



Spring Farm Parkway – Stage 1

Addendum 2 Review of Environmental Factors

Transport for NSW

May | 2022



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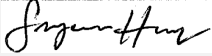
Prepared by Jacobs Group (Australia) Pty Ltd and Transport for NSW

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Accepted on behalf of Transport for NSW by:	Sayema Huq Project Manager, Transport for NSW
Signed:	
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Executive summary

The proposed modification

Transport for NSW proposes a modification to Spring Farm Parkway Stage 1 as detailed in the project Review of Environmental Factors (REF) (Jacobs, February 2019), supporting submission report (Jacobs, October 2019) and Addendum 1 Review of Environmental Factors (A1REF) (Jacobs, November 2021). The project as described in these documents is referred to as 'the approved project' throughout this document.

The proposed modification would involve:

- The decommissioning of existing above and below ground electricity lines along Menangle Road
- The construction and use of a new private driveway off the western side of Menangle Road, opposite the Broughton Anglican College exit
- The use of an alternative section of the existing AGL track off Cummins Rd by construction vehicles
- The removal of the access track from the project area to Fitzpatrick Street
- The removal of the ancillary facility near Glenlee Road
- A change in the direct impact boundary to account for:
 - The above modifications
 - The latest detailed design, inclusive of the project as described in A1REF
 - Access to and adjustment of utilities.

Background

The Spring Farm Parkway Stage 1 project, being constructed by Transport for NSW, was assessed in a review of environmental factors (REF) and placed on public display between 27 February 2019 and 29 March 2019 for community and stakeholder comment. A submissions report was prepared in October 2019 to respond to any issues raised by the community and stakeholders. Project determination was granted in November 2019, and A1REF was prepared in November 2021 to include additional ancillary facilities and additional construction access routes.

Spring Farm Parkway Stage 1 forms part of the delivery of Spring Farm Parkway, which has been divided into two stages. Once both stages are complete, Spring Farm Parkway would provide a 6.1 kilometre east-west arterial road link between Camden Bypass, the M31 Hume Motorway (the Hume Motorway) and Menangle Road in Sydney's south west, 11 kilometres south of Campbelltown and 70 kilometres from Sydney CBD. Spring Farm Parkway would service existing and future residential land releases including Spring Farm, Elderslie, Menangle Park and Mount Gilead.

Need for the proposed modification

Government strategies such as *Directions for a Greater Sydney 2017-2056*, *Greater Sydney Region Plan – A Metropolis of Three Cities*, *State Infrastructure Strategy 2018-2038 – Building Momentum* and other relevant strategies were identified in the project REF as part of the strategic need for Spring Farm Parkway Stage 1. The proposed modification is consistent with the strategic need for the project by aligning with the outcomes of the project objectives and development criteria originally assessed.

The operation of the modified project would continue to improve accessibility by allowing additional road capacity and efficiency, which will further facilitate the wider development of the area.

The modified project would continue to provide the following benefits:

- Reflect current utilities designs as agreed with utility authorities to meet their construction and operational requirements
- Provide equivalent / replacement access functionality to existing property along Menangle Road
- Improved construction access and minimisation of ground disturbance by utilising an existing constructed section along the AGL route developed by the adjacent property development
- Improved constructability of project through correction of previously assessed direct impact boundary to adequately cater for the final detail design and construction support sites

Project objectives

The objectives of the proposed modification are consistent with that outlined in the project REF. These include:

- Support residential growth by providing arterial road access to the Menangle Park land release
- Support employment growth by improving arterial road access to the Hume Motorway and Campbelltown
- Connect future communities to the NSW state road network
- Provide access for buses
- Provide a minimum of 1 in 100-year flood immunity
- Provide access for B-double vehicles
- Provide east-west connectivity for proposed and future land use
- Provide the provisions for a Smart Motorway enabled connection to the Hume Motorway.

Statutory and planning framework

The proposed modification is subject to assessment under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). In line with Section 5.5 of the EP&A Act, this Addendum 2 Review of Environmental Factors (A2REF) examines and takes into account to the fullest extent possible, all matters affecting or likely to affect the environment as a result of the proposed modification. This A2REF also considers Clause 171 of the Environmental Planning and Assessment Regulation 2021 and matters of national environmental significance under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

A referral to the Australian Government Department of the Environment and Energy (DEE) under the EPBC Act is not required.

State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP) also applies to the proposed modification. Clause 2.108 of TISEPP permits development on any land for the purpose of a road or road infrastructure facilities to be carried out by or on behalf of a public authority without consent.

Transport for NSW is the determining authority for the proposed modification. This A2REF fulfils Transport for NSW's obligation under Section 5.5 of the EP&A Act, including to examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the activity.

Community and stakeholder consultation

The consultation strategy for the proposed modification remains consistent with that described in Section 5.1 of the project REF and A1REF. Public display of this A2REF was not considered necessary given that targeted consultation has occurred and is proposed.

Environmental impacts

The proposed modification may result in some additional environmental impacts as well as benefits. These are discussed below. Given the limited scope of the proposed modification, no environmental impacts to disciplines not described below are anticipated.

Biodiversity

The proposed modification would impact 12.98 hectares of Plant Community Type (PCT) 850 – *Grey Box – Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion* and 0.48 hectares of PCT 1800 – *Swamp Oak open forest on riverflats of the Cumberland Plain and Hunter valley*.

The potential impacts to threatened biodiversity within the direct impact boundary have been assessed against the Commonwealth and NSW statutory framework with the conclusion that a significant impact to threatened biodiversity is unlikely.

Biodiversity offset credits have been calculated for the modified project and a Biodiversity Offset Strategy will be prepared prior to operation of the project.

Aboriginal heritage

No additional Aboriginal heritage sites or objects were identified in addition to those previously identified for the approved project. The previously identified impact to site Menangle Park Rezoning Project 8 (AHIMS ID 52-2-3915) would be reduced due to the removal of the access track from project area to Fitzpatrick Street.

As a result, the impacts of the proposed modification are improved from those outlined in Section 6.8.3 of the project REF and Section 6.3.3 of A1REF.

Contamination

A number of potential contamination sources have been identified within the direct impact boundary of the proposed modification. These potential contamination sources would be suitably managed by the safeguards and management measures established for the approved project.

Justification and conclusion

The proposed modification may result in some additional, minor, adverse environmental impacts. These impacts would be managed in accordance with the mitigation and management measures provided in the project REF, A1REF and this A1REF.

The proposed modification is not likely to have a significant impact on matters of national environmental significance or the environment of Commonwealth land within the meaning of the EPBC Act. A referral to the Australian Department of Agriculture, Water and the Environment is not required. While there would be some impacts to the environment as a result of the proposed modification, they have been avoided or minimised wherever possible through design development and site specific safeguards.

The proposed modification is considered consistent with state and local transport strategies to improve the road safety and efficiency and would help to meet ongoing and future road network needs. The proposed modification would support improved access through the area and facilitate pedestrians, cyclists and vehicle access to the adjacent residential development. On balance, the proposed modification's long-term benefits outweigh its impacts, and the proposed modification is considered to be justified.

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Appendix B	Statutory consultation checklists
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1 Introduction

1.1 Proposed modification overview

The Spring Farm Parkway Stage 1 project, being constructed by Transport for NSW, was assessed in a review of environmental factors (REF) and placed on public display between 27 February 2019 and 29 March 2019 for community and stakeholder comment. A submissions report was prepared in October 2019 to respond to any issues raised by the community and stakeholders. Project determination was granted in November 2019, and an Addendum 1 Review of Environmental Factors (A1REF) was prepared in November 2021 to include additional ancillary facilities and additional construction access routes.

Spring Farm Parkway Stage 1 forms part of the delivery of Spring Farm Parkway, which has been divided into two stages. Once both stages are complete, Spring Farm Parkway would provide a 6.1 kilometre east-west arterial road link between Camden Bypass, the M31 Hume Motorway (the Hume Motorway) and Menangle Road in Sydney's south west, 11 kilometres south of Campbelltown and 70 kilometres from Sydney CBD. Spring Farm Parkway would service existing and future residential land releases including Spring Farm, Elderslie, Menangle Park and Mount Gilead.

Transport for NSW proposes a modification to Spring Farm Parkway Stage 1 as detailed in the project REF, supporting submission report (Jacobs, October 2019) and A1REF (Jacobs, November 2021). The project as described in these documents is referred to as 'the approved project' throughout this document.

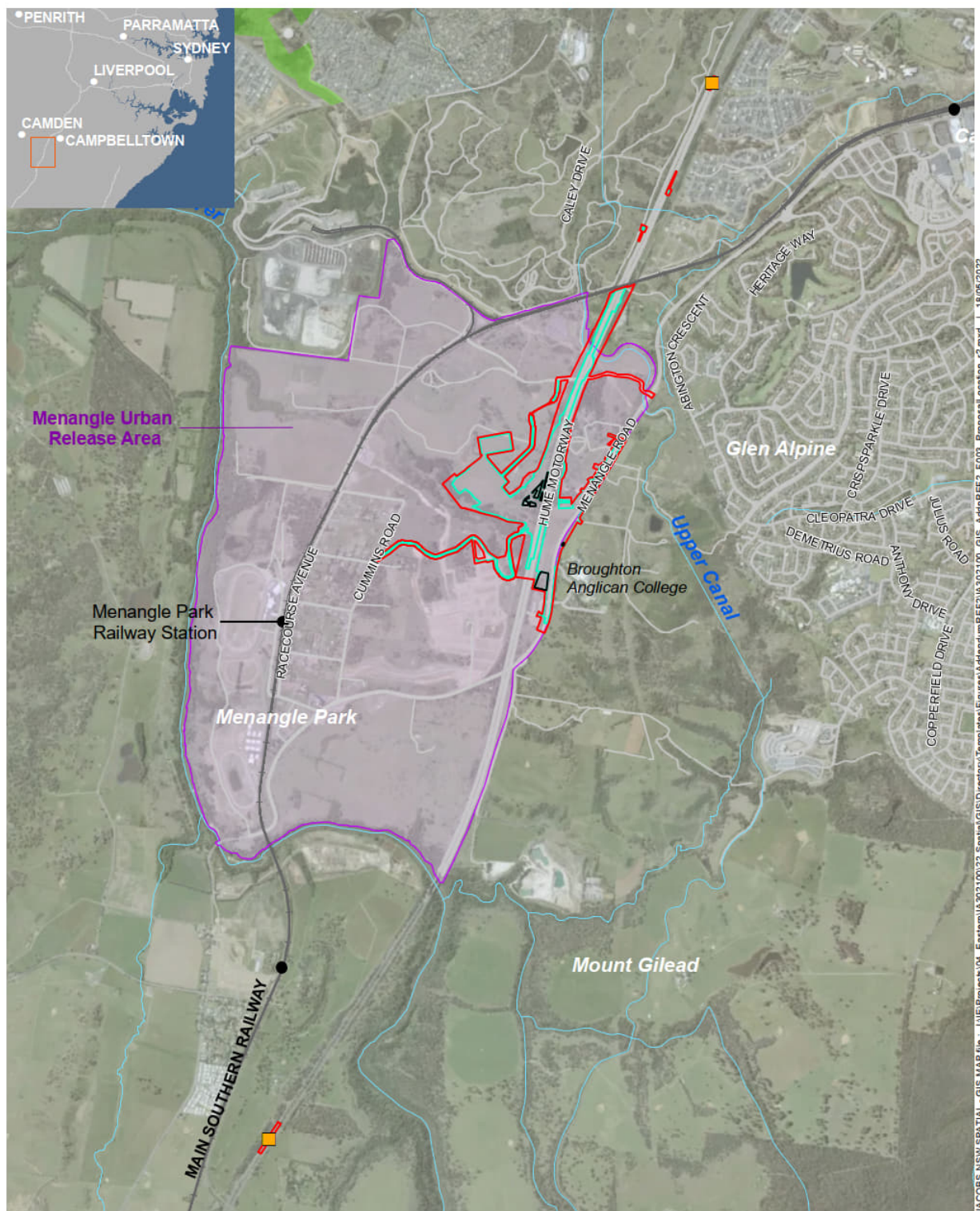
The proposed modification would involve:

- The decommissioning of existing above and below ground electricity lines along Menangle Road
- The construction and use of a new private driveway off the western side of Menangle Road, opposite the Broughton Anglican College exit
- The use of an alternative section of the existing AGL track off Cummins Rd by construction vehicles
- The removal of the access track from the project area to Fitzpatrick Street
- The removal of the ancillary facility near Glenlee Road
- A change in the direct impact boundary to account for:
 - The above modifications
 - The latest detailed design, inclusive of the project as described in A1REF
 - Access to and adjustment of utilities.

