual | 13 | 2.2.1 |
| Individual | 14 | 2.11.1 |
| Individual | 15 | 2.11.3 |
| Individual | 16 | 2.3.1 |
| Individual | 17 | 2.2.1, 2.3.6, 2.4, 2.11.5 |
| Individual | 18 | 2.11.1 |
| Individual | 19 | |
| Individual | 20 | 2.2.1 |
| Individual | 21 | 2.2.1 |
| Individual | 22 | 2.2.1 |
| Individual | 23 | 2.2.1 |
| Individual | 24 | 2.11.1 |
| Individual | 25 | 2.2.1 |
| Individual | 26 | 2.11.1 |
| Individual | 27 | 2.3.1 |
| Individual | 28 | 2.2.1 |
| Individual | 29 | 2.3.3, 2.3.5, 2.7.2 |
| Individual | 30 | 2.2.1 |

| Respondent | Submission No. | Section number where issues are addressed |
|---|---|---|
| Individual | 31 | 2.3.3 |
| Individual | 32 | 2.2.1 |
| Individual | 33 | 2.2.1 |
| Individual | 34 | 2.11.3 |
| Individual | 35 | 2.2.1 |
| Oatley Flora and Fauna Conservation Society | 36 | 2.4, 2.11.2 |
| Individual | 37 | 2.4, 2.11.2 |
| Individual | 38 | 2.4, 2.11.2 |
| Individual | 39 | 2.2.1 |
| Individual | 40 | 2.4, 2.11.2 |
| Individual | 41 | 2.4, 2.11.2 |
| Individual | 42 | 2.4 |
| Individual | 43 | 2.4 |
| Individual | 44 | 2.2.1 |
| Individual | 45 | 2.2.1 |
| Individual | 46 | 2.2.1 |
| Individual | 47 | 2.2.1, 2.5, 2.11.1, 2.11.3 |
| Individual | 48 | 2.2.1 |
| Individual | 49 | 2.2.1, 2.7.2 |
| Individual | 50 | 2.2.1 |
| Individual | 51 | 2.2.1, 2.11.1, 2.11.2 |
| Individual | 52 | 2.2.1 |
| Individual | 53 | 2.2.1, 2.3.6 |
| Individual | 54 | 2.4 |
| Individual | 55 | 2.4, 2.11.3 |
| Individual | 56 | 2.2.1 |
| Individual | 57 | 2.6 |
| Individual | 58 | 2.11.1 |
| Individual | 59 | 2.11.3 |
| Individual | 60 | 2.2.1, 2.11.1, 2.11.3 |
| Individual | 61 | 2.4, 2.11.3 |
| Individual | 62 | 2.2.1 |
| Individual | 63 | 2.2.1 |
| Individual | 64 | 2.2.2, 2.3.7, 2.7.1, 0, 2.10 |
| Individual | 65 | 2.2.1 |

| Respondent | Submission No. | Section number where issues are addressed |
|---|---|---|
| Individual | 66 | 2.2.1, 2.11.6 |
| Individual | 67 | 2.3.3, 2.6, 2.7.1 |
| Individual | 68 | 2.2.1 |
| Individual | 69 | 2.5 |
| Individual | 70 | 2.2.1 |
| Individual | 71 | 0 |
| Individual | 72 | 2.10, 2.11.4 |
| Individual | 73 | 2.4, 2.11.5 |
| Individual | 74 | 2.3.6, 0 |
| Individual | 75 | 2.2.1 |
| Individual | 76 | 2.2.1 |
| Individual | 77 | 2.2.1, 0, 2.11.6 |
| Individual | 78 | 2.2.1, 2.6 |
| Individual | 79 | 2.2.1, 0 |
| Sydney Basin Koala Network | 80 | 2.3.2, 2.3.3, 2.3.4, 2.3.6, 2.5, 2.7.1, 2.9.2, 2.11.5 |
| Individual | 81 | 2.2.1 |
| Individual | 82 | 2.4, 2.6, 2.11.1, 2.11.2 |
| Individual | 83 | 2.2.1, 2.3.6, 2.4, 2.5, 2.6 |
| Individual | 84 | 2.2.1 |
| Individual | 85 | 2.3.2, 2.3.3, 2.3.4, 2.3.6, 2.5, 2.7.1, 2.9.2, 2.11.5 |
| Individual | 86 | 2.5, 2.7.1, 2.11.1, 2.11.5 |
| Individual | 87 | 2.3.2, 2.3.3, 2.3.4, 2.3.6, 2.5, 2.7.1, 2.9.2, 2.11.5 |
| Individual | 88 | 2.3.2, 2.3.3, 2.3.4, 2.3.6, 2.5, 2.7.1, 2.9.2, 2.11.5 |
| Individual | 89 | 2.4, 2.7.2, 2.11.3 |
| Individual | 90 | 2.3.2, 2.3.3, 2.3.4, 2.3.6, 2.5, 2.6, 2.7.1, 2.9.2, 2.11.5 |
| National Parks Association of NSW | 91 | 2.3.3, 2.7.2, 2.7.3, 2.9.1, 2.9.2, 2.9.3 |
| Liverpool City Council | 92 | 2.1.1 |
| Sutherland Shire Council | 93 | 2.1.1 |
| National Parks Wildlife Service (NPWS) | 94 | 2.1.1 |
| Sutherland Shire Environment Centre | 95 | 2.3.3, 2.3.4, 2.7.1, 2.7.2, 2.7.3, 2.9.1, 2.9.2, 2.9.3 |

## 2.1 Overview of issues raised

A total of 95 submissions were received in response to the display of the REF. This included submissions from:

- 88 individuals
- Four community groups:
  - Oatley Flora and Fauna Conservation Society (36)
  - Sydney Basin Koala Network (80)
  - National Parks Association of NSW (91),
  - Sutherland Shire Environment Centre (95)
- Three government agencies:
  - Liverpool City Council (92)
  - Sutherland Shire Council (93)
  - National Parks and Wildlife Service (94)

Each submission has been examined individually to understand the issues being raised. The issues raised in each submission have been extracted and collated, and corresponding responses to the issues have been provided. Where similar issues have been raised in different submissions, only one response has been provided. The issues raised, and Transport responses to these issues, form the basis of this chapter.

A majority of submissions were in support of the proposal. Several submissions expressed frustration with the length of time it has taken for the planning stage of the koala fence. Many submissions expressed concern about one or more elements of the proposal, without opposing the entire proposal.

### 2.1.1 Government agency submissions

The proposal is located within the Liverpool City Council and Sutherland Shire Council local government areas, and adjacent to Georges River National Park. Government agency submissions were received from Liverpool City Council, Sutherland Shire Council and the National Parks and Wildlife Service. The submissions and responses are summarised in Table 2-2.

**Table 2-2: Government agency submissions**

| Issue | Response |
|---|---|
| **Liverpool City Council (92)** | |
| Monitor the site during pre-installation, installation and post-installation to assess any unintended impacts on biodiversity, identify enhancements and ensure compliance with environmental standards. Changes should be made in response to monitoring results. | Monitoring and maintenance is addressed in Section 2.9. |
| Mitigation measure B2 should be amended to include an on-site ecologist during the installation, as included in the mitigation measures listed in the appended Biodiversity Assessment Report. | Construction would be undertaken in accordance with Transport's *Biodiversity Management Guideline* (2024). An ecologist would be on-site to undertake a pre-clearing survey and pre-clearing checks in accordance with the Guideline and REF safeguard B4. Ecologist supervision during installation of the proposal elements, including posts and chain mesh, is not considered necessary. A procedure for unexpected threatened species finds and fauna handling (REF safeguards B6 and B10) would be developed before construction commencement, requiring the advice of an ecologist to manage any unexpected threatened species finds or fauna encounters. |

| Issue | Response |
|---|---|
| Some of the mitigation measures included in the Biodiversity Assessment Report (BAR) have not been included in the REF. These inconsistencies should be reviewed. | Mitigation measures in the BAR have been included in the amended mitigation measures table in Section 4.2. |
| Progressive restoration of work areas should occur. | Work areas would be progressively restored. |
| Details of maintenance and long term management should be provided to ensure the integrity and effectiveness of the fence and other measures. | Monitoring and maintenance is addressed in Section 2.9. |
| **Sutherland Shire Council (93)** | |
| Scheduling of works should consider koala movement patterns to as to minimise koala deaths during the construction period. | Installation of barriers to koala movement i.e. the fence chainmesh would be staged to reduce the risk of trapping koalas within the road corridor during construction and increasing the risk of koala vehicle strike. |
| Use of secondary culverts for fauna movement should be investigated. | No improvements to the suitability of secondary culverts are proposed as the bridge underpass would remain the primary crossing point under Heathcote Road. Further, Transport has recorded koalas and a range of other native species with motion-sensor cameras using the existing 1500 millimetre pipe culvert around 500 metres north of the bridge to cross under Heathcote Road. Section 2.3.3 discusses the effectiveness of existing crossings in more detail. |
| Removed tree trunks and hollows should be reused in suitable areas within the immediate area to increase habitat. | Habitat would be replaced or re-instated (REF safeguard B11) in accordance with Guide 5: Re-use of woody debris and bushrock and Guide 8: Artificial hollows of the Biodiversity Management Guideline: Protecting and managing biodiversity on Transport for NSW projects (Transport for NSW, 2024). |
| Clearly communicate that the fence is a Transport responsibility and consider providing ways the public can report damage to the fence. | Transport would communicate to the community and note that Transport is responsible for the maintenance for the fence. Damage to Transport assets including the fence may be reported online or via phone. More information can be found at https://www.transport.nsw.gov.au/about-us/contact-us. |
| Clarify how many Variable Message Signs (VMS) that have been deployed and who deployed them. VMS should be in place during the breeding season with a clear plan for their locations, placement duration and funding. | Construction is expected to overlap with the koala breeding season. The construction contractor would deploy Variable Message Signs (VMS) during the breeding season in consultation with Transport to warn drivers of potential koala activity.<br><br>Sutherland Shire Council's feedback on the locations and messaging included on the VMS is welcomed. Locations and messaging of VMS would be discussed and confirmed prior to deployment during the breeding season.<br><br>It is expected that VMS would not be required at this location once construction of the proposal has been completed. |
| Consider previous discussions with Council's Emergency Management Team regarding barrier separations, access to/from Heathcote Road, | Issues raised in previous Transport discussions with Council's Emergency Management Team have been considered and were not found to be relevant to this |

| Issue | Response |
|---|---|
| firefighting / hazard reduction, emergency responses times, Defence requirements and police enforcement. | proposal and as such, have not been addressed further. |
| **National Parks and Wildlife Service (94)** | |
| Consider 'Developments adjacent to National Parks and Wildlife Service lands' Guidelines. | Appendix D of the REF assesses the proposal against the 'Developments adjacent to NPWS lands' Guidelines. |
| Implement hygiene protocols to prevent the spread of pathogens which could harm flora and fauna. | REF mitigation measure B8 states that Pathogens will be managed in accordance with Guide 2: Exclusion zones of the Biodiversity Management Guideline: Protecting and managing biodiversity on Transport for NSW project (Transport for NSW, 2024). |
| Notify NPWS of the works. | Transport would notify NPWS of the works. |
| Access to NPWS reserve fire trail gates should be maintained. | Access to NPWS reserve fire trail gates would be maintained.<br><br>One gate is located near the proposal footprint on St George Crescent. Access along St George Crescent would be maintained throughout construction. As such, access to this gate would be maintained. |
| Liaise closely with the nominated NPWS contact for the project during works. | Transport would liaise with the nominated NPWS contact during construction. |
| Consider a speed reduction on Heathcote Road focusing on those areas with the most koala strikes. | Consideration of a speed reduction on Heathcote Road is addressed in Section 2.11.3. |
| Consider koala-specific speed detection signage, 'Koala Zone' signs and speed cameras. | Additional koala protection measures such as signage and changes to Heathcote Road are addressed in Section 2.11.3. |
| There needs to be a regular maintenance regime and a process for reporting fencing damage and areas requiring maintenance. | Monitoring and maintenance is addressed in Section 2.9. |
| Consider trailer-mounted VMS signage that can be deployed and moved to strategic locations along Heathcote Road during koala breeding season. | Construction is expected to overlap with the koala breeding season. The construction contractor would deploy VMS during the breeding season in consultation with Transport to warn drivers of potential koala activity.<br><br>NPWS's feedback on the locations and messaging included on the VMS is welcomed. Locations and messaging of VMS would be discussed and confirmed prior to deployment during the breeding season. |
| Request for a pre-works meeting. | NPWS would be invited to attend an environmental risk assessment workshop onsite with our construction contractor prior to construction commencement. |
| Offer NPWS any available weed-free Eucalyptus mulch or tree trunks for re-use in Heathcote or Georges River National Parks for site remediation projects. | Any excess weed-free eucalyptus mulch or tree trunks produced during construction would be offered to NPWS. |

| Issue | Response |
|---|---|
| Koala fencing and fauna protection measures need to be accommodated in any future widening design. | Transport is currently working on plans to improve the Heathcote Road corridor, which would include investigating options for koala connectivity and vehicle strike mitigation along the rest of the corridor. |
| Consider planting Koala feed trees in nearby sections of Georges River National Park and Gandangara Aboriginal lands off Heathcote Road. | Transport would investigate opportunities for replanting as part of the Tree and Hollow Replacement Plan in consultation with NPWS. |
| Impacted hollow bearing trees need to be checked by an ecologist prior to removal. NPWS should be consulted regarding fauna relocation. | Mitigation Measure B4 states that pre-clearing surveys and final pre-clearing checks will be undertaken in accordance with Guide 1: Pre-clearing process of the Biodiversity Management Guideline: Protecting and managing biodiversity on Transport for NSW projects (Transport 2024). An ecologist would be present on site for pre-clearing surveys and pre-clearing checks. |
| Where hollow bearing trees are removed alternative hollows / habitat should be provided. | As stated in Section 6.1 of the REF, up to four tree hollows may be removed during construction. Transport will investigate replacing removed hollows with artificial hollows during construction in accordance with Transport's *Biodiversity Policy*. If replacement hollows are not installed, payment would instead be made into Transport's Conservation Fund. |
| Support for presence of ecologist on site during works. | Construction would be undertaken in accordance with Transport's *Biodiversity Management Guideline* (Transport for NSW, 2024). An ecologist would be on-site to undertake pre-clearing survey and pre-clearing checks in accordance with the Guideline and REF safeguard B4. Ecologist supervision during installation of the proposal elements, including posts and chain mesh, is not considered necessary. A procedure for unexpected threatened species finds and fauna handling (REF safeguards B6 and B10) would be developed before construction commencement, requiring the advice of an ecologist to manage any unexpected threatened species finds or fauna encounters. |
| If impacted, bush rock should be retained on site and relocated adjacent to the fence alignment. | Mitigation measure B11 states that habitat will be replaced or re-instated in accordance with Guide 5: Re-use of woody debris and bushrock, and Guide 8: Artificial hollows of the Biodiversity Management Guideline: Protecting and managing biodiversity on Transport for NSW projects (Transport for NSW, 2024). |
| Request for copy of Tree and Hollow Replacement Plan. | A Tree and Hollow Replacement Plan would be prepared in accordance with the Tree and hollow replacement guidelines (Transport for NSW, 2024) if tree replanting or installation of replacement hollows is undertaken for the proposal. If the proposal only pays into the Transport Conservation Fund, a Tree and Hollow Replacement Plan would not be prepared.<br><br>A copy of the Tree and Hollow Replacement Plan would be provided to NPWS if it is prepared. |

### 2.1.2 Community group submissions

An overview of the issues raised in community group submissions is provided below while the sections providing detailed responses to each community group submission are listed in Table 2-3.

Table 2-3: Community group submissions

| Respondent | Submission No. | Section number where issues are addressed |
|---|---|---|
| Oatley Flora and Fauna Conservation Society | 36 | 2.4, 2.11.2 |
| Sydney Basin Koala Network | 80 | 2.3.2, 2.3.3, 2.3.4, 2.3.6, 2.5, 2.7.1, 2.9.2, 2.11.5 |
| National Parks Association of NSW | 91 | 2.3.3, 2.7.2, 2.7.3, 2.9.1, 2.9.2, 2.9.3 |
| Sutherland Shire Environment Centre | 95 | 2.3.3, 2.3.4, 2.7.1, 2.7.2, 2.7.3, 2.9.1, 2.9.2, 2.9.3 |

**Oatley Flora and Fauna Conservation Society**

The Oatley Flora and Fauna Conservation Society submission is identified as submission 36 in Table 2-1. Submissions 1, 2, 37, 38, 40, and 41 raise very similar issues to this submission. The submission is generally supportive however expresses frustration with the amount of time which has been taken in the planning process. The submission draws attention to other areas of Southern Sydney in which vehicle strikes have occurred and requests a summary of Transport's intentions to treat the Southern Sydney Koalas in the best possible way to conserve the population in perpetuity.

**Sydney Basin Koala Network**

The Sydney Basin Koala Network submission is identified as submission 80 in Table 2-1. The submission is generally concerned with the effectiveness of the proposal and ongoing issues of wildlife connectivity. The submission raises the following points:

- Concerns that the fauna crossings are not suitable for use by koalas.
- Concern that the fauna access pipes and crossings are not suitable or intuitive for koalas.
- Concerns that the extent of proposed fencing would not effectively manage koala strikes further along Heathcote Road or would move the hotspot.
- Concern that there is a lack of baseline or control data to measure the effectiveness of the proposal.
- Concern that the proposal does not consider changes in koala movement into the future, including movement from east to west.
- Concern that the current and future upgrade works on Heathcote Road at Holsworthy, and works on Picton Road, do not provide koala protection measures.
- Concern that construction safeguards for roadworks on Heathcote Road are not adequate to protect koalas.

**National Parks Association of NSW**

The National Parks Association of NSW submission is identified as submission 91 in Table 2-1. The submission is supportive of the proposal and encourages any fast tracking of the proposal. The submission raises the following points:

- support for avoiding any unnecessary vegetation clearing.
- support for ongoing maintenance and monitoring of the fence.
- support for any investigations into the installation of a softened surface on latite stone deposits under the bridge to prevent harm to the soles of dispersing animals.
- query as to whether foxes or predation have been observed on cameras.
- support for more biodiversity surveys.

**Sutherland Shire Environment Centre**

The Sutherland Shire Environment Centre submission is identified as submission 95 in Table 2-1. The submission raises the following points:

- Concern that the Fibre Reinforced Plastic (FRP) walkway is not suitable for koalas.
- Suggestion that small timber walkways are installed above the rip rap to make it more suitable for koalas.
- Concern that the fauna access pipes are not suitable for echidnas and that the ground level should be raised or fauna access pipes are different heights should be implemented.
- Recommendation for additional fauna access pipes.
- Suggestion that fencing may be required to guide fauna from the Defence lands through the fauna access pipes.
- Endorsement of the National Parks Association of NSW submission.

### 2.1.3 Individual submissions

Transport received 88 individual submissions from individual members of the community. The main points raised in submissions from individuals include:

- General support for the proposal and recommendations that the proposal be implemented as soon as possible.
- Concern that the proposal is not extensive enough to adequately protect koalas.
- Concerns about the number and efficacy of fauna crossings.
- Concerns about how the proposal considers other fauna including wombats, echidnas and wallabies.
- Concerns about the visual impacts of the fencing.
- Requests for information on Transport's plan to conserve koala populations in Southern Sydney.
- Out of scope concerns about koala protection measures at other locations.

## 2.2 Issue 1: Proposal need

### 2.2.1 Agreement with need for proposal

**Submission numbers**

4, 6, 9, 10, 11, 12, 13, 17, 20, 21, 22, 23, 25, 28, 30, 32, 33, 35, 39, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 56, 60, 62, 63, 65, 66, 68, 70, 75, 76, 77, 78, 79, 81, 83, 84.

**Issue description**

Agreement with the need for the proposal. These submissions generally agree that there is an urgent and serious need to mitigate koala vehicle strikes along Heathcote Road. Several submissions included anecdotal evidence of seeing and / or helping koalas who have been subject to vehicle strikes within the proposal area.

**Response**

Noted by Transport.