The location of the proposed modification is shown in Figure 1-1. Key features of the proposed modification are shown in Figure 1-2.

Where relevant, the project area has also been adjusted to accommodate the direct impact boundary. No vegetation clearing or other disturbance would occur outside of the direct impact boundary. The Addendum 2 REF direct impact boundary and project area is shown in Figure 1-3.

Chapter 3 describes the proposed modification in more detail.



Legend

- | | |
|----------------------------------|----------------------|
| Menangle Park Urban Release Area | Cross over locations |
| A2REF direct impact boundary | Train station |
| A2REF project area | Waterway |
| No-go zone | Railway line |

Figure 1-1 Locality

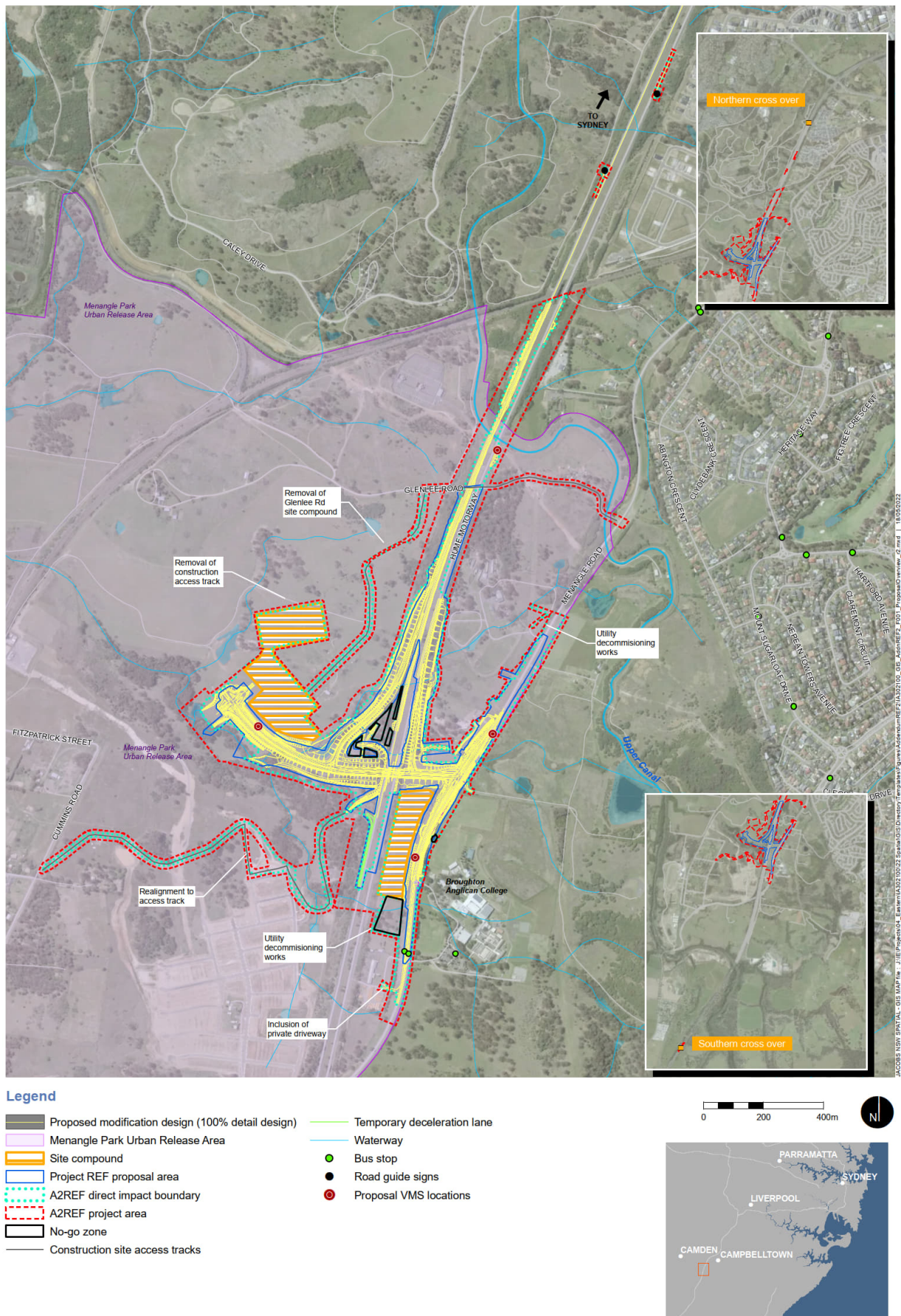


Figure 1-2 Key features of the proposed modification

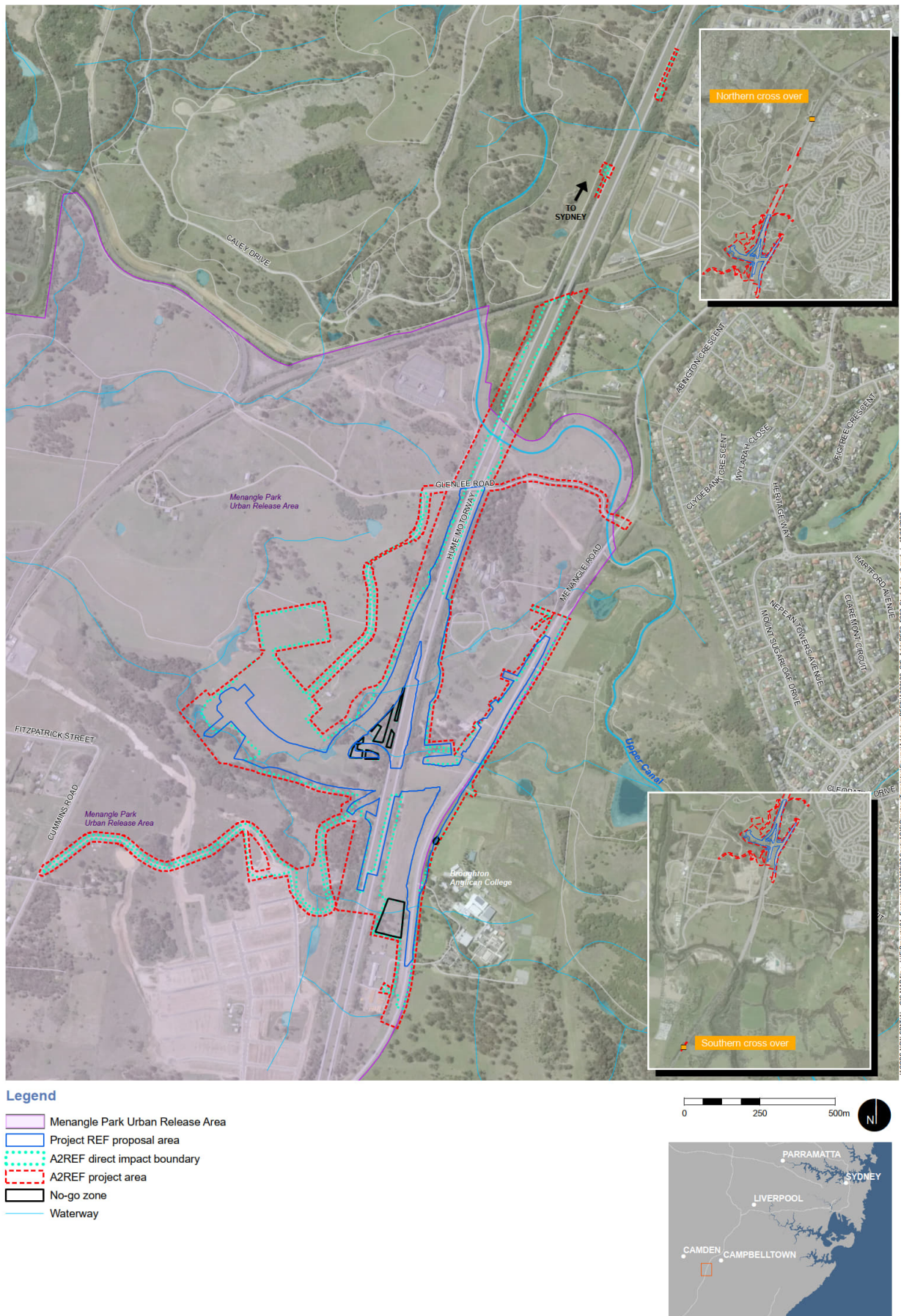


Figure 1-3 Revised addendum 2 REF project area and direct impact boundary

1.2 Purpose of the report

This Addendum 2 Review of Environmental Factors (A2REF) has been prepared by Jacobs on behalf of Transport for NSW. For the purposes of these works, Transport for NSW is the proponent and the determining authority under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This A2REF is to be read in conjunction with the project REF, submissions report and A1REF. The purpose of this A2REF is to describe the proposed modification, to document and assess the likely impacts of the proposed modification on the environment, and to detail mitigation and management measures to be implemented.

The description of the proposed work and assessment of associated environmental impacts has been undertaken in context of Clause 171 of the Environmental Planning and Assessment Regulation 2021 and matters of national environmental significance under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Other relevant legislation and plans, and how they apply to the project, are described in Chapter 4.

In doing so, this A2REF helps to fulfil the requirements of Section 5.5 of the EP&A Act including that Transport for NSW examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

The findings of this A2REF would be considered when assessing:

- Whether the proposed modification is likely to result in a significant impact on the environment and therefore the necessity for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning under Division 5.2 of the EP&A Act
- The significance of any impact on threatened species as defined by the BC Act and/or FM Act, in section 1.7 of the EP&A Act and therefore the requirement for a Species Impact Statement or a Biodiversity Development Assessment Report
- The significance of any impact on nationally listed biodiversity matters under the EPBC Act, including whether there is a real possibility that the activity may threaten long-term survival of these matters, and whether offsets are required and able to be secured
- The potential for the proposed modification to significantly impact any other matters of national environmental significance or Commonwealth land and therefore the need to make a referral to the Australian Government Department of Agriculture, Water and the Environment for a decision by the Australian Government Minister for the Environment on whether assessment and approval is required under the EPBC Act.