### 2.2.2 Proposal justification

**Submission numbers**

64

**Issue description**

The number of koala vehicle strikes within the proposal area (averaging two strikes per year since 2016) do not justify the cost of the proposal.

**Response**

The koala is listed as an endangered species under both the *Biodiversity Conservation Act 2016* (BC Act) and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). In NSW, vehicle strike is regarded as a key threat to koalas and is one of the most frequently reported causes of injury and death for koalas brought into care by wildlife rehabilitation groups. Between 2011 and 2021, at least 249 koalas were struck by vehicles across the Sydney region). One of the four pillars of the NSW Koala Strategy 2021-26 includes actions and targets for addressing vehicle hotspots.

BioNet species sighting data shows a cluster of koala vehicle strike records on Heathcote Road near Deadmans Creek. As of March 2025, all but one of the 17 vehicle strike records around Deadmans Creek are located along an approximate 625 metre section of Heathcote Road, which includes Deadmans Creek Bridge. This includes as low as zero to one record per year and up to six records per year in both 2022 and 2023. Notably there are only two records along this stretch before 2018. This data suggest koala vehicle strike at this location is increasing in prevalence. Monitoring undertaken by Transport shows consistent koala activity in the roadside habitat. The proposal focuses on this section of Heathcote Road as it is a koala vehicle strike hotspot and therefore meeting a key conservation target of the NSW Koala Strategy.

## 2.3 Issue 2: Proposal scope

### 2.3.1 Measures for other fauna

**Submission numbers**

11, 16, 27.

**Issue description**

- Measures for the protection and connectivity of other native fauna should be considered during road planning and design.

**Response**

The proposal, including fauna access pipes and existing crossings, would be suitable for use by a range of native fauna species, with wallabies being the largest species observed using the fauna access pipes (refer to Section 2.3.4).

### 2.3.2 Construction safeguards

**Submission numbers**

80, 85, 87, 88, 90.

**Issue description**

Wildlife protection needs to be considered during construction including opportunities to create and/or maintain habitat connectivity and to minimise ongoing vehicle strikes and wildlife injury during construction.

**Response**

During construction, measures would be implemented to avoid creating or increasing risk of koala road strike including placement of variable message signs during breeding season, staging fencing construction to reduce likelihood of increased vehicle strike (reflecting existing barriers and likely primary koala movements) and implementation of best practice measures in accordance with the Biodiversity Management Guideline (Transport for NSW, 2024).

### 2.3.3 Effectiveness of existing fauna crossings

**Submission numbers**

29, 31, 67, 80, 85, 87, 88, 90, 91, 95.

**Issue description**

- Koalas have not been recorded crossing beneath the bridge and the large and uneven rock under the bridge is not ideal for fauna movement.
- Use of floating bridges and smaller rocks may not sufficiently address unsuitability of rock under the bridge.
- Consider a softened surface for rock under the bridge to support use by fauna and prevent injury.
- Consider provision of small timber walkways as a koala friendly surface over the rock under the bridge.
- There is inadequate evidence of koalas using the FRP walkway. A live test should be conducted, and a koala friendly surface should be placed above the existing walkway if required.
- The 950mm pipe culvert cannot be considered a crossing because it is too small and is often full of water. The effectiveness of the 1500mm pipe culvert as a crossing is unclear given the lack of baseline data.
- Queries about the provision, location and definition of safe fauna crossing points.
- Recommendation that fauna crossings are provided rather than fencing to avoid impacts on koalas.

**Response**

The proposal includes the measures to improve Deadmans Creek Bridge as a fauna crossing. Koalas have not yet been observed on camera using the existing bridge as an underpass, which is likely reflective of access constraints (i.e. limited fauna access pipes in the Defence fence and unsuitable rock surfaces around the bridge), the lack of fauna fencing and the difficulty monitoring all areas under the bridge. Monitoring has detected crossings under the bridge by a range of other species and koalas have been recorded in habitat adjacent to the bridge.

Transport recognises that the rocks for scour protection currently around the new ledge and pathway under the Deadmans Creek bridge are not ideal for koalas to traverse, and the proposal includes installation of ground treatments to improve access. Ground treatments would be a combination of timber log structures, timber post

and rail structures and smaller rock/gravel to create a more favourable surfaces for koalas and improve access to the FRP ledge and concrete path. Transport has recorded koalas using similar treatments on other projects across NSW.

Transport strives to continually improve its approach to wildlife connectivity mitigation. Historically, Transport has found that timber decays quickly when exposed to water and the brackish environment in and around Deadmans Creek is prone to flooding. Use of the FRP material is a new approach aiming to improve the structure's longevity. When considering the new design, Transport consulted with the NSW Koala Strategy and several koala vets, who advised that koalas are unlikely to have issues walking across the FRP material as they tend to move along the ground without downward engagement of the claws. It is important to note that the FRP ledge is intended to provide alternative dry access when water levels cover the bank, as per the Options Report. When water levels are low, as they are most of the time, animals can travel along the ground. So far, all fauna recorded under the bridge have been walking along the bank. Transport would continue to monitor use of the ledge under Deadmans Creek Bridge after construction of the proposal is complete.

Transport have recorded koalas and a range of other native species with motion-sensor cameras using the existing 1500 millimetre pipe culvert around 500 metres north of the bridge to cross under Heathcote Road.

While less likely to be used due to the water pooled at the eastern outlet, the smaller 950 millimetre twin-cell pipe culvert around 300 metres north of the bridge has been included in the proposal as a potential fauna crossing location to safeguard this weak point in the Defence fence. This point of the fence traverses a Deadmans Creek tributary and is regularly damaged by water flows during large rain events. Inclusion of this twin-cell pipe culvert in the proposal would also facilitate fauna crossing at this location if conditions change in the future and the eastern outlet is no longer inundated.

Transport has over ten years of monitoring data demonstrating that pipe culverts and crossing structures underneath bridges are utilised by koalas to cross roads, however they must be paired with fencing to be effective. The proposed fencing is intended to prevent fauna from accessing the road and instead direct them to the fauna crossings. Transport would continue to monitor structure use and koala vehicle strike after the proposal is complete.

### 2.3.4 Effectiveness of fauna access pipes

**Submission numbers**

80, 85, 87, 88, 90, 95.

**Issue description**

- It may be difficult for koalas to navigate and find the locations of fauna access pipes in the Defence fence.
- There is a risk koalas may not use the fauna access pipes and instead continue to fence ends where they may end up on the road.
- Consider installing additional fauna access pipes in the Defence fencing to enhance fauna movement.
- Concern about the accessibility of the fauna access pipes for other fauna including echidnas. Consider raising the ground level at portal locations or installing fauna access pipes lower.
- Need for fencing to ensure fauna using fauna access pipes in the Defence fencing do not access the roadway.

**Response**

Monitoring cameras have recorded koalas, wallabies and goannas using the existing fauna access pipes to pass through the Defence fence. As an addition to the proposal, Transport proposes to install additional fauna access pipes in the Defence fence at the bridge and 1500mm pipe culvert to increase access opportunities. This would include a selection of fauna access pipes closer to the ground and suitable for a wider range of fauna species, including echidnas. Animals on the inside of the Defence fence that do continue past the fauna access pipes would still not be able to access the road.

The proposal includes fencing to direct fauna using the existing and proposed fauna access pipes towards fauna crossings and exclude them from the road.

### 2.3.5 Effectiveness of fauna escape structures

**Submission numbers**

29.

**Issue description**

- Query as to how koalas would be able to locate the one-way escape structures.

**Response**

While there is no way to direct animals to escape structures from within the road corridor, the proposed structures would be strategically located where animals may try to leave the corridor, such as where there is vegetation on the other side. Escape structures would also be installed periodically to maximise the chance they would be found and used by animals. Furthermore, animals will often follow a fence until they find a way through and increasing escape opportunities assists this process. As the structures would be located at the base of the fences, this further increases the chance of being located by animals.

However, a key objective of the design is to prevent animals from getting into the road corridor. These escape structures would enable animals to leave the fenced road corridor in the uncommon and inadvertent situation they become trapped (e.g. fence is felled by a falling tree).

### 2.3.6 Effectiveness of proposed fencing

**Submission numbers**

17, 53, 74, 80, 83, 85, 87, 88, 90.

**Issue description**

- Concern about fence end issues.
- Concern about koalas crossing in other locations where no fencing has been installed.
- Consider that koalas and other wildlife are dynamic and future circumstances may mean koalas need to move east to west more frequently.
- Concern about koalas climbing over the fence.
- Query about the effectiveness of the proposed measures.

**Response**

The proposal would result in fence ends at two locations, being St George Crescent and the transmission powerline easement to the south. Transport acknowledges the potential for fence ends to create a concentration of animals crossing the road if not managed (i.e. 'fence-end effect'). This was considered when designing the proposal. St George Crescent would be managed by a koala grid that aims to deter animals from entering the road corridor at the fence ends. A koala grid is not feasible for Heathcote Road, therefore the southern fence end location was chosen in consultation with koala specialists. Key justification for this location includes:

- It is outside the concentration of koala vehicle strike records suggesting lower koala activity in this location.
- It represents the first break in intact koala habitat, with an absence of habitat trees within the easement. The sand quarry on the eastern side is also a large gap in koala habitat.
- The fence ends would tie into the large/steep rock on both sides of the road, providing a natural barrier to animals walking around the fence end and onto the road.
- Heathcote Road at this location runs along the eastern boundary of a very large patch of habitat. Therefore, it is understood that dispersing koalas are most likely to be moving in a west to east direction in this location. The steep rocky escarpment along Deadmans Creek runs parallel with Heathcote Road along its western side, creating a significant barrier to movement from west to east south of the bridge.

This would substantially reduce the likelihood of koalas interacting with the fence end on the west side of the road.

- The easement near the road edge is steep and rocky with thick shrub undergrowth along the road edge which would limit koala movement. Koalas travelling along the Georges River corridor east of the road are considered more likely to utilise higher condition habitat around the riparian zone, than the easement or the 50-60 metre wide strip of vegetation on the northern edge of the sand quarry. Given this, koala activity to the immediate east of this section of Heathcote Road is likely to be lower than other areas.

As stated in Section 2.5, Transport has reinvestigated Option 4, to extend the koala fence further south towards the quarry, in response to submissions. However, Transport concluded that a combination of topographical constraints to fence construction, the additional koala habitat clearing required and less-ideal fence end options mean the existing design is still the preferred option. Transport would continue to monitor koala vehicle strike in this location after the proposal is complete.

Transport acknowledges that koala habitat is widespread along most of Heathcote Road, which traverses large areas of remnant bushland. While fencing is still the most effective method of addressing koala vehicle strike, it is not appropriate in all circumstances and can have impacts on connectivity and gene flow. It is not possible to retrofit fauna fencing along the entire Heathcote Road corridor, however, plans to upgrade Heathcote Road would include investigating options for koala connectivity design. Therefore, this proposal seeks to immediately address the existing hotspot at Deadmans Creek. Koalas would continue to cross Heathcote Road in other areas. Transport would continue to work with the NSW Koala Strategy to monitor vehicle strike data throughout the south-west Sydney area and develop strategies for mitigation on existing roads as required.

The proposed fence includes a smooth metal panel to stop koalas being able to climb the fence. In consultation with Defence, metal panels have also been retrofitted to sections of the Defence fencing within this vehicle strike hotspot.

Together with existing Defence fencing along the boundary of Holsworthy Barracks military base and existing rock cuttings, the proposed koala fencing would form a continuous barrier along both sides of Heathcote Road from Pleasure Point Road, Pleasure Point to the powerline easement south of St George Crescent. Fencing would also direct koalas to the safe crossing locations.

The proposed fence design is a product of Transport's iterative design and installation of vehicle strike mitigation. There are more than 300 fauna connectivity structures on the Pacific Motorway between Newcastle and the Queensland border, and over 480 kilometres of fauna fencing tying into fauna underpass structures. The first koala fence project to be funded under the NSW Koala Strategy included a section of Picton Road. While Transport acknowledges issues with that particular fence, which have been learnt from, the fence has resulted in a substantial reduction in vehicle strike within fenced sections of Picton Road. The proposed fence design would be consistent with recent Transport koala fencing projects that use the ‘slippery top’ non-climbable sheeting to discourage climbing.

### 2.3.7 Koala grid

**Submission numbers**

64

**Issue description**

One submission notes that they do not want to drive over the koala grid on a daily basis.

**Response**

The proposed fence intersects with St George Crescent. Where it intersects, the fence must end on either side of St George Crescent to enable vehicles to travel along the road. If not managed, fence ends can become access points for animals that the get trapped in a fenced section of road. The proposed koala grid is currently the only design feature available to deter koalas and other animals from accessing the Heathcote Road corridor. Koala grids are a modified cattle grid, designed to support vehicular and cyclist traffic, with an adjacent pedestrian gate. The grid would have round bars, unlike a cattle grid, designed not to slow and shake vehicles but rather to create a difficult and undesirable surface for koalas to cross. The proposed grid would involve vehicles crossing no more than two metres of steel grid and would result in less driver discomfort than a typical cattle grid.

## 2.4 Issue 3: Proposal timing

**Submission numbers**

1, 2, 8, 10, 17, 36, 37, 38, 40, 41, 42, 43, 54, 55, 61, 73, 82, 83, 89.

**Issue description**

The proposal should be constructed as soon as possible. Koala vehicle strikes are an urgent matter and mitigation measures should not be delayed.

**Response**

Transport understands the need for koala protection measures to be provided as soon as possible. The provision of successful fauna protection measures does, however, require careful planning and design. The proposal is also subject to statutory environmental assessment and planning approval requirements which need to be addressed.

Subject to approval, construction is anticipated to begin in mid-2025 and would take about four months to construct, weather permitting.

## 2.5 Issue 4: Options considered

**Submission numbers**

47, 69, 80, 83, 85, 86, 87, 88, 90.

**Issue description**

- Query as to whether an extension of the fence towards Sandy Point Quarry would be considered in line with Option 4.
- Suggestion that the proposal should be extended towards Holsworthy Barracks.

**Response**

Transport considered the outcomes and recommendations in the options report (WSP, 2021) when developing the proposal to address the koala vehicle strike hotspot at Deadmans Creek. Transport biodiversity specialists have continued to monitor vehicle strike records along Heathcote Road since development of the 2021 options report, including recent records shared by NSW DCCEEW before they are in BioNet. As of March 2025, all but one of the 17 vehicle strike records around Deadmans Creek since 2018 are located along an approximate 625 metre section of Heathcote Road, which includes Deadmans Creek Bridge.

Key justification for the southern fence end location is described in Section 2.3.6 of this report. Option 4, as described in Section 2.4 of the REF, considered fencing to the sand quarry entrance, however this option resulted in greater environmental and community impacts than the preferred option. Transport has reinvestigated Option 4 in response to several submissions. However, Transport has concluded that a combination of topographical constraints to fence construction, the additional koala habitat clearing required (up to double that for the current proposal) and less-ideal fence end options mean the existing design is still considered the preferred option. Transport would continue to monitor koala vehicle strike in this location after the proposal is complete.

The proposed fencing ties into Department of Defence boundary fencing, that extends to the north capturing large areas of koala habitat and therefore preventing access to much of Heathcote Road towards the army barracks.

Transport acknowledges that koala habitat is widespread along most of Heathcote Road, which traverses large areas of remnant bushland. While fencing is still the most effective method of addressing koala vehicle strike, it is not appropriate in all circumstances and can have impacts on connectivity and gene flow. It is not possible to retrofit fauna fencing along the entire Heathcote Road corridor, however, plans to upgrade Heathcote Road would include investigating options for koala connectivity design. Therefore, this proposal seeks to immediately address the existing hotspot at Deadmans Creek and does not propose fencing up to Holsworthy Barracks.

Transport would continue to work with the NSW Koala Strategy to monitor vehicle strike data throughout the south-west Sydney area and develop strategies for mitigation on other existing roads as required.

## 2.6 Issue 5: Community and Stakeholder Engagement

**Submission numbers**

57, 67, 78, 82, 83, 90.

**Issue description**

- Direct engagement with the NSW Koala Strategy team and wildlife rescue organisations is required as a priority.
- Queries about level of consultation with wildlife protection groups.
- Query about the adequacy of community engagement for the proposal.

**Response**

This proposal has been developed through consultation with the NSW Koala Strategy. In 2021, through this consultation it was decided that Transport would plan and deliver the work, with funding provided by the NSW Koala Strategy.

Community groups were included in consultation as part of the option development process. Refer to Section 5.2 of the REF for further details.

The public display of the REF (refer to Section 1.2 of this report) provided an opportunity for the community, including wildlife protection groups, to provide feedback on the proposal. This included a community consultation session on 7 December 2024 at the Sandy Point Community Centre. During the preparation of the REF, the following community groups were consulted:

- Sutherland Shire Environment Centre
- National Parks Association of NSW
- Sandy Point Residents Association
- Georges River Environmental Alliance
- Sydney Basin Koala Network.

Issues raised during this consultation is detailed in Section 5.2 of the REF.

Transport will continue to consult key stakeholders and the affected community including relevant community groups, nearby landholders, businesses and road users during construction. Ongoing communications and notifications may include:

- Community/construction updates
- Media announcements
- NSW LiveTraffic updates and social media updates
- Stakeholder meetings as required
- Web page updates
- Work notification letters (as required).

## 2.7 Issue 6: Biodiversity

### 2.7.1 Fauna Connectivity

**Submission numbers**

64, 67, 80, 85, 86, 87, 88, 90, 95.

**Issue description**

- The rationale that koalas only move west to east is flawed. The proposal should consider that koalas may need to move east to west more frequently in the future.
- Concerns that fencing would reduce connectivity for other fauna.
- Recommendation that additional fauna access pipes be installed.
- Wildlife protection and connectivity should be considered during road planning and design.

**Response**

Koala movement in this location is expected to be primarily west to east for the reasons discussed in Section 2.3.6. However, the proposal has been designed considering potential movement across the road in both directions. Transport would continue to monitor koala activity and vehicle strike within the proposal area after the proposal is complete.

The biodiversity assessment (Appendix E of the REF) undertaken for the proposal assessed potential widlife connectivity impacts. The report concludes the proposal would result in a minor increase in the canopy gap and the new fence would increase the barrier effect of the road. However, the existing Defence fence is already a substantial barrier to connectivity which has been reduced through the provision of the fauna access pipes. The potential for the fence to be a barrier to gene flow would be mitigated by the provision of safe crossing opportunities under the road. While the fence will still present a barrier to movement, the positive impact of the fence is considered to outweigh the minor connectivity impacts.

Stage 1 was completed in 2023 and comprised construction of a raised ledge attached to the northern abutment of Deadmans Creek bridge and a concrete pathway along the southern abutment. The Stage 1 works and the two existing culverts north of the bridge facilitate safe fauna crossing under Heathcote Road. The proposed fencing has been designed to direct fauna towards these safe crossings. It is noted that the eastern end of the twin 950mm pipe culverts north of the bridge is currently inundated and therefore, fauna crossing through these culverts is unlikely unless conditions change. Transport has been monitoring the area with motion sensor cameras since 2021 and have recorded a range of native species within the proposal area that have been considered in the design. The proposal is suitable for all native ground dwelling and semi-arboreal species that have been recorded by monitoring.

Transport proposes to install additional fauna access pipes in the Defence fence at the bridge and 1500mm pipe culvert to increase access opportunities. This would include a selection of fauna access pipes closer to the ground and suitable for a wider range of fauna species, including echidnas.

Transport assesses wildlife connectivity impacts and vehicle strike as part of planning and assessing all new infrastructure proposals. Transport is currently working on plans to improve the Heathcote Road corridor, which would include investigating options for koala connectivity and vehicle strike mitigation along the rest of the corridor.

### 2.7.2 Vegetation clearing

**Submission numbers**

29, 49, 89, 91, 95.

**Issue description**

- Concern regarding the extent of vegetation clearing proposed in the REF for the fencing, in addition to concern about vegetation clearing for powerlines, which is out of the scope of this proposal.
- Request for additional planting to address tree removal for the roadworks on Heathcote Road.

**Response**

Transport has selected a fence alignment for the proposal which includes use of existing cleared areas where possible. The proposed fencing would be constructed as close to the road edge as safe to do so in order to minimise vegetation clearing. The proposed fencing must be a minimum distance from safety barriers and trafficable lanes to meet safety requirements.