2 Need and options considered

2.1 Strategic need for the proposed modification

Chapter 2 of the project REF addresses the strategic need for the project, the project objectives and the options that were considered. The proposed modification described and assessed in this A2REF is consistent with the strategic need for the project by aligning with the outcomes of the project objectives and development criteria originally assessed.

Section 2.3 of the project REF identifies the project objectives and development criteria that apply to the proposed modification. The modified project would continue to support the objectives of Stage 1 of Spring Farm Parkway project by enabling efficient construction and supporting residential growth. The operation of the modified project would continue to improve accessibility by allowing additional road capacity and efficiency, which will further facilitate the wider development of the area.

2.2 Options considered

2.2.1 Electricity line decommissioning

The proposed modification would involve the decommissioning of an existing high voltage above ground electricity line and an existing high voltage below ground electricity line as shown in Figure 1-2.

Poles would be removed to the base of the foundation, and pits would be removed and backfilled with suitable clean fill material. Vegetation within two metres of the electricity lines would be removed or trimmed as required to facilitate access for machinery during decommissioning.

An alternative option of not removing the existing electricity lines was considered. Under this scenario, the electricity lines would remain intact on site and work would be carried out around the electricity lines. This alternative option was reviewed in line with the project objectives and development criteria. Following this consideration, it was determined that redundant electricity lines would be removed for the safety of future landholders.

As a result, it was considered that the electricity lines being decommissioned as part of the proposed modification would best address the project objectives.

2.2.2 Private driveway construction

The proposed modification would involve the construction and use of a new private driveway off the western side of Menangle Road, opposite the Broughton Anglican College exit, as shown in Figure 1-2. This private driveway would provide access for the occupant of Lot 8, DP 791365, to Menangle Road.

Construction of the private driveway would include clearing of existing vegetation, excavation of existing topsoil and unsuitable material, and the placement of new driveway pavement.

An alternative option of not constructing the private driveway was considered. This alternative option was reviewed in line with the project objectives and development criteria. Following this consideration, it was determined that not constructing the private driveway would limit the access of the occupant of Lot 8, DP 791365, and that the private driveway should be constructed to minimise access-related disruption resulting from the project. The approved project removes the existing right turn from Lot 8, DP 791365, and the construction and operation of the new private driveway would provide access equivalent to existing.

As a result, it was considered that the private driveway being constructed as part of the proposed modification would best address the project objectives.

2.2.3 Use of alternate section of existing construction track

The proposed modification would involve the use of an alternative section of the existing AGL track off Cummins Road (shown in Figure 1-2) for construction vehicles. As this access track is existing, the modification would be limited to the use of the track and the placement of additional graded material if required. No construction of new tracks is proposed.

An alternate option of using the existing access tracks as described for the approved project was considered. This alternative option was reviewed in line with the project objectives and development criteria. Following this consideration, it was determined that not using the alternate section would result in disruption to surrounding landholders. As a result, it was considered that the use of the alternate section of the existing AGL track off Cummins Road would best address the project objectives.

2.2.4 Removal of access track from project area to Fitzpatrick Street

The proposed modification would remove the use of an access track from the project area to Fitzpatrick Street. The use of this access track was previously approved as part of A1REF but has not been constructed. Construction access would continue to be provided from the project area to Cummins Road.

An alternate option of retaining this access track as described for the approved project was considered. This alternative option was reviewed in line with the project objectives and development criteria. Following this consideration, it was determined that using this access track would result in increased biodiversity impacts associated with vegetation clearing and disturbance. As a result, it was considered that the removal of this access track would best address the project objectives.

2.2.5 Removal of ancillary facility near Glenlee Road

The proposed modification would remove the use of an ancillary facility near Glenlee Road. The use of this ancillary facility was previously approved as part of A1REF. The remaining ancillary facilities would provide sufficient support for the project.

An alternate option of retaining this ancillary facility as described for the approved project was considered. This alternative option was reviewed in line with the project objectives and development criteria. Following this consideration, it was determined that retaining this ancillary facility would result in increased biodiversity impacts associated with vegetation clearing and disturbance. As a result, it was considered that the removal of this ancillary facility near Glenlee Road would best address the project objectives.

2.2.6 Modified direct impact boundary and project area

The proposed modification would result in changes to the direct impact boundary to account for:

- The above modifications
- The latest detailed design, inclusive of the project as described in A1REF
- Access to and adjustment of utilities.

Some changes to the direct impact boundary are required to facilitate the latest detailed design, inclusive of the project as described in A1REF. No alternative options were considered for changes facilitating the latest detailed design, as this detailed design has already been

approved and this A2REF serves as a clarification to the assessments undertaken for that work.

The remaining increases in the direct impact boundary and project area would be required to facilitate the above modifications. Other options considered for these aspects are described above. In summary, it was considered that the proposed modification would best address the project objectives.

3 Description of the proposed modification

Transport for NSW proposes a modification to Spring Farm Parkway Stage 1 that would involve:

- The decommissioning of existing above and below ground electricity lines along Menangle Road
- The construction and use of a new private driveway off the western side of Menangle Road, opposite the Broughton Anglican College exit
- The use of an alternative section of the existing AGL track off Cummins Rd by construction vehicles
- The removal of the access track from the project area to Fitzpatrick Street
- The removal of the ancillary facility near Glenlee Road
- A change in the direct impact boundary to account for:
 - The above modifications
 - The latest detailed design, inclusive of the project as described in A1REF
 - Access to and adjustment of utilities.

3.1 Electricity line decommissioning

Two existing high voltage electricity lines would be decommissioned for the safety of future landholders.

The location of the proposed modification is shown in Figure 1-2.

The proposed modification would involve the decommissioning of an existing high voltage above ground electricity line and an existing high voltage below ground electricity line as shown in Figure 1-2. Electricity lines would be removed for the safety of future landholders.

Poles would be removed at the base of the foundation, and pits would be removed and backfilled with suitable clean fill material. Overall, the earthworks and materials required for the proposed modification would be consistent with those described for the approved project. The traffic management and property access associated with this proposed modification would be managed under the Traffic Management Plans implemented for the approved project.

Vegetation within two metres of the electricity lines would be removed or trimmed as required to facilitate access for machinery during decommissioning.

The key features of the electricity line decommissioning are shown in Table 3-1, while the decommissioning methodology is shown in Table 3-2.

Table 3-1 Key features of electricity line decommissioning

Feature	Methodology
Project area	As shown in Figure 1-3 and encompassing the existing electricity line with a two metre buffer
Project access	Access via Menangle Road
Temporary construction facilities	Not required, as the proposed modification would utilise the temporary construction facilities for the approved project
Construction timeframe	Up to two months per service
Construction hours	As described within Section 3.4.4 of the project REF
Construction equipment	As described in Section 3.3.3 of A1REF
Property acquisition or lease	None required, as the proposed modification would be carried out within the property adjustments described in Section 3.7.1 of the project REF

Table 3-2 Utility decommissioning methodology

Stages	Methodology
Site establishment	<ul style="list-style-type: none"> • Notify adjacent residents of proposed work at least five days prior to the work commencing • Establish temporary fencing to secure work site • Establish no-go zones and refinement of vegetation clearance boundaries • Installation of construction signage and advisory signs • Installation of environmental controls.
Service relocations	Existing services would be decommissioned following the construction of new services along Menangle Road
Surface work	<ul style="list-style-type: none"> • Removal and trimming of vegetation to allow access along the electricity line alignment • Removal of underground and overground power cables • Removal of poles at the base of the foundation • Removal of pits and filling with suitable material

3.2 Private driveway construction

The proposed modification would involve the construction and use of a new private driveway off the western side of Menangle Road, opposite the Broughton Anglican College exit, as shown in Figure 1-2. This private driveway would provide access for the occupant of Lot 8, DP 791365, to Menangle Road.

Construction of the private driveway would include clearing of existing vegetation, excavation of existing topsoil and unsuitable material, and the placement of new driveway pavement. The construction methodology for the private driveway would be consistent with that described for the approved project. Construction of the private driveway would take up to six weeks.

No property acquisition or leases would be required, as the proposed modification would be carried out within the property adjustments described in Section 3.7.1 of the project REF.

Overall, the earthworks and materials required for the proposed modification would be consistent with those described for the approved project. There would be no utility adjustments required as a result of the private driveway construction.

Current driveway access to Lot 8, DP 791365 would be retained during construction to provide commercial access. The current driveway access would be retained until the landholder chooses to decommission it.

The traffic management and property access associated with this proposed modification would be managed under the Traffic Management Plans implemented for the approved project.

3.3 Use of alternate section of existing construction track

The proposed modification would involve the use of an alternative section of the existing AGL track off Cummins Road (shown in Figure 1-2) for construction vehicles. As this access track is existing, the modification would be limited to the use of the track and the placement of additional graded material if required. No construction of new tracks is proposed.

No property acquisition or leases would be required, as the proposed modification would be carried out within the property adjustments described in Section 3.7.1 of the project REF. Given that there would be no construction as a result of this change, there would be no changes to excavation work, source and quantity of materials and public utility adjustments.

3.4 Removal of access track from project area to Fitzpatrick Street

The proposed modification would remove the use of an access track from the project area to Fitzpatrick Street. The use of this access track was previously approved as part of A1REF but has not been constructed. Construction access would continue to be provided from the project area to Cummins Road.

No property acquisition or leases would be required, as the proposed modification would be carried out within the property adjustments described in Section 3.7.1 of the project REF. Given that there would be no construction as a result of this change, there would be no changes to excavation work, source and quantity of materials and public utility adjustments.

3.5 Removal of ancillary facility near Glenlee Road

The proposed modification would remove the use of an ancillary facility near Glenlee Road. The use of this ancillary facility was previously approved as part of A1REF. The remaining ancillary facilities would provide sufficient support for the project. No property acquisition or leases would be required, as the proposed modification would be carried out within the property adjustments described in Section 3.7.1 of the project REF.

Given that there would be no construction as a result of this change, there would be no changes to excavation work, source and quantity of materials and public utility adjustments.

3.6 Modified direct impact boundary and project area

The proposed modification would include a change in the direct impact boundary to account for:

- The above modifications
- The latest detailed design, inclusive of the project as described in A1REF
- Access to and adjustment of utilities.

This would represent an overall increase from the direct impact boundary of the approved project. The associated project area has also been adjusted where relevant to accommodate the direct impact boundary. No vegetation clearing would occur outside of the direct impact boundary.

About 13.46 hectares of additional native vegetation would be required to be cleared as a result of the modified direct impact boundary and project area.

These works would be required to enable the efficient construction and supporting residential growth of the project.

Given that there would be no construction as a result of the modified direct impact boundary, there would be no changes to excavation work, source and quantity of materials and public utility adjustments outside of those described above. No property acquisition or leases would be required, as the proposed modification would be carried out within the property adjustments described in Section 3.7.1 of the project REF.

The traffic management and property access associated with this proposed modification would be managed under the Traffic Management Plans implemented for the approved project.

The revised addendum 2 REF project area is shown in Figure 1-3.