A clearance zone on either side of the proposed fence is necessary not only for construction but also to remove overhanging trunks or branches that may allow koalas to climb over the installed fence. Transport has assessed the impact of clearing up to three metres of vegetation on either side of the proposed fencing. In practice, clearing would be selective and reduced to the minimum clearing required for construction and to remove climbing opportunities. It is expected that clearing of trees and branches would only extend one to two metres from the new fence alignment in most areas.

The proposed changes to the fencing alignment around St George Crescent following REF exhibition would further minimise vegetation clearing.

Transport's Biodiversity Policy (Transport for NSW, 2022) sets out the approach to avoid, minimise, mitigate and offset impacts of Transport projects and includes a commitment to replace native and amenity trees unavoidably lost through development. Consistent with the Transport's Tree and Hollow Replacement Guidelines (Transport for NSW, 2024), trees may either be replaced by planting on nearby land and/or, an equivalent payment may be made to the Transport Conservation Fund. The Fund is used by Transport to undertake conservation focussed projects around the state. Transport is investigating options to install artificial hollows and replant trees within nearby Georges River National Park. A Tree and Hollow Replacement Plan would be prepared in accordance with the Tree and hollow replacement guidelines (2023) if tree replanting or installation of replacement hollows is undertaken for the proposal. If the replacement requirements are not achieved, the proposal would pay into the Transport Conservation Fund.

A copy of the Tree and Hollow Replacement Plan would be provided to NPWS if it is prepared.

### 2.7.3 Biodiversity surveys

**Submission numbers**

91, 95.

**Issue description**

More emphasis should be given to flora and fauna surveys and the protection of native flora and fauna (including Echidna and Jewel Beetle).

**Response**

A range of flora and fauna surveys have been undertaken for the proposal consistent with Transport's Biodiversity Assessment Guidelines (Transport for NSW, 2024), which closely follows the NSW Biodiversity Assessment Method (Department of Planning, Industry and Environment, 2020). These surveys are described in the Biodiversity Assessment Report (Appendix E of the REF).

Transport have been monitoring the area with motion sensor cameras since 2021 and have recorded a range of native species that have been considered in the design. The proposed mitigation is suitable for all native ground dwelling and semi-arboreal species that have been recorded by monitoring.

Furthermore, during construction Transport contractors are required to implement the best practice measures in accordance with the Biodiversity Management Guideline (Transport for NSW, 2024).

## 2.8 Issue 7: Landscape character and visual impact

**Submission numbers**

64, 71, 74, 77, 79.

**Issue description**

- Concern about visual impacts of fencing.
- Request for black, green or brown-coloured fencing.
- Concern about the enclosing effect of the new fencing near Sandy Point.
- Request for vegetation screening.

**Response**

Following feedback received during display of the REF, the proposed fence alignment has been amended around the Heathcote Road and St George Crescent intersection (refer Section 3.1). The revised alignment sits further back from St George Crescent, behind retained vegetation rather than directly adjacent to the road. This retained vegetation would screen and reduce the visibility of the fence while entering Sandy Point via St George Crescent. In accordance with Transport's urban design guideline Beyond the Pavement (Transport for NSW, 2023), the proposed fence would be a black PVC coated chain-link fence with black pre-painted galvanised sheeting to make the fence less visually prominent.

## 2.9 Issue 8: Monitoring and maintenance

### 2.9.1 Maintenance of the fence

**Submission numbers**

91, 95.

**Issue description**

Provision needs to be made for maintenance of koala protection measures.

**Response**

Maintenance of of the proposal would be undertaken by Transport's maintenance contractors. Transport would appropriately budget for long-term maintenance of this proposal.

### 2.9.2 Post construction monitoring

**Submission numbers**

80, 85, 87, 88, 90, 91, 95.

**Issue description**

- There is no baseline or control data to the effectiveness of measures to be assessed. There must therefore be robust monitoring that includes controls to ensure connectivity is being improved for koalas.
- Adaptive management measures should be implemented to address any inefficiencies with the operation of the new fencing.

**Response**

The key objectives of this proposal are to reduce koala vehicle strike and facilitate safe passage underneath the road via the underpasses. Transport has been monitoring koala vehicle strike along Heathcote Road since 2021, which includes working closely with officers within the NSW Koala Strategy that work with wildlife carers.

Transport has also been monitoring koala activity beside the road around Deadmans Creek with motion-sensor cameras since 2021. This has provided critical information for the development of the proposal, including wildlife movement directions, species use of existing structures to cross the road and species use of fauna access pipes. Transport would continue to monitor aspects of the proposal following the completion of construction, including vehicle strike and species utilising the fauna access pipes and crossing points. If residual issues are identified, Transport would respond with an adaptive approach.

### 2.9.3 Monitoring to date

**Submission numbers**

91, 95

**Issue description**

- Query as to how often the monitoring cameras are checked.
- Request for summary of camera monitoring data and observed predation.

**Response**

Wildlife cameras have been deployed in various locations around Heathcote Road and Deadmans Creek since 2021. These are typically checked at one to two-month intervals. Cameras have been moved around a few times to ensure they are capturing the most valuable data. As of December 2024, 32 koalas have been recorded within the road corridor. This includes individual koalas around Deadmans Creek and six instances of koalas crossing under Heathcote Road via the existing 1500mm concrete pipe culvert north of Deadmans Creek.

Other fauna which have been observed on camera to cross under Heathcote Road via the 1500mm pipe culvert area: foxes, goannas, red-bellied black snakes, swamp wallabies, ring-tailed possums and echidnas.

Species observed crossing under the bridge (primarily on the western side) include cats, ringtail possums, microbats, foxes, swamp wallabies and deer.

Fauna observed going through the fauna access pipes include koalas, swamp wallabies, foxes, cats and goannas.

Many photos of foxes have been collected during the camera monitoring though some of these could be photos of the same individuals which is a common finding on camera monitoring exercises in Greater Sydney. No evidence of predation has been observed.

## 2.10 Issue 9: Opposition

**Submission numbers**

64, 72

**Issue description**

Opposition to the proposal based on:

- proposal cost.
- impacts on other fauna.
- the koala grid.
- fauna connectivity.
- visual impacts.
- concern that illegal dumping and littering poses a greater risk to koalas.

**Response**

Responses to these reasons for opposition are addressed in the following sections:

- Justification of the proposal and its cost is addressed in Section 2.2.2
- Impacts on other fauna is addressed in Section 2.3.1
- The koala grid is addressed in Section 2.3.7
- Fauna Connectivity is addressed in Section 2.7.1
- Visual impacts are addressed in Section 0
- Illegal dumping and littering is addressed in Section 2.11.4.

## 2.11 Issue 10: Out of scope

### 2.11.1 Additional fauna crossings

**Submission numbers**

14, 18, 24, 26, 47, 51, 58, 60, 82, 86

**Issue description**

- Request for additional crossings
- Consideration should be given to a wildlife bridge

**Response**

The Deadmans Creek Bridge underpass and pipe culvert is expected to be effective in facilitating fauna movement across Heathcote Road. Retrofitting a fauna overpass or underpass across Heathcote Road would not result in positive biodiversity outcomes on balance due to the amount of vegetation clearing which would be required to build an overpass and its approaches.

Suspended overpass structures (e.g. rope bridges) are typically not used for koalas as they primarily travel along the ground to move between trees.

### 2.11.2 Broader strategies for koala vehicle strike mitigation

**Submission numbers**

1, 2, 36, 37, 38, 40, 41, 51, 82

**Issue description**

- Criticism of the extent of impacts on koala habitat, suggestion that koalas have moved east since development of the Moorebank Intermodal Terminal and comment on an increase in heavy vehicles.
- Request for additional koala protection measures in other parts of Sydney including at Campbelltown and Penrith.
- Request for more information on Transport's strategy to protect koalas in southern Sydney.

**Response**

Vehicle strike is a key threat to koalas, increasing during the breeding period as young dispersing animals seek mating partners and new territory. The rapid growth of the Campbelltown koala population is thought to be a factor of the recent rise in koala vehicle strike around south-west Sydney as animals disperse in all directions.

Transport is currently working on plans to improve the Heathcote Road corridor, which would include investigating options for koala connectivity and vehicle strike mitigation along the rest of the corridor.

One of the four pillars of the NSW Koala Strategy 2021-26 includes actions and targets for addressing vehicle hotspots. In response, Transport, in partnership with DCCEEW, is looking at ways to reduce the impact of the existing NSW state road network on koalas. The proposal is one of these initiatives, aiming to address a known koala vehicle strike hotspot at Deadmans Creek on Heathcote Road. Another successful example of this work includes the koala fence installed on Picton Road in 2018. While Transport acknowledges issues with that particular fence, which have been learnt from, the fence has resulted in a substantial reduction in vehicle strike within fenced sections of Picton Road. The proposed fence design would be consistent with recent Transport koala fencing projects that use the 'slippery top' non-climbable sheeting to discourage climbing.

These works are in addition to several other infrastructure projects across south-west Sydney with koala protection. Transport considers impacts on connectivity and vehicle strike for all new infrastructure development projects.

### 2.11.3 Additional koala protection measures

**Submission numbers**

7, 15, 34, 47, 55, 59, 60, 61, 89.

**Issue description**

- Request for additional koala protection measures, potentially on a wider scale than just Heathcote Road.
- Request for a reduction of the speed limit on Heathcote Road.
- Request for early warning signs.
- Request for 'Koala Zone' signs.
- Request for koala-specific speed detection signs.
- Request for speed cameras.
- Requests for flashing warning lights.
- Request for better lighting along Heathcote Road.

**Response**

Transport, in partnership with the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW), is looking at ways to reduce the impact of the existing NSW State road network on koalas as part of the NSW Koala Strategy. The proposal is one of these initiatives, aiming to address a known koala vehicle strike hotspot at Deadmans Creek on Heathcote Road. These works are in addition to several other Transport koala protection projects across south west Sydney and koala protection actions on relevant infrastructure development projects.