4 Statutory and planning framework

4.1 Environmental Planning and Assessment Act 1979

The proposal would be unlikely to cause a significant impact on the environment. Therefore it is not necessary for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning under Division 5.2 of the EP&A Act. The proposal is subject to assessment under Division 5.1 of the EP&A Act.

A number of State Environmental Planning Policies (SEPPs) under the EP&A Act are also relevant to the proposed modification as described below.

4.1.1 State Environmental Planning Policies (SEPP)

State Environmental Planning Policy (Transport and Infrastructure) 2021

The State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP) aims to facilitate the effective delivery of infrastructure across the State.

Section 2.108 of TISEPP permits development on any land for the purpose of a road or road infrastructure facilities to be carried out by or on behalf of a public authority without consent.

As the proposed modification is for a road and is to be carried out by Transport for NSW, it can be assessed under Division 5.1 of the EP&A Act. Development consent from council is not required.

The proposed modification is not located on land reserved under the *National Parks and Wildlife Act 1974* and does not require development consent or approval under State Environmental Planning Policy (Resilience and Hazards) 2021 or State Environmental Planning Policy (Planning Systems) 2021.

Part 2.2, Division 1 of TISEPP contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development. Consultation, including consultation as required by TISEPP (where applicable), has been previously undertaken for the project throughout the project REF and A1REF, and is summarised in Chapter 5 of this A2REF.

State Environmental Planning Policy (Biodiversity and Conservation) 2021

The State Environmental Planning Policy 2021 (Biodiversity and Conservation) (Biodiversity and Conservation SEPP) and how it applies to the project has been considered in the following subsections.

Chapter 4 Koala habitat protection 2021

The City of Campbelltown Local Government Area (LGA) is listed in Schedule 2 of the Biodiversity and Conservation SEPP.

While the requirements of Chapter 4 of the Biodiversity and Conservation SEPP do not apply to project approval under Part 5.1 of the EP&A Act, the requirements have nevertheless been previously considered. A biodiversity assessment carried out for the project REF (Section 6.7 of project REF) found that it was unlikely that the study area contains core koala habitat as defined in the now-repealed State Environmental Planning Policy No 44 – Koala Habitat Protection, given the poor condition of the habitats in the study area and the absence of any signs of koalas during the targeted surveys.

A biodiversity assessment carried out for the proposed modification as part of this A2REF (refer to Section 6.1) has concluded that the proposed modification is unlikely to have a significant impact on koalas.

Chapter 8 Sydney drinking water catchment

Section 8.11 of the Biodiversity and Conservation SEPP requires consideration of whether or not an activity to which Part 5 of the EP&A Act applies will have a neutral or beneficial effect on water quality before carrying out the activity.

As the project is not located within the boundary of Sydney's Drinking Water Catchment, this consideration does not apply to the project.

Chapter 9 Hawkesbury-Nepean River

The proposed modification is located on land to which Chapter 9 of the Biodiversity Conservation SEPP applies. The aim this chapter is to protect the environment of the Hawkesbury-Nepean River system by ensuring that the impacts of future land uses are considered in a regional context.

Under Section 9.3 of the SEPP, a person, company, public authority or a company State owned corporation proposing to carry out development which does not require development consent must take into consideration the planning considerations set out in Section 9.4 of the SEPP, and the specific planning policies and strategies set out in Section 9.5 of the SEPP (see Table 4-1).

Table 4-1 Planning considerations that apply to the project

Consideration	Comment
Section 9.4 General planning considerations	
(a) the aim of this Chapter, and	<p>The aim of this chapter is to protect the environment of the Hawkesbury-Nepean River system by ensuring that the impacts of future land uses are considered in a regional context.</p> <p>Where relevant, this A2REF assesses the impacts of the proposed modification and considers the potential regional impact of its construction and operation. The proposed modification is not anticipated to have regional level impacts.</p>
(b) the strategies listed in the Action Plan of the Hawkesbury-Nepean Environmental Planning Strategy, and	<p>The proposed modification is not inconsistent with the strategies listed in the Action Plan.</p>
(c) whether there are any feasible alternatives to the development or other proposal concerned, and	<p>Chapter 2 describes and assesses options of the proposed modification.</p>
(d) the relationship between the different impacts of the development or other proposal and the environment, and how those impacts will be addressed and monitored.	<p>Chapter 6 assesses the impact of the proposed modification. The proposed modification is not expected to significantly impact the Hawkesbury Nepean River System environment.</p>
Section 9.5 Specific planning policies and recommended strategies are:	

Consideration	Comment
Specific planning policies and recommended strategies.	<p>Relevant specific planning policies and recommended strategies have been considered throughout the environmental assessment in Chapter 6, specifically:</p> <ul style="list-style-type: none"> • Cultural heritage policy and recommended strategies • Flora and fauna policy and recommended strategies <p>Mitigation measures that are consistent with specific planning policies and recommended strategies are described in Chapter 7.</p>

State Environmental Planning Policy (Resilience and Hazards) 2021

Chapter 4 (Remediation of land) of the State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP) promotes the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment.

As described in Section 6.3, the potential contamination sources detailed above would be suitably managed by the safeguards and management measures detailed in A1REF.

4.1.2 Local Environmental Plans

The proposed modification is within the Campbelltown local government area. Development and land use within these areas are primarily regulated by the Campbelltown Local Environmental Plan 2015 (Campbelltown LEP).

The zonings which apply to the land impacted by the proposed modification are shown in Figure 4-1.

The consistency of the approved project with these zoning objectives is described in Section 4.1.2 of A1REF. The proposed modification would also be consistent with these zoning objectives as shown in Table 4-2.

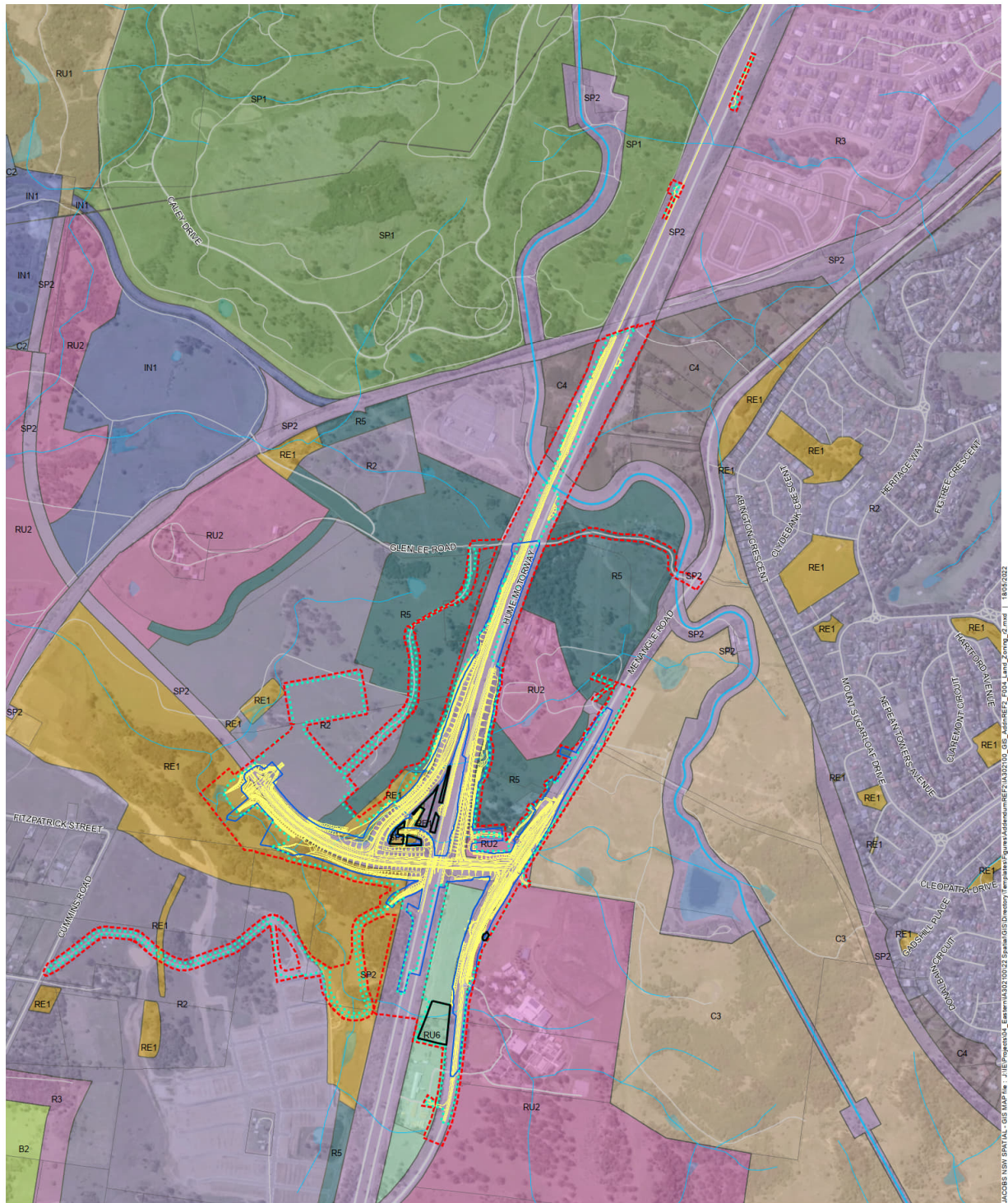
Table 4-2 Consistency of proposed modification with LEP zoning

LEP Zone	Objectives	Consistency of the proposed modification with the objectives
Campbelltown LEP		
RE1 – Public Recreation	<p>To enable land to be used for public open space or recreational purposes</p> <p>To provide a range of recreational settings and activities and compatible land uses</p> <p>To protect and enhance the natural environment for recreational purposes</p> <p>To provide for land uses compatible with the ecological, scientific, cultural, or aesthetic values of land in the zone</p> <p>To facilitate the multiple use of certain open space areas</p> <p>To facilitate development that is ancillary or incidental to the special land uses provided for in this zone</p> <p>To provide for the sufficient and equitable distribution of public open space to meet the needs of the local community</p> <p>To preserve and rehabilitate bushland, wildlife corridors and natural habitat, including waterways and riparian lands, and facilitate public enjoyment in these areas</p> <p>To provide for the retention and creation of view corridor</p> <p>To protect and enhance areas of scenic value and the visual amenity of prominent ridgelines</p> <p>To preserve land that is required for public open space or recreational purposes.</p>	<p>Yes – The proposed modification, consistent with the approved project, would protect areas of scenic value and visual amenity.</p>

LEP Zone	Objectives	Consistency of the proposed modification with the objectives
SP2 – Infrastructure	<p>To provide for infrastructure and related uses</p> <p>To prevent development that is not compatible with or that may detract from the provision of infrastructure</p> <p>To encourage activities involving research and development</p> <p>To optimise value-adding development opportunities, particularly those associated with research</p> <p>To provide for the retention and creation of view corridors</p> <p>To preserve bushland, wildlife corridors and natural habitat</p> <p>To maintain the visual amenity of prominent ridgelines.</p>	<p>Yes – the proposed modification, consistent with the approved project, is consistent with the objectives of this land zone.</p>
R2 – Low Density Residential	<p>To provide for the housing needs of the community within a low density residential environment</p> <p>To enable other land uses that provide facilities or services to meet the day to day needs of residents</p> <p>To enable development for purposes other than residential only if that development is compatible with the character of the living area and is of domestic scale</p> <p>To minimise overshadowing and ensure a desired level of solar access to all properties</p> <p>To facilitate diverse and sustainable means of access and movement.</p>	<p>Yes – the proposed modification, consistent with the approved project, improves and supports access to and from this residential area.</p>