A reduction to speed limits or installation of speed cameras is not proposed. Speed limits are set in accordance with NSW speed zoning standards. Motor vehicle crashes involving animal strikes with the potential for road user casualties are considered when assessing the appropriate speed limit of a particular road. Feedback about speed limits and speed signs in NSW may be lodged online via the NSW Centre for Road Safety website https://www.transport.nsw.gov.au/roadsafety.

A key objective of the proposal is to keep animals off the road to reduce vehicle and wildlife interactions. Fencing is currently the most effective approach for achieving this objective.

No additional signage, flashing lights or additional road lighting is proposed as the proposal is expected to adequately address this koala vehicle strike hotspot. There is currently permanent static signage near the Heathcote Road and St George Crescent intersection facing both directions of traffic showing the number for WIRES. Other signage includes advanced warning static signage near Deadman's Creek Bridge and opposite the St George Crescent intersection warning drivers of the presence of koalas in the area.

Construction is expected to overlap with the koala breeding season. The construction contractor would deploy Variable Message Signs (VMS) during the breeding season in consultation with Transport to warn drivers of potential koala activity. Locations and messaging of VMS would be assessed and confirmed prior to deployment during the breeding season. It is expected that VMS would not be required at this location once construction of the proposal has been completed.

Transport is currently working on plans to improve the Heathcote Road corridor, which would include investigating options for koala connectivity and vehicle strike mitigation along the rest of the corridor.

### 2.11.4 Illegal dumping and littering

**Submission numbers**

72

**Issue description**

Suggestion that the focus should first be on cleaning up illegal dumping.

**Response**

Construction of the proposal would first require the removal of illegally dumped material within the proposal area.

### 2.11.5 Reference to other projects

**Submission numbers**

3, 5, 17, 73, 80, 85, 86, 87, 88, 90

**Issue description**

- Measures should be extended to other sections of Heathcote Road including at the new Lucas Heights Innovation Precinct, and around Heathcote Road across the Woronora River.
- Criticism of the effectiveness of Appin Road work and suggested improvements.
- Request for improved fauna connectivity measures on Picton Road.
- Wildlife protection needs to be factored into the design of future Heathcote Road upgrade projects consistent with Transport's Biodiversity Management Guideline.

**Response**

The proposal aims to keep koalas off this specific section of Heathcote Road that has become a vehicle strike hotspot and improve the function of existing infrastructure as fauna underpasses. Koala protection measures at other locations are beyond the scope of this proposal. A separate Transport project to upgrade Heathcote Road near Voyager Point is currently assessing options to deal with koala vehicle strike in that location. Transport is currently working on plans to improve the Heathcote Road corridor, which would include investigating options for koala connectivity and vehicle strike mitigation along the rest of the corridor.

Transport considers impacts on connectivity and vehicle strike for all new infrastructure development projects. Within south west Sydney, a number of projects and proposals contain koala protection measures. Transport would continue to monitor koala vehicle strike around south-west Sydney and across the state. More broadly, Transport, in partnership with NSW DCCEEW, is looking at ways to reduce the impact of the existing NSW state road network on koalas.

### 2.11.6 Walking track

**Submission numbers**

66, 77

**Issue description**

Two submissions suggest the construction of a pedestrian and /or cycling track be constructed along the fence alignment between Pleasure Point and Sandy Point in the area of vegetation clearing.

**Response**

A formal walking track is not part of the proposal scope. The proposal is aiming to minimise the amount of vegetation clearing required. Where possible, a minimum of one metre clearance would be maintained along the fence. A cleared zone along the proposed fencing could be informally used by pedestrians and / or cyclists.

# 3. Changes to the proposal

This section details the changes made to the proposal following public display of the REF and concept design.

## 3.1 Change to fence alignment

### 3.1.1 Description

Transport proposes to modify the alignment of the fencing on both sides of St George Crescent. The new fencing alignment is shown in Figure 3-1 below.

The changes to the fence alignment are proposed for the following reasons:

- The new alignment minimises the visual impact of the fence for drivers entering St George Crescent by being set further back from the road and retaining more screening vegetation.
- The new shorter fence alignment on the northern side of St George Crescent combines the clearing required to construct the fence and the drainage swale from the side of the koala grid, to reduce the amount of overall clearing.
- The kink in the fence to the south of St George Crescent would avoid the dip in topography at that corner behind the safety barriers.


Figure 3-1: Changes to the alignment of the proposed fence

### 3.1.2 Environmental assessment

**Biodiversity**

The change in fence alignment would require about 120 square metres less vegetation clearing than the original proposal. This would reduce the impacts of the proposal on biodiversity as it would minimise impacts to habitat for fauna such as koalas.

The new fence alignment is within the study area for the Biodiversity Assessment Report (included in Appendix E of the REF) and, consistent with the original alignment, would impact Plant Community Type (PCT) 3615 Sydney Hinterland Apple-Blackbutt Gully Forest (in various levels of condition). PCT 3615 is not a threatened ecological community. No threatened species were identified in this area.

**Landscape and visual impacts**

The changes to the fence alignment would reduce the proposal's landscape and visual impacts on Heathcote Road and St George Crescent, with an increased setback from the road alignment. More vegetation would be retained between the road and the fence compared to the former proposed alignment which would help screen the fence from the road.

## 3.2 Additional fauna access pipes

### 3.2.1 Description

Transport would install additional fauna access pipes into the Defence fence at the bridge and 1500mm pipe culvert to increase access opportunities. This aims to increase the permeability of the fence for fauna to improve access to the underpasses. Adjusting the height of the pipe from the ground would also provide access for a greater range of species. The exact locations of the additional fauna access pipes have not been confirmed and would be determined onsite during construction. No clearing would be required and only hand tools would be used for installation. A maximum of one fauna access pipe would be installed per fence panel.

The locations would be selected based on the following considerations:

- The state of the habitat on either side of the fence.
- Likely fauna passageways.
- Topography allowing for ease of fauna access.

### 3.2.2 Environmental assessment

There are no additional environmental impacts which would arise from the construction and operation of the additional fauna access pipes as they would not be visible from the road and would not require additional clearing or create any additional noise or vibration impacts.

## 3.3 Modification of existing fauna access pipes

### 3.3.1 Description

Transport may modify the existing three fauna access pipes installed in the Defence fence, maintaining the size of the pipes but installing the concrete structure so that the pipe is closer to the ground and easier for fauna to pass through.

### 3.3.2 Environmental assessment

There are no additional environmental impacts which would arise from the modification of the existing fauna access pipes as they are not visible from the road and would not require any additional clearing or create any additional noise or vibration impacts.

# 4. Environmental management

The REF for the Koala Protection on Heathcote Road at Deadmans Creek identified the framework for environmental management, including safeguards and management measures that would be adopted to avoid or reduce environmental impacts (section 7.2 of the REF).

Should the proposal proceed, environmental management would be guided by the framework and measures outlined below.

## 4.1 Environmental management plan

A number of safeguards and management measures have been identified in order to minimise adverse environmental impacts, including social impacts, which could potentially arise as a result of the proposal. Should the proposal proceed, these management measures would be incorporated into the detailed design and applied during the construction and operation of the proposal.

A Construction Environmental Management Plan (CEMP) would be prepared to describe safeguards and management measures identified in accordance with Transport's Biodiversity Management Guideline (Transport for NSW, 2024). The CEMP would provide a framework for establishing how these measures would be implemented and who would be responsible for their implementation.

The CEMP would be prepared prior to construction of the proposal and must be reviewed and certified by Transport environment staff prior to the commencement of any on-site works. The CEMP would be a working document, subject to ongoing change and updated as necessary to respond to specific requirements. The CEMP would be developed in accordance with the specifications set out in QA Specification G36 – Environmental Protection (Management System) and G38 – Soil and Water Management.

## 4.2 Summary of safeguards and management measures

Section 7.2 of the REF for the proposal identified a range of environmental outcomes and management measures that would be required to avoid or reduce the environmental impacts.

Should the proposal proceed, the environmental management measures in Table 4-1 would guide the subsequent phases of the proposal. In the time since the REF was prepared, there have been updates to documentation referenced in the summary of safeguards and management measures, which are reflected in Table 4-1. No additional environmental safeguards are proposed. Modified environmental safeguards to those presented in the REF have been underlined. Deleted measures have been struck out.

One measure was removed, B1, which requires the preparation of a flora and fauna management plan. All measures will be captured in a CEMP, and as such a standalone flora and fauna management plan is not required.

Table 4-1: Summary of environmental safeguards and management measures

| Ref. | Impact | Environmental safeguard | Responsibility | Timing | Reference |
|---|---|---|---|---|---|
| ~~B1~~ | ~~Biodiversity~~ | ~~A Flora and Fauna Management Plan will be prepared in accordance with Biodiversity Management Guideline: Protecting and managing biodiversity on Transport for NSW projects~~ (Transport for NSW, 2024) ~~and implemented as part of the CEMP. It will include, but not be limited to:~~<br>~~• Plans showing areas to be cleared and areas to be protected, including exclusion zones, protected habitat features and revegetation areas~~<br>~~• Pre-clearing survey requirements~~<br>~~• Procedures for unexpected threatened species finds and fauna handling.~~<br>~~• Procedures addressing relevant matters specified in the DPI Policy and guidelines for fish habitat conservation and management (2013).~~<br>~~• Protocols to manage weeds, pathogens and pest species~~ | ~~Transport/ Contractor~~ | ~~During construction~~ | ~~Section 4.8 of QA G36 Environment Protection~~ |
| B~~2~~1 | Removal of native vegetation | Native vegetation removal will be minimised during detailed design and construction. Clearing would be reduced to that necessary to prevent fauna climbing installed fencing and would occur no more than three metres from the installed fence alignment. | Transport/ Contractor | Detailed design / During construction | Project-specific control |
| B~~3~~2 | Native vegetation, threatened flora and TECs | Exclusion zones will be set up at the limit of clearing in accordance with Guide 2: Exclusion zones of the Biodiversity Management Guideline: Protecting and managing biodiversity on Transport for NSW projects (Transport for NSW, 2024). | Contractor | Pre-construction | Biodiversity Management Guideline: Protection and managing biodiversity on Transport for NSW projects (Transport for NSW, 2024) |
| B~~4~~3 | Removal of native vegetation | Pre-clearing surveys and final pre-clearing checks will be undertaken in accordance with Guide 1: Pre-clearing process of the Biodiversity Management Guideline: Protecting and managing biodiversity on Transport for NSW projects (Transport for NSW, 2024). | Transport/ Contractor | Prior to construction | Biodiversity Management Guideline: Protection and managing biodiversity on Transport for NSW projects (Transport for NSW, 2024) |