LEP Zone	Objectives	Consistency of the proposed modification with the objectives
R5 – Village	<p>To provide for a range of land uses, services and facilities that are associated with a rural village.</p> <p>To minimise adverse environmental impacts on adjoining land uses and the natural environment.</p> <p>To maintain environmental and visual amenity.</p> <p>To promote healthy lifestyles by ensuring land is available for the local production and consumption of fresh food.</p>	<p>Yes – the proposed modification, consistent with the approved project, is consistent with the objectives of this land zone.</p> <p>Consistent with the approved project, the proposed modification has been designed to reduce adverse environmental impacts and to the natural environment and visual amenity.</p> <p>Measures have been taken to ensure feasible and reasonable controls would be implemented to minimise any impact.</p>
RU2 – Rural Landscape	<p>To encourage sustainable primary industry production by maintaining and enhancing the natural resource base</p> <p>To maintain the rural landscape character of the land</p> <p>To provide a range of compatible land uses, including extensive agriculture</p> <p>To preserve and enhance bushland, wildlife corridors, natural habitat, and water resources, including waterways, ground water and riparian land</p> <p>To protect and enhance areas of scenic value, and the visual amenity of prominent ridgelines, by minimising development and providing visual contrast to nearby urban development.</p>	<p>Yes – The proposed modification, consistent with the approved project, would minimise encroachment into rural landscapes. The use of this land use from the remaining construction footprint would not be compromised or detracted.</p>

LEP Zone	Objectives	Consistency of the proposed modification with the objectives
E3 – Environmental Management	<p>To protect, manage and restore areas with special ecological, scientific, cultural or aesthetic values</p> <p>To provide for a limited range of development that does not have an adverse effect on those values</p> <p>To enable development for purposes other than rural-residential only if that development is compatible and complementary, in terms of design, size and scale, with the character of land in the zone</p> <p>To allow cellar door premises, restaurants and cafes only where they are directly associated with the agricultural use of the land</p> <p>To protect, and maintain the environmental, ecological and visual amenity of, the Scenic Hills, the Wedderburn Plateau and environmentally sensitive lands in the vicinity of the Georges River from inappropriate development</p> <p>To preserve the rural heritage landscape character of the Scenic Hills</p> <p>To protect and enhance areas of scenic value and the visual amenity of prominent ridgelines</p> <p>To protect bushland, wildlife corridors and natural habitat, including waterways and riparian lands</p> <p>To ensure the preservation and maintenance of environmentally significant and environmentally sensitive land.</p>	<p>Yes – Consistent with the approved project, the proposed modification has been designed to reduce the required impact on and loss of areas of high ecological, scientific, cultural or aesthetic values by restriction work in these areas where possible.</p> <p>Measures have been taken to ensure feasible and reasonable controls would be implemented to minimise any impact.</p>



Legend

	Proposed modification design (100% detail design)		B2, Local Centre		R5, Village
	Project REF proposal area		C2, Environmental Conservation		RE1, Public Recreation
	A2REF direct impact boundary		C3, Environmental Management		RU1, Primary Production
	A2REF project area		C4, Environmental Living		RU2, Rural Landscape
	No-go zone		IN1, General Industrial		RU6, Transition
	Waterway		R2, Low Density Residential		SP1, Special Activities
	Cadastrate		R3, Medium Density Residential		SP2, Infrastructure

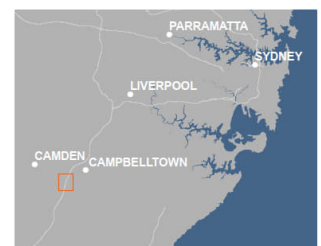
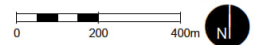


Figure 4-1 Land zoning

4.2 Other relevant NSW legislation

4.2.1 Environmental Planning and Assessment Regulation 2021

The environmental factors listed in Clause 171 of the Environmental Planning and Assessment Regulation 2021 have been considered to assess the likely impacts of the proposed modification on the natural and built environment. This is further described in Appendix A.

4.2.2 National Parks and Wildlife Act 1974

The National Parks and Wildlife Act 1974 (NPW Act) is the primary legislation dealing with Aboriginal cultural heritage in NSW. Items of Aboriginal cultural heritage (Aboriginal objects) or Aboriginal places (declared under Section 84) are protected and regulated under the NPW Act. Aboriginal objects are protected under section 86 of the Act. Under section 90(1) of the Act the Secretary of the Department of Premier and Cabinet may issue an Aboriginal heritage impact permit (AHIP) for an activity which would harm an Aboriginal object.

An Aboriginal cultural heritage assessment report (CHAR) was prepared for the approved project in accordance with the Procedure for Aboriginal Cultural Heritage Consultation and Investigation (PACHCI) (Roads and Maritime Services, 2011) as described in Section 6.3 of A1REF. Aboriginal Heritage Impact Permits have been previously established for the approved project.

The proposed modification would not result in any additional impacts to identified Aboriginal heritage sites or objects and no additional Aboriginal Heritage Impact Permits would be required as a result of the proposal.

Impacts would be managed by safeguards and mitigation measures outlined in Chapter 7. Any unexpected Aboriginal heritage items found during construction of the modified project which are not assessed in this A2REF, or for the approved project, would be managed in accordance with The Standard Management Procedure – Unexpected Heritage Items (Roads and Maritime, 2015).

4.2.3 Heritage Act 1977

The Heritage Act 1977 (Heritage Act) aims to protect items of State and local heritage significance and outlines the process for the approval of development that may impact on items of heritage significance.

Matters protected under the Heritage Act include items subject to an Interim Heritage Order and items listed on the State Heritage Register, the heritage schedules of local council Local Environmental Plans (LEPs), and the heritage and conservation registers established under section 170 of the Heritage Act by NSW Government agencies (section 170 Registers). The Act also provides for the protection of archaeological ‘relics’, being any deposit, object or material evidence that relates to the non-Aboriginal settlement of NSW and is of State or local heritage significance. Under section 57(1), approvals are required for work to a place, building, work, relic, moveable object, precinct, or land listed on the State Heritage Register (SHR). An excavation permit under section 139 of the Heritage Act is required to disturb or excavate any land containing or likely to contain a relic.

A Statement of Heritage Impact Assessment (SOHI) was prepared for the project REF and A1REF. While proposed modification would not result in any changes to the non-Aboriginal heritage impacts described for the approved project as described in Chapter 6, the modified project would continue to require a permit approval under Section 60 of the Heritage Act

4.2.4 Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (BC Act) commenced on 25 August 2017, repealing the *Threatened Species Conservation Act 1995*. The BC Act seeks to conserve biological diversity and promote ecologically sustainable development (ESD); to prevent extinction and promote recovery of threatened species, populations and ecological communities; and to protect areas of outstanding biodiversity value. The BC Act provides a listing of threatened species, populations and ecological communities, areas of outstanding biodiversity value, and key threatening processes.

Part 7 of the BC Act requires that the significance of the impact on threatened species, populations and endangered ecological communities listed under the BC Act or *Fisheries Management Act 1994* (FM Act), are assessed using a five-part test. Where a significant impact is likely to occur, a SIS or Biodiversity Assessment Report (BAR) must be prepared in accordance with the Director-General's requirements.

An assessment of the potential impact to biodiversity is provided in Section 6.1.3 and Appendix C.

The following threatened biodiversity listed on the BC Act are known to occur or considered likely to occur in the study area:

- Cumberland Plain Woodland – listed as a Critically Endangered Ecological Community (CEEC) under the BC Act
- Cumberland Plain Woodland – listed as a CEEC under the BC Act
- *Pimelea spicata* (spiked Rice-flower) – listed as Endangered under the BC Act
- *Meridolum corneovirens* (Cumberland Plain Land Snail) – listed as Endangered under the BC Act
- *Glossopsitta pusilla* (Little Lorikeet) – listed as Vulnerable under the BC Act
- *Hieraaetus Morphnoides* (Little Eagle) – listed as Vulnerable under the BC Act
- Hollow-dependant bats:
 - *Micronomus norfolkensis* (Eastern Coastal Freetail-bat) – listed as Vulnerable under the BC Act
 - *Scoteanax rueppellii* (Greater Broad-nosed Bat) – listed as Vulnerable under the BC Act
 - *Myotis Macropus* (Southern Myotis) – listed as Vulnerable under the BC Act
- Grey-headed Flying-fox (*Pteropus poliocephalus*) – listed as Vulnerable under the BC Act
- Koala (*Phascolarctos cinereus*) – listed as Vulnerable under the BC Act.

The potential impact of the proposed modification and the cumulative impact of the modified project on the threatened species, threatened ecological community and their habitats have been assessed via the application of the Five Part Test under the BC Act. The proposed modification is unlikely to have a significant impact on these communities and species.

2.4.5 Fisheries Management Act 1994

The *Fisheries Management Act 1994* (FM Act) aims to conserve, develop and share the fisheries resources of the State for the benefit of present and future generations, including conserving fish stocks and key fish habitats and promoting ecologically sustainable development. The FM Act applies to all waters within the limits of the State, except where Commonwealth legislation applies.

Threatened species, populations and ecological communities of fish and marine vegetation are protected under the FM Act. In addition, an object of the FM Act is to conserve key fish habitat. Permits from NSW Department of Primary Industries (DPI) – Fisheries are required for certain impact in key fish habitat, including blocking of fish passage.

While the construction of the proposed modification would be in proximity to waterways as shown in Figure 1-2, the works would be minor in nature and would not impact water quality. No dredging or reclamation works would be carried out for the proposed modification, and the mitigation measures described in Chapter 7 would be implemented to manage potential erosion and sedimentation impacts. In addition, the waterways are not considered to be sensitive receiving environments. As a result, a permit under the FM act is not required.

4.2.6 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (NSW) (POEO Act) provides for the issue of an Environment Protection Licence (EPL) for scheduled activities.

Transport for NSW is currently in the process of applying for an EPL for the project. The EPL would be updated as required to consider the proposed modification.

Section 148 of the POEO Act requires immediate notification of pollution incidents causing or threatening material harm to the environment to each relevant authority. Incident management measures would be included in the CEMP for the project.

4.2.7 Waste Avoidance and Resource Recovery Act 2001

The purpose of the *Waste Avoidance and Resource Recovery Act 2001* (WARR Act) is to develop and support the implementation of regional and local programs to meet the outcomes of a State-wide strategy for waste avoidance and resource recovery. It also aims to 'minimise the consumption of natural resources and final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste'.

Waste generation and disposal reporting would be carried out during the construction and operation of the project, inclusive of the proposed modification. Procedures would be implemented during construction in an attempt to promote the objectives of the Act.

4.2.8 Coal Mine Subsidence Compensation Act 2017

The *Coal Mine Subsidence Compensation Act 2017* was passed by the NSW Parliament in August 2017. The Act repealed and replaced the *Mine Subsidence Compensation Act 1961*. The purpose of this Act is to make provision for the payment of compensation for damage caused by subsidence arising from coal mining. The Act also includes conditions relating to the approval of development within mine subsidence districts, and functions and powers of the Subsidence Advisory NSW (previously the Mine Subsidence Board). Part 3 of the Act outlines the conditions and approvals required for development within mine subsidence districts.