| Ref. | Impact | Environmental safeguard | Responsibility | Timing | Reference |
|---|---|---|---|---|---|
| B~~5~~4 | Removal of native vegetation | Vegetation and habitat removal will be undertaken in accordance with Guide 4: Clearing of vegetation and removal of bushrock of the Biodiversity Management Guideline: Protecting and managing biodiversity on Transport for NSW projects (Transport for NSW, 2024). | Transport/ Contractor | During construction | Biodiversity Management Guideline: Protection and managing biodiversity on Transport for NSW projects (Transport for NSW, 2024) |
| B~~6~~5 | Fauna injury and mortality | Fauna will be managed in accordance with Guide 9: Fauna handling of the Biodiversity Management Guideline: Protecting and managing biodiversity on Transport for NSW project (Transport for NSW, 2024) | Contractor | Construction | Biodiversity Management Guideline: Protection and managing biodiversity on Transport for NSW projects (Transport for NSW, 2024) |
| B~~7~~6 | Invasion and spread of weeds | Weed species will be managed in accordance with Guide 6: Weed management of the Biodiversity Management Guideline: Protecting and managing biodiversity on Transport for NSW project (Transport for NSW, 2024). | Contractor | Construction | Biodiversity Management Guideline: Protection and managing biodiversity on Transport for NSW projects (Transport for NSW, 2024) |
| B~~8~~7 | Invasion and spread of pathogens and disease | Pathogens will be managed in accordance with Guide 2: Exclusion zones of the Biodiversity Management Guideline: Protecting and managing biodiversity on Transport for NSW project (Transport for NSW, 2024) | Contractor | Construction | Biodiversity Management Guideline: Protection and managing biodiversity on Transport for NSW projects (Transport for NSW, 2024) |
| B~~9~~8 | Aquatic habitats | Aquatic habitat will be protected in accordance with Guide 10: Aquatic habitats and riparian zones of the Biodiversity Management Guideline: Protecting and managing biodiversity on Transport for NSW projects (Transport for NSW, 2024). and Section 3.3.2 Standard precautions and mitigation measures of the Policy and guidelines for fish habitat conservation and management Update 2013 (Department of Primary Industries, 2013). | Transport/ Contractor | During construction | Biodiversity Management Guideline: Protection and managing biodiversity on Transport for NSW projects (Transport for NSW, 2024) |
| B~~10~~9 | Removal of native vegetation | An unexpected threatened species finds procedure is to be developed as part of the CEMP~~FFMP~~ using the template in Guide 1: Pre-clearing process of the Biodiversity Management Guideline: Protecting and managing biodiversity on Transport | Transport/ Contractor | During construction | Biodiversity Management Guideline: Protection and managing biodiversity on Transport for NSW |

| Ref. | Impact | Environmental safeguard | Responsibility | Timing | Reference |
|---|---|---|---|---|---|
| | | for NSW projects (Transport for NSW, 2024). The procedure is to be followed if threatened ecological communities, either new TECs or new occurrences of known TECs, not assessed in the biodiversity assessment, are identified in the REF proposal area. | | | projects (Transport for NSW, 2024) |
| B10 | Removal of native vegetation | Habitat will be replaced or re-instated in accordance with Guide 5: Re-use of woody debris and bushrock and Guide 8: Artificial hollows of the Biodiversity Management Guideline: Protecting and managing biodiversity on Transport for NSW projects (Transport for NSW, 2024). | Transport/ Contractor | During construction | Biodiversity Management Guideline: Protection and managing biodiversity on Transport for NSW projects (Transport for NSW, 2024) |
| B11 | Changes to hydrology and groundwater dependent ecosystems | Changes to existing water flows, including surface water flows and those associated with groundwater dependent ecosystems will be minimised through detailed design. | Transport/ Contractor | Detailed design | Biodiversity Management Guideline: Protection and managing biodiversity on Transport for NSW projects (Transport for NSW, 2024) |
| B12 | Fragmentation of identified habitat corridors and impacts to connectivity and movement | Fencing design should be consistent with the Draft Wildlife Connectivity Guidelines for Road Projects (RTA 2011). | Transport/ Contractor | Detailed design | Biodiversity Management Guideline: Protection and managing biodiversity on Transport for NSW projects (Transport for NSW, 2024) |
| NV1 | Noise and vibration | Noise and vibration safeguards will be incorporated and implemented as part of the CEMP, including but not be limited to:<br>• All potential significant noise and vibration generating activities associated with the activity.<br>• Feasible and reasonable mitigation measures to be implemented.<br>• Additional mitigation measures required, in accordance with the Construction noise and vibration guideline ~~CNVG~~ (Transport for NSW, 2023). | Contractor | Detailed design / Pre-construction | Section 4.6 of QA G36 Environment Protection |
| NV2 | Out of hours work | As part of the CEMP, an out-of-hours work protocol will be developed, which defines all scheduled and planned out-of-hours activities. | Contractor | Construction | Section 4.6 of QA G36 Environment Protection |

| Ref. | Impact | Environmental safeguard | Responsibility | Timing | Reference |
|---|---|---|---|---|---|
| | | Very noisy activities should, where practicable, be programmed for normal working hours. If the work cannot be undertaken during the day, it should be completed during the OOHW Evening period. | | | |
| NV3 | Noise and vibration | All sensitive receivers (e.g. local residents) likely to be affected will be notified prior to commencement of any works associated with the activity that may have an adverse noise or vibration impact. The notification will provide details of:<br>• The project<br>• The construction period and construction hours<br>• Contact information for project management staff<br>• Complaint and incident reporting<br>• How to obtain further information. | Contractor | Pre-construction/ construction | Construction Noise and Vibration Guideline (Transport for NSW, 2023) |
| NV4 | Site inductions | All employees, contractors and subcontractors are to receive an environmental induction. The induction must at least include:<br>• All relevant project specific and standard noise and vibration mitigation measures<br>• Relevant licence and approval conditions<br>• Permissible hours of work<br>• Any limitations on noise generating activities<br>• Location of nearest sensitive receivers<br>• Construction employee parking areas<br>• Designated loading/unloading areas and procedures<br>• Site opening/closing times (including deliveries)<br>• Environmental incident procedures. | Contractor | Construction | Project specific measure |
| LCVI1 | Visual amenity | Construction areas and the ancillary facility will be maintained during construction, kept tidy and well-presented including sorting regular removal of excess materials to reduce visual impact. | Contractor | Construction | Project specific control |
| LCVI2 | Visual amenity | The ancillary facility and construction areas (outside of the REF proposal area) will be progressively restored to at least its pre-construction condition. | Contractor | Construction, post-construction | Project specific control |

| Ref. | Impact | Environmental safeguard | Responsibility | Timing | Reference |
|---|---|---|---|---|---|
| LCVI3 | Koala fence design | The koala fence will be a black PVC coated chain-link fence with black pre-painted galvanised sheeting. | Transport | Prior to construction (procurement) | Project specific control |
| TT1 | Traffic and transport | Where possible, current traffic movements and property accesses will be maintained during the works. Any disturbance will be minimised to prevent unnecessary traffic delays | Contractor | Detailed design / Pre-construction | Section 4.8 of QA *G36 Environment Protection* |
| TT2 | Traffic and transport | A traffic guidance scheme will be prepared in accordance with Transport Traffic control at work sites manual (version 6.1, 2022) and Australian Standard 1742.3 Manual of uniform control devices. | Contractor | Pre-construction | Project specific control |
| W1 | Soil and water | A site-specific Erosion and Sediment Control Plan will be prepared and implemented as part of the CEMP.<br>The Plan will include arrangements for managing wet weather events, including monitoring of potential high-risk events (such as storms) and specific controls and follow-up measures to be applied in the event of wet weather. | Contractor | Detailed design / pre-construction | Section 2.2 of QA G38 Soil and Water Management |
| W2 | Groundwater | A dewatering procedure will be prepared and implemented as part of the CEMP, for the management of infiltrated groundwater during construction. | Contractor | Construction | Project specific control |
| W3 | Sediment run-off | The extent of ground disturbance and exposed soil will be minimised to the greatest extent practicable to minimise the potential for erosion. | Contractor | Construction | Section 2.2 of QA G38 Soil and Water Management |
| W4 | Flooding | A flood management procedure will be prepared to detail procedures to be implemented where extreme weather is predicted and where there is a risk of flooding affecting the work site and compound, including removal and storage of plant and equipment and securing of site. | Contractor | Construction | Project specific control |
| SC1 | Impacts on soils | The site-specific Erosion and Sediment Control Plan to be prepared and implemented as part of the CEMP will include measures to manage saline soils. | Contractor | Detailed design / pre-construction | Section 2.2 of QA G38 Soil and Water Management |
| SC2 | Impacts on acid sulfate soils | An acid sulfate soil management plan would be required to be prepared if construction of the proposal was to trigger the criteria (relating to the net acidity of any soil material tested in | Contractor | Pre-construction/ construction | National Acid Sulfate Soils Identification and Laboratory Methods |