The proposed modification is located within the South Campbelltown Mine Subsidence District. Approval under section 22 of the *Coal Mine Subsidence Compensation Act 2017* was granted for the project and proposed modification, subject to conditions detailed in Section 6.13.2 of the project REF.

4.3 Commonwealth legislation

4.3.1 Environment Protection and Biodiversity Conservation Act 1999

Under the EPBC Act a referral is required to the Australian Government for proposed actions that have the potential to significantly impact on matters of national environmental significance or the environment of Commonwealth land. These are considered in Appendix C and Section 6.1 of this A2REF .

A referral is not required for proposed road actions that may affect nationally listed threatened species, endangered ecological communities and migratory species. This is because requirements for considering impacts to these biodiversity matters are the subject of a strategic assessment approval granted under the EPBC Act by the Australian Government in September 2015.

Potential impacts to these biodiversity matters are considered as part of Section 6.1 and Appendix C.

The proposed modification would impact 0.53 hectares of potential habitat *Pimelea spicata* (Endangered, BC Act and EPBC Act). An Assessment of Significance under the BC Act and EPBC Act was undertaken (refer to Appendix C) The Assessment of Significance concluded that a significant impact as a result of the proposed modification was unlikely.

The assessment of the proposed modification's impact on matters of national environmental significance and the environment of Commonwealth land found that there would be no change to the findings of the determined activity, and that the proposed modification would be unlikely to cause a significant impact on matters of national environmental significance or the environment of Commonwealth land. A referral to the Australian Government Department of Agriculture, Water and the Environment is not required.

4.4 Confirmation of statutory position

The proposed modification is categorised as development for the purpose of a road and/or road infrastructure facilities and is being carried out by or on behalf of a public authority. Under Section 2.108 of TISEPP the proposed modification is permissible without consent. The proposed modification is not State significant infrastructure or State significant development. The proposed modification can be assessed under Division 5.1 of the EP&A Act. Consent from Council is not required. TISEPP requirements for consultation with local council to inform them of the project have been fulfilled as part of the project REF and is relevant to the proposed modification as well. This is detailed in Section 5 of the project REF.

Transport for NSW is the determining authority for the proposed modification. This A2REF fulfils Transport for NSW's obligation under Section 5.5 of the EP&A Act to examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the activity.

5 Consultation

The consultation strategy for the project remains consistent with that described in Section 5.1 of the project REF. Public display of this A2REF was not considered necessary given that the proposed modification would not include substantial changes to the approved project.

5.1 Consultation for the approved project

Consultation for the approved project has been undertaken as described in Chapter 5 of the project REF and Chapter 5 of A1REF. That consultation fulfilled the consultation requirements of TISEPP (referred to as ISEPP consultation throughout the project REF and A1REF). Consultation was undertaken with:

- Campbelltown City Council
- Relevant local government authorities and offices, including:
 - NSW Environment Protection Authority
 - Water NSW
 - Transport Management Centre
 - Mine Subsidence Board
- Residents and property owners including Broughton Anglican College
- Utility providers
- The heavy vehicle industry
- Local bus networks
- Developers of surrounding projects that may experience cumulative impacts

The outcomes of consultation undertaken for the approved project are described in Chapter 5 of the project REF and Chapter 5 of A1REF.

5.2 Consultation for the proposed modification

As the proposed modification would not include substantial changes to the approved project, limited consultation was undertaken and public display of this A2REF was not considered necessary.

Where undertaken, consultation for the proposed modification is described in the sections below.

5.2.1 Aboriginal community consultation

Aboriginal community consultation was undertaken for the Spring Farm Parkway Stage 1 Aboriginal Cultural Heritage Assessment in accordance with the Transport for NSW Procedure for Aboriginal Cultural Heritage Consultation and Investigation, the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW 2010b) and the requirements of Clause 60 of the National Parks and Wildlife Regulation 2019. Investigations for the Spring Farm Parkway have included consultation with the 27 Aboriginal community groups and individuals. Details of the consultation process and stakeholder responses can be found in the Spring Farm Parkway Stage 1 Aboriginal Cultural Heritage Assessment Report (KNC, December 2021).

As the impacts of the proposed modification are improved from those outlined in Section 6.8.3 of the project REF and Section 6.3.3 of A1REF, no additional Aboriginal community consultation has been undertaken.

5.2.2 Consultation regarding private driveway construction

Consultation was undertaken with the occupant of Lot 8, DP 791365 where the private driveway would be constructed. The occupant of lot 8 did not raise any issues to be addressed within this A2REF.

5.3 Ongoing and future consultation

Ongoing or future consultation would be consistent with Section 5.6 of the project REF.

In addition, Transport for NSW has undertaken ongoing consultation with the NSW State Emergency Service (SES) regarding the flooding impacts of A1REF. A consultation letter was issued to the NSW SES on 18 November 2021, providing a description of the modification described in A1REF.

NSW SES responded to this consultation on 15 December 2021. The issues raised by NSW SES and a response to these issues are shown in Table 5-1. Consultation with the NSW SES would be ongoing.

Table 5-1 Issues raised and responses to NSW SES consultation

Issues raised	Responses
The impacts of flooding should be further considered at the north-eastern extent of Menangle Road	Impacts of flooding would continue to be considered throughout the construction of the project. The flood impacts of the proposed modification would be consistent with those described for the approved project.
The use of Menangle Road by emergency vehicles may be impacted by construction works.	As per mitigation measure AF1, access for emergency services will be retained throughout construction and the construction contractor would consult with emergency services prior to construction.

Transport for NSW would continue to undertake further consultation, including:

- Further consultation with road users regarding decommissioning of the non-formalised rest area
- Further consultation with utility providers regarding the decommissioning of utilities
- Community updates on the progress of the project and the results of consultation undertaken

Any feedback raised through ongoing and future consultation would be considered, which may include an update to the CEMP or further environment assessment.

6 Environmental assessment

This section of provides a detailed description of the potential environmental impacts associated with the construction and operation of the proposed modification. The factors described in Section 171 of the Environmental Planning and Assessment Regulation 2021 are also considered in Appendix A.

A screening has been undertaken to determine whether the proposed modification could change the potential environmental impacts described in the project REF, the supporting submission report and A1REF. Table 6-1 provides a summary of whether additional environmental assessment of the proposed modification would be required, or if the assessment for the approved project remains applicable.

Where the requirement for further detailed assessment has been identified, this has been provided in Section 6.1 to Section 6.4. Where relevant, site-specific safeguards and management measures are provided to ameliorate the identified potential impacts.

Table 6-1 Summary of proposed modification environmental screening

Environmental aspect	Comparison of the proposed modification against the approved project		Further detailed assessment required?
	Construction	Operation	
Traffic and transport	<p>The proposed modification would not change the overall route or number of heavy and light construction vehicles from those described in the approved project.</p> <p>The construction of the new private driveway access would not change the described traffic and transport impacts of the approved project. Commercial access would be maintained as described in Section 3.2. No other additional road closures or alternative traffic arrangements would be required as a result of the proposed modification.</p> <p>The use of the alternate section of the existing AGL track would not change the described traffic and transport impacts of the approved project.</p> <p>While the removal of the access track from the project to Fitzpatrick Street would result in construction vehicles not using this track, construction vehicles would instead use the approved access tracks described in A1REF. As a result, construction vehicle movements would not be impacted by the proposed modification.</p> <p>The proposed modification would not result in any changed impacts to public or active transport from those described for the approved project.</p> <p>As a result, the traffic and transport impacts of the proposed modification are considered to be consistent with those of the approved project.</p>	<p>The proposed modification would not change the route, road design or vehicle carrying capacity of the operational roads, interchanges and intersections from those described in the approved project.</p> <p>While the proposed modification would include a new private driveway access, construction and operation of this driveway would not change the described traffic and transport impacts of the approved project. No other additional road closures or alternative traffic arrangements would be required as a result of the proposed modification.</p> <p>The proposed modification would not result in any changed impacts to operational public or active transport from those described for the approved project.</p> <p>As a result, the traffic and transport impacts of the proposed modification are considered to be consistent with those of the approved project.</p>	No

Environmental aspect	Comparison of the proposed modification against the approved project		Further detailed assessment required?
	Construction	Operation	
Noise and vibration	<p>The construction of the proposed modification would primarily involve vegetation clearing, utility decommissioning, minor temporary earthworks and the placement of materials. These activities are not considered to generate substantial noise and would not involve the use of any noise and vibration-generating equipment that has not been previously assessed for sound power levels the approved project. The duration of the construction of proposed modification would be brief, with the construction of the private driveway lasting up to six weeks and the decommissioning and removal of the high voltage electricity lines lasting up to two months per service.</p> <p>The proposed modification would not result in any works being undertaken closer to any noise receivers, and no additional noise receivers would be impacted as a result of the project. The removal of the access tracks from the project area to Fitzpatrick Street would result in a decrease in construction traffic noise to receivers in and around Fitzpatrick Street.</p> <p>Given that the proposed modification would not change the overall route or number of heavy and light construction vehicles from those described in the approved project, the construction road traffic noise impacts are considered to be consistent with those described for the approved project.</p> <p>As a result, it is considered that the construction noise and vibration levels of the proposed modification would be consistent with those described for the approved project.</p>	<p>The operation of the proposed modification would not result in any changed road traffic noise impacts, as the overall route, road design and vehicle carrying capacity of the operational roads, interchanges and intersections would not be changed from that described for the approved project.</p>	No

Environmental aspect	Comparison of the proposed modification against the approved project		Further detailed assessment required?
	Construction	Operation	
Landscape character and visual impact	<p>While the proposed modification would involve the decommissioning of existing utilities and the trimming and removal of vegetation, these works would be brief, with the construction of the private driveway lasting up to six weeks and the decommissioning and removal of the high voltage electricity lines lasting up to two months per service. and would not result in changes to visual impacts from viewpoints from those described for the approved project.</p> <p>As a result, the landscape character and visual impacts of the proposed modification would be consistent with those described for the approved project.</p>	<p>While the proposed modification would involve the decommissioning of existing utilities and the trimming and removal of vegetation, these works would not result in changes to visual impacts from viewpoints from those described for the approved project. The proposed modification would not result in any additional lighting impacts to those described for the approved project.</p> <p>As a result, the landscape character and visual impacts of the proposed modification would be consistent with those described for the approved project.</p>	No
Surface water	<p>The proposed modification would occur near watercourses and would involve minor temporary excavation work. No construction across waterways would be undertaken as part of the proposed modification. The controls established for the approved project as described in Chapter 7 would be implemented throughout the proposed modification. These controls are considered to be adequate to manage any minor surface water impacts from the proposed modification.</p> <p>As a result, the construction-related surface water impacts of the proposed modification, including changes to flow paths, erosion and sedimentation and the release of potentially harmful chemicals and other substances, would be consistent with those described for the approved project.</p>	<p>The operation of the proposed modification would not result in any changed surface water impacts, as the overall route and road design of the operational roads, interchanges and intersections would not be changed from that described for the approved project.</p>	No