| Ref. | Impact | Environmental safeguard | Responsibility | Timing | Reference |
|---|---|---|---|---|---|
| | | the REF proposal area) prescribed by Table 1.1 of National Acid Sulfate Soils Identification and Laboratory Methods Manual (Sullivan, L, Ward, N, Toppler, N and Lancaster, G, 2018). | | | Manual (Sullivan, L, Ward, N, Toppler, N and Lancaster, G, 2018). |
| SC3 | Contaminated land | If contaminated areas are encountered during construction, appropriate control measures will be implemented to manage the immediate risks of contamination. All other works that may impact on the contaminated area will cease until the nature and extent of the contamination has been confirmed and any necessary site-specific controls or further actions identified in consultation with the Transport for NSW Senior Manager Environment and Sustainability and/or EPA. | Contractor | Detailed design / Pre-construction | Section 4.2 of QA G36 Environment Protection |
| SC4 | Accidental spill | A site-specific emergency spill plan will be developed and include spill-management measures in accordance with the Transport Code of Practice for Water Management (Roads and Traffic Authority, 1999) and relevant EPA guidelines. The plan will address measures to be implemented in the event of a spill, including initial response and containment, notification of emergency services and relevant authorities (including Transport EPA officers). | Contractor | Detailed design / Pre-construction | Section 4.3 of QA G36 Environment Protection |
| AH1 | Aboriginal heritage | Exclusion zones will be established around Aboriginal heritage items before works commence in their vicinity. All site-personnel will be toolboxed on the items and exclusion zones. | Contractor | Construction | Section 4.9 of QA G36 Environment Protection |
| AH2 | Aboriginal heritage | The Unexpected heritage items procedures (Transport for NSW, 2022) will be followed in the event that an unknown or potential Aboriginal object/s, including skeletal remains, is found during construction. | Contractor | Construction | Section 4.9 of QA G36 Environment Protection |
| NAH1 | Non-Aboriginal heritage | The Unexpected heritage items procedures (Transport for NSW, 2022) will be followed in the event that any unexpected heritage items, archaeological remains or potential relics of non-Aboriginal origin are encountered.<br>Work will only re-commence once the requirements of that Procedure have been satisfied. | Contractor | Pre-construction, Construction | Section 4.9 of QA G36 Environment Protection |
| PL1 | Property access | Existing access for nearby properties is to be maintained at all times during the works unless otherwise agreed to by the affected property owner | Contractor | Construction | Project specific control |

| Ref. | Impact | Environmental safeguard | Responsibility | Timing | Reference |
|---|---|---|---|---|---|
| SE1 | Socio-economic impacts | Local residents and affected businesses will be notified before work starts regarding the timing, duration and likely impact of construction activities. | Transport | Pre-construction | Project specific control |
| AQ1 | Air quality | Air quality safeguards will be incorporated and implemented as part of the CEMP, including but not be limited to:<br>• Potential sources of air pollution.<br>• Air quality management objectives consistent with any relevant published EPA and/or DPHI guidelines.<br>• Mitigation and suppression measures to be implemented.<br>• Methods to manage work during strong winds or other adverse weather conditions. | Contractor | Detailed design / Pre-construction | Section 4.4 of QA G36 Environment Protection |
| WA1 | Waste | Waste management safeguards will be incorporated and implemented as part of the CEMP, including but not be limited to:<br>• Measures to avoid and minimise waste associated with the project.<br>• Classification of wastes and management options (re-use, recycle, stockpile, disposal).<br>• Statutory approvals required for managing on- and off-site waste, or application of any relevant resource recovery exemptions.<br>• Procedures for storage, transport and disposal monitoring, record keeping and reporting. | Contractor | Detailed design / Pre-construction | Section 4.2 of QA G36 Environment Protection |
| HR1 | Bushfire risk | Bushfire management safeguards will be incorporated and implemented as part of the CEMP, including but not be limited to:<br>• Monitoring of weather and local bushfire ratings.<br>• Consultation requirements for community notifications in the event of a bushfire.<br>• Maintaining equipment in good working order.<br>• Ensuring plant and equipment are fitted with appropriate spark arrestors, where practicable. | Contractor | Pre-construction / during construction | Proposal specific control |

| Ref. | Impact | Environmental safeguard | Responsibility | Timing | Reference |
|---|---|---|---|---|---|
| | | • Ensuring site workers are informed of the site rules including designated smoking areas and putting rubbish in designated bins.<br>• Obtaining hot work permits and implementing total fire bans as required.<br>• Implementing adequate storage and handling requirements for potentially flammable substances in accordance with the relevant guidelines. | | | |
| CI1 | Cumulative construction impacts | Current and upcoming projects with the potential to interact with the proposal will be monitored. Where potential cumulative impacts are identified, the scheduling of works will be coordinated with interacting projects to minimise potential impacts. This will include:<br>• Scheduling works to allow suitable respite periods for construction noise.<br>• Scheduling of works to minimise consecutive construction noise impacts, where feasible.<br>• Coordinating lane closures and pedestrian/cyclist diversions to minimise the overall number of occasions where disruption occurs. | Transport | Pre-construction / Construction | Project specific control |

## 4.3 Licensing and approvals

A Road Occupancy License will be required under Section 138 of the Roads Act 1993. This will be obtained prior to the start of construction.

# 5. Definitions

Table 5-1: Terms and acronyms used in this report

| Term / Acronym | Description |
|---|---|
| CEMP | Construction environmental management plan |
| EP&A Act | *Environmental Planning and Assessment Act 1979 (NSW).* Provides the legislative framework for land use planning and development assessment in NSW |
| QA Specifications | Specifications developed by Transport for use with road work and bridge work contracts led by Transport. |
| SEPP | State Environmental Planning Policy - a type of planning instrument made under Part 3 of the EP&A Act |
| Transport | Transport for NSW |

# 6. References

Department of Planning and Environment. (2022). *NSW Koala Strategy.* Sydney: Environment and Heritage Group.

Department of Planning, Industry and Environment. (2020). *Biodiversity Assessment Method.* Sydney: Department of Planning, Industry and Environment.

Department of Primary Industries. (2013). *Policy and guidelines for fish habitat conservation and management.* Sydney: NSW Government.

Roads and Traffic Authority. (1999). *Code of Practice for Water Management.*

Sullivan, L, Ward, N, Toppler, N and Lancaster, G. (2018). *National Acid Sulfate Soils Identification and Laboratory Methods Manual .*

Transport for NSW. (2022). *Biodiversity Policy.* Sydney: Transport for NSW.

Transport for NSW. (2022). *Unexpected heritage items procedure.* Sydney: NSW Government.

Transport for NSW. (2023). *Beyond the Pavement.* Sydney: NSW Government.

Transport for NSW. (2023). *Construction Noise and Vibration Guideline.*

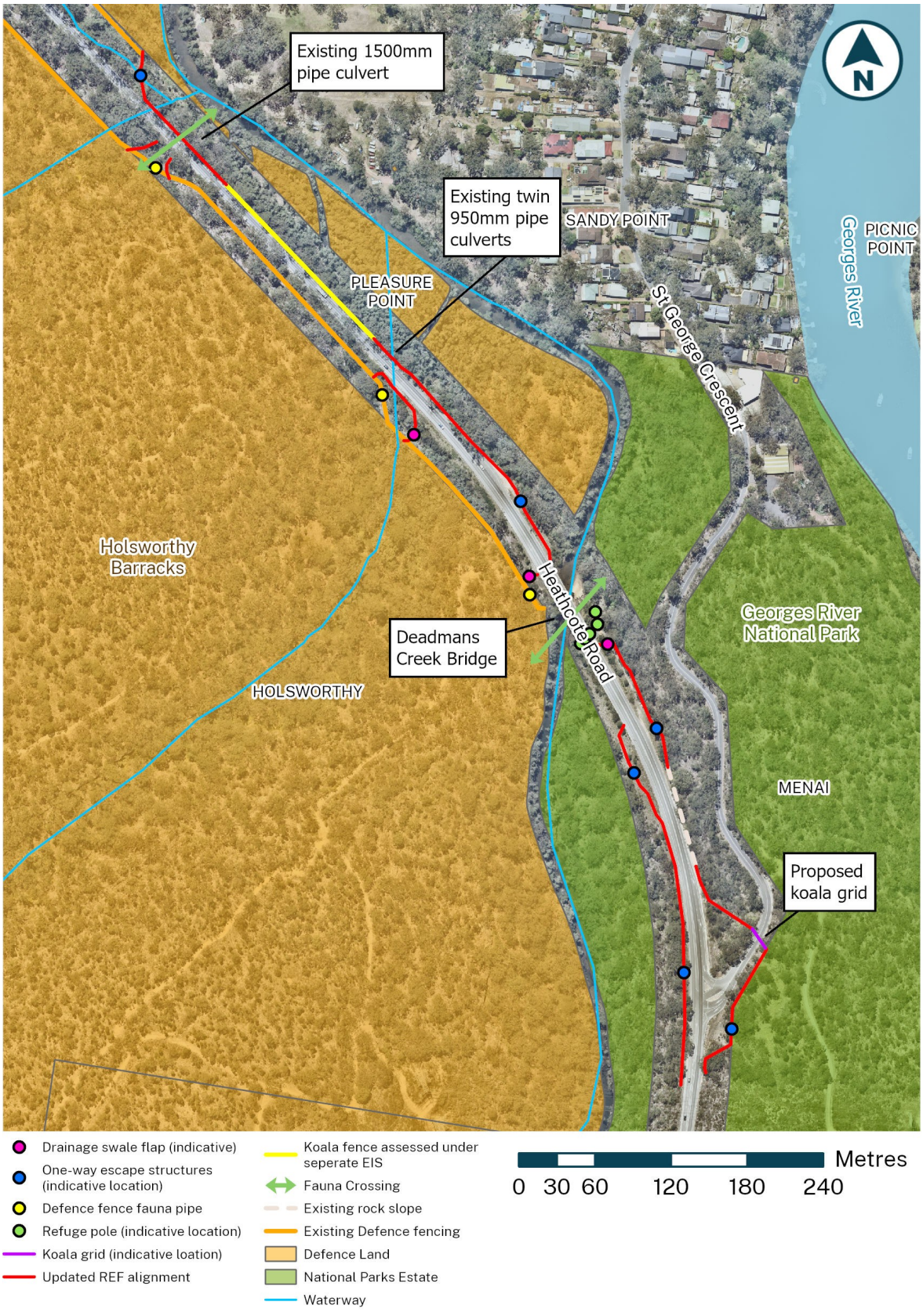
Transport for NSW. (2024). *Biodiversity Assessment Guidelines.* Sydney: NSW Government.

Transport for NSW. (2024). *Biodiversity Management Guideline: Protecting and managing biodiversity on Transport for NSW projects.* Sydney: NSW Government.

Transport for NSW. (2024). *Tree and hollow replacement guidelines.* Sydney: Transport for NSW.

WSP. (2021). *Options to reduce koala vehicle strike along Heathcote Road, near Deadmans Creek.* Sydney: wsp.

# Appendix A – Revised Design



NSW GOVERNMENT