Environmental aspect	Comparison of the proposed modification against the approved project		Further detailed assessment required?
	Construction	Operation	
Hydrology and flooding	<p>The impacts of flooding would continue to be considered throughout the construction of the project.</p> <p>The proposed modification would not result in any work that would result in changes from the overland flows described for the approved project.</p> <p>While there would be a very minor increase in impermeable surfaces due to the construction of the private driveway, this increase is of a scale that the flood impacts of the proposed modification are considered to of a scale that the overall impermeable area associated with the proposed modification is considered to be consistent with that for the approved project.</p> <p>As a result, the flood impacts of the proposed modification would be consistent with those described for the approved project.</p>	<p>While there would be a very minor increase in permanent impermeable surfaces due to the construction of the private driveway, this increase is of a scale that the flood impacts of the proposed modification are considered to of a scale that the overall impermeable area associated with the proposed modification is considered to be consistent with that for the approved project.</p> <p>As a result, the flood impacts of the proposed modification would be consistent with those described for the approved project.</p>	No
Soils and contamination	<p>The proposed modification would involve minor temporary excavation work and placement of minor quantities of material for the new private driveway. Excavation would be carried out outside of the areas previously assessed for contamination impact.</p> <p>The controls established for the approved project as described in Chapter 7 would be implemented throughout the proposed modification.</p>	<p>The proposed modification would not change the management and maintenance practices used to prevent spills and other contamination risks.</p> <p>As a result, the soils and contamination impacts of the proposed modification would be consistent with those described for the approved project.</p>	Yes
Biodiversity	<p>The proposed modification would include the clearing of about 13.46 hectares of native vegetation not previously assessed as part of the approved project.</p>	<p>The operational biodiversity impacts of the proposed modification would be consistent with those described for the approved project.</p>	Yes
Aboriginal heritage	<p>The proposed modification would result in surface disturbance to additional areas of land which have not been previously assessed for Aboriginal heritage significance.</p>	<p>The operational Aboriginal heritage impacts of the proposed modification would be consistent with those described for the approved project.</p>	Yes

Environmental aspect	Comparison of the proposed modification against the approved project		Further detailed assessment required?
	Construction	Operation	
Non-Aboriginal heritage	<p>Statements of Heritage Impact were prepared for the project REF and A1REF. The proposed modification would not result in any impacts to non-Aboriginal heritage from those described in these Statements of Heritage Impact.</p> <p>The unexpected finds protocol established for the approved project as described in Chapter 7 would be implemented for the proposed modification.</p> <p>As a result, the non-Aboriginal heritage impacts during construction of the proposed modification would be consistent with those described for the approved project.</p>	<p>The operational non-Aboriginal heritage impacts of the proposed modification would be consistent with those described for the approved project.</p>	No
Socio-economic	<p>The proposed modification would not result in any changes to active or public transportation during construction from that described for the approved project. There would be no changes to land use and no temporary changes to the lease or acquisition of any properties.</p> <p>As the construction noise and air quality impacts of the proposed modification would be consistent with those of the approved project, no additional amenity impacts would result from the proposed modification.</p>	<p>The proposed modification would not result in any changes to operational active or public transportation from that described for the approved project. There would be no changes to land use and no permanent changes to the lease or acquisition of any properties.</p> <p>As the operational noise and air quality impacts of the proposed modification would be consistent with those of the approved project, no additional amenity impacts would result from the proposed modification.</p>	No
Air quality	<p>The construction of proposed modification would result in a very minor increase in dust generated associated minor temporary excavation work and placement of minor quantities of material for the new private driveway. This dust generation would be temporary in nature and is of a scale that the dust generated by the proposed modification would be consistent with that generated by the approved project.</p>	<p>The proposed modification would not result in any changes to operational air quality, as the overall route, road design and vehicle carrying capacity of the operational roads, interchanges and intersections would not be changed from that described for the approved project.</p>	No

Environmental aspect	Comparison of the proposed modification against the approved project		Further detailed assessment required?
	Construction	Operation	
Waste and resource management	<p>While the proposed modification would result in an increase in the amount of waste produced and resources required, the waste management strategies described in Section 6.12 of the project REF are considered to be adequate to manage the waste generated by the proposed modification.</p> <p>Where practicable, waste would be reused on site.</p> <p>As a result, the construction waste and resource management impacts of the proposed modification would be consistent with those described for the approved project.</p>	<p>The proposed modification would not change the management and maintenance practices that may generate oils, liquids and chemicals, and would not generate additional quantities of general litter.</p> <p>As a result, the operational waste and resource management impacts of the proposed modification would be consistent with those described for the approved project.</p>	No
Groundwater	<p>Due to the minor nature of the excavation work required for the proposed modification, and the temporary nature of the work, groundwater take and temporary construction dewatering are not anticipated to be required for the proposed modification.</p>	<p>The proposed modification would not change the management and maintenance practices used to prevent spills and runoff to groundwater systems.</p> <p>As a result, the groundwater impacts of the proposed modification would be consistent with those described for the approved project.</p>	No
Climate change and greenhouse gas emissions	<p>The proposed modification would result in very minor increases in the use of fuel by vehicles and equipment and the onsite use of purchased electricity. These increases are of a scale that these emissions are considered to be consistent with those of the approved project.</p> <p>The clearance of about 13.46 hectares of native vegetation would contribute in a minor way to the greenhouse gas emissions of the project due to the loss of a carbon sink. Given the offsetting of this vegetation as described in Section 6.1.5, these emissions are considered to be consistent with those of the approved project.</p>	<p>The proposed modification would not result in any changes to operational climate change risk and greenhouse gas emissions, as the overall route, road design and vehicle carrying capacity of the operational roads, interchanges and intersections would not be changed from that described for the approved project.</p>	No

Environmental aspect	Comparison of the proposed modification against the approved project		Further detailed assessment required?
	Construction	Operation	
Hazards and risk	<p>The proposed modification would not involve the transport or use of hazardous materials and dangerous goods other than those described for the approved project. While the proposed modification would result in very minor increases in the use of fuel by vehicles and equipment, overall hazardous materials and dangerous goods quantities are considered to be consistent with those for the approved project.</p> <p>As the bushfire management controls for the approved project would remain in place for the proposed modification, the risk of bushfire associated with construction of the proposed modification is consistent with that for the approved project.</p> <p>As no future mining in within the project area is proposed, the proposed modification would not result in any mine subsidence impacts.</p>	<p>The proposed modification would not change the management and maintenance practices that may generate hazardous materials, including fuel, oil, liquid and chemical spills.</p> <p>As the bushfire management controls for the approved project would remain in place for the proposed modification, the risk of bushfire associated with operation of the proposed modification is consistent with that for the approved project.</p> <p>As no future mining in within the project area is proposed, the proposed modification would not result in any mine subsidence impacts.</p>	No
Cumulative impacts	<p>Additional vegetation removal would lead to potential cumulative impacts with the Menangle Park Development</p> <p>There would be no cumulative noise and vibration and traffic and transport impacts, given that the proposed modification would not change the overall route or number of heavy and light construction vehicles from those described in the approved project and the construction noise and vibration levels of the proposed modification would be consistent with those described for the approved project.</p>	<p>The operational cumulative impacts of the proposed modification would be consistent with those described for the approved project.</p>	Yes

6.1 Biodiversity

A biodiversity assessment was completed to identify the potential biodiversity impacts to from the construction and operation of the modified project, incorporating the proposed modification. The biodiversity assessment considered the updated direct impact boundary and project area.

The assessment is found in Appendix C of this A2REF and is summarised below.

6.1.1 Methodology

The methodology for the biodiversity assessment involved:

- A review of background information and previous biodiversity assessments, which include:
 - The project REF and A1REF
 - Spring Farm Parkway Stage 1 Biodiversity Assessment Report (Niche, 2019)
 - Spring Farm Parkway Stage 1 Ecology Assessment Addendum REF (Niche, 2021)
 - Menangle Park – Master Plan, Biodiversity Assessment (Cumberland Ecology, 2018)
 - NSW BioNet Vegetation Classification Database (DPIE 2021a)
 - Remnant Vegetation Mapping of the Cumberland Plain (DPIE 2018).
- A review of updated spatial records of threatened flora and fauna within a 10 kilometre radius of the project area undertaken in August 2021 using:
 - (then) NSW Department of Planning, Industry and Environment (DPIE) BioNet
 - Atlas of NSW Wildlife (DPIE 2021b)
- Field surveys and inspections, including:
 - A field survey undertaken for A1REF on 20 and 26 August 2021
 - Additional site inspection undertaken for A1REF on 7 October 2022
 - A field survey undertaken for this A2REF on 6 April 2022.

Additional detail of the biodiversity methodology, including detailed methodologies for the field surveys, is provided in Appendix C.

No go zones have been established to minimise impacts to vegetation where possible.

6.1.2 Existing environment

The existing environment of the modified project, inclusive of the proposed modification, is described in the sections below.

Vegetation mapping

Section 6.7.2 of the project REF and Section 6.7.2 of A1REF described vegetation that has been previously mapped. Vegetation not previously mapped has been surveyed and the following vegetation types have been identified as shown in Figure 6-1:

- Cumberland Plain Woodland
- Grasslands
- Swamp Oak Floodplain Forest



Figure 6-1 Mapped vegetation, Page 1 of 3

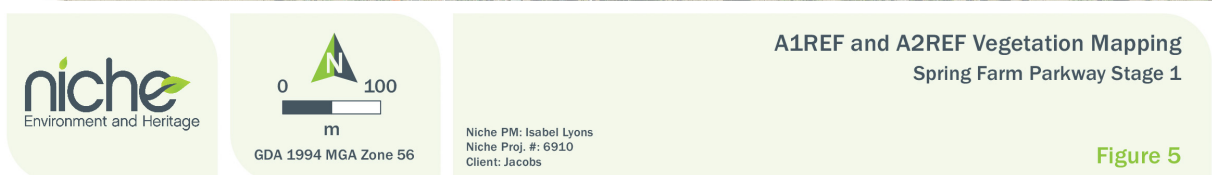
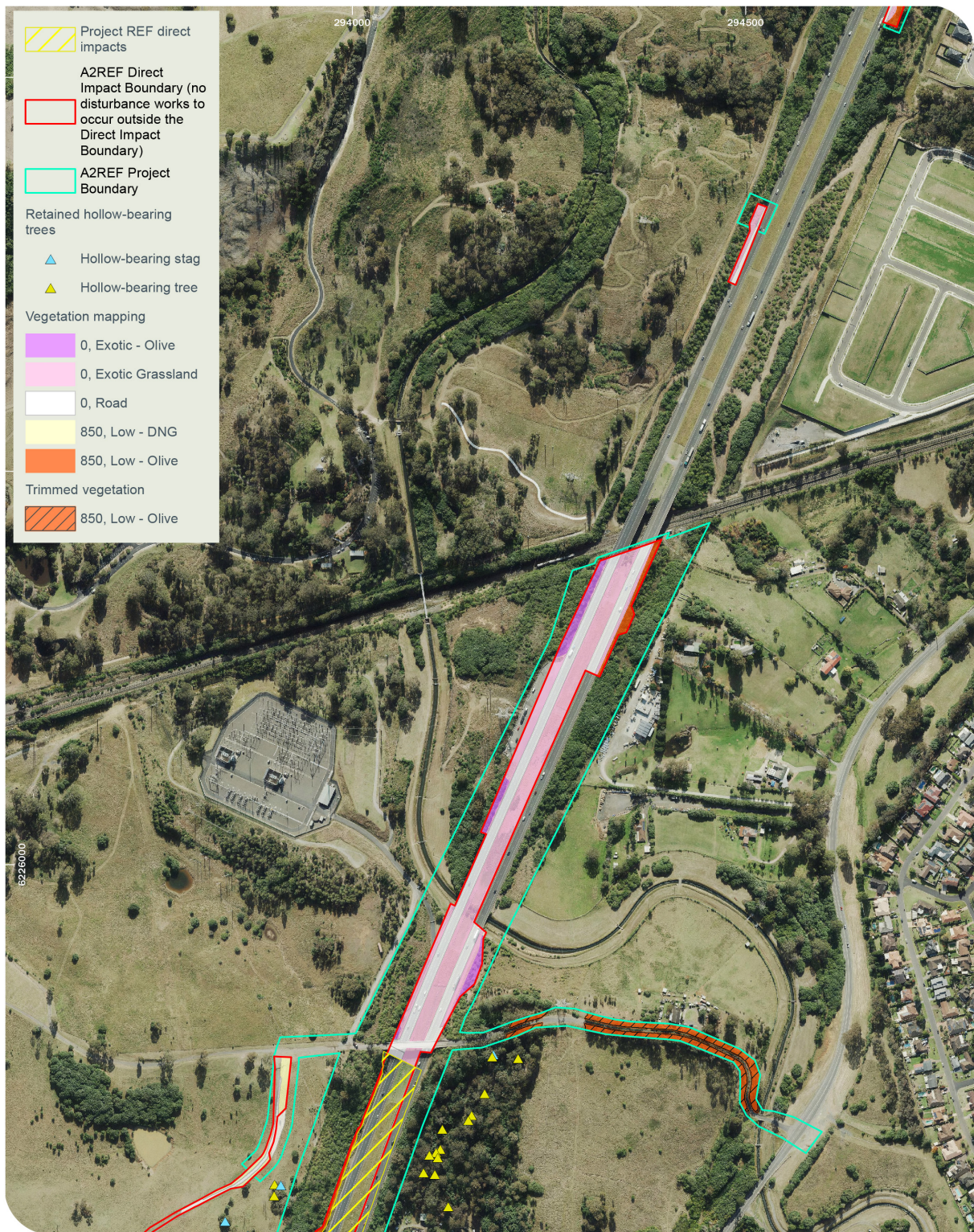


Figure 6-1 Mapped vegetation, Page 2 of 3

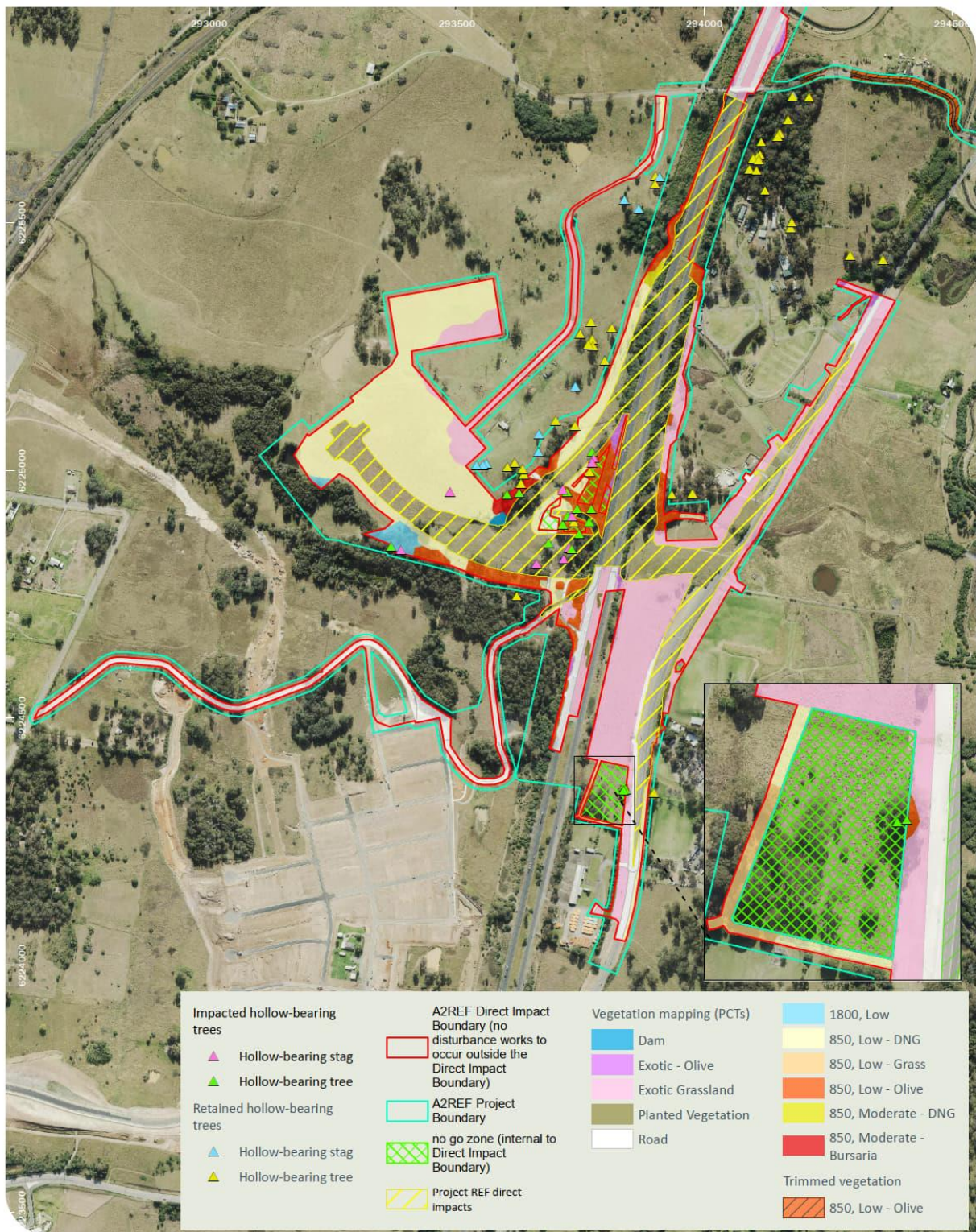


Figure 6-1 Mapped vegetation, Page 3 of 3

The Plant Community Type (PCT) of vegetation not previously mapped is shown in Table 6-2. Where the PCT aligns with a Threatened Ecological Community (TEC) or is listed under the BC Act or the EPBC Act, this is also shown in Table 6-2.

Table 6-2 Vegetation recorded within the project area

Plant Community Type	Condition	Threatened Ecological Community	Status under relevant legislation	
			BC Act	EPBC Act
PCT 850 – <i>Grey Box – Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion</i>	Low condition derived native grassland	Cumberland Plain Woodland in the Sydney Basin Bioregion	CE ¹	-
	Low condition woodland with grassy understorey		CE	-
	Low condition woodland dominated by African Olive		CE	CE
	Moderate condition woodland with native shrub layer		CE	-
	Moderate condition derived native grassland		CE	-
1800 – <i>Swamp Oak open forest on riverflats of the Cumberland Plain and Hunter Valley</i>	Low condition forest	Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions	E ²	-
Exotic/planted	Exotic – Olive	-	-	-
	Exotic grassland	-	-	-
	Planted vegetation	-	-	-

Note 1: Critically endangered

Note 2: Endangered

Cumberland Plain Woodland

Portions of the timbered areas of the project area have been mapped as PCT 850 – *Grey Box – Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion* in varying conditions as shown in Figure 6-1. PCT 850 aligns to the BC Act listing of the critically endangered ecological community (CEEC) Cumberland Plain Woodland in the Sydney Basin Bioregion (CPW). Given the highly degraded nature of the vegetation,

only a small portion of PCT 850 aligns to the EPBC Act listing of the TEC, that being the Moderate_Bursaria vegetation zone.

African Olive is the main problematic weed in the project area, occurring as a dense thicket in PCT 850 Low_Olive vegetation zone. African Olive is known to adversely impact the establishment and growth of native grasses and herbs, understorey trees, and overstorey trees such as Eucalypts. Native tussock grasses are particularly affected. The condition of the vegetation is likely to further degrade with time as the current African Olive infestation spreads, and these areas are in need of significant weed management to prevent further decline in condition.

Grasslands

The presence of patches of derived native grassland within the project area was confirmed during the 2022 survey. Native grass species recorded include:

- *Microlaena stipoides* (Weeping Meadow Grass)
- *Bothriochloa macra* (Red-leg Grass)
- *Themeda australis* (Kangaroo Grass)

Exotic species recorded include:

- *Chloris gayana* (Rhodes Grass)
- *Eragrostis curvula* (African lovegrass)
- *Senecio madagascariensis* (Fireweed)
- *Plantago lanceolata* (Lamb's Tongues).

The derived native grassland (DNG) in the project area is derived from the surrounding woodland, which is mapped as PCT 850 – *Grey Box – Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion*. Derived native grassland of PCT 850 aligns to the Critically Endangered Ecological Community (CEEC) CPW listed under the BC Act. However, DNG does not align to the EPBC Act listing of this community.

The native component of this vegetation zone consists of disturbance tolerant grasses and forbs commonly occurring within disturbed paddocks, with no evidence of regeneration of a native canopy or shrub layer. These areas are considered to provide limited value to the conservation of the local occurrence of CPW.

Further, to provide some context in relation to the Biodiversity Offset Scheme (BOS) under the BC Act, the condition and conservation value of PCT 850 Low_DNG would not be required to be offset under the Biodiversity Offset Methodology.

Swamp Oak Floodplain Forest

The vegetation along the waterway in the south of the project area was mapped as PCT 1800. PCT 1800 aligns to the BC Act listing of the Endangered Ecological Community (EEC) *Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions* (SOFF) and the EPBC Act listing, *Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community*.

Threatened flora

Section 6.7.2 of the project REF and Section 6.7.2 of A1REF identify the threatened flora identified for the approved project. Threatened flora records are shown in Figure 6-2.

No additional threatened flora species were identified as occurring within the project area.

Given the limited amount of degraded woodland and riparian forest present within the direct impact boundary, only two threatened flora species are considered to have a moderate likelihood of occurring:

- *Marsdenia viridiflora* subsp. *viridiflora*, (Native Pear) listed as an Endangered Population under the BC Act
- *Pimelea spicata* (Spiked Rice-flower), listed as Endangered under the BC and EPBC Acts.

Marsdenia viridiflora subsp. *viridiflora* is a conspicuous species and would likely have been recorded during the field survey. The absence of this species during the field survey means that this species is not considered present in the project area. As a result, the likelihood of impact to the Endangered Population is low and an Assessment of Significance (AoS) is not required for this species.

Pimelea spicata is considered an inconspicuous species and has been recorded during previous surveys. Additionally, *Pimelea spicata* has been known to occur in highly degraded areas. As a result, there is potential for *Pimelea spicata* to be present in the project area and impacted by the proposed modification. This species has been considered further in Section 6.1.3 and an Assessment of Significance has been prepared for this species as part of Appendix C.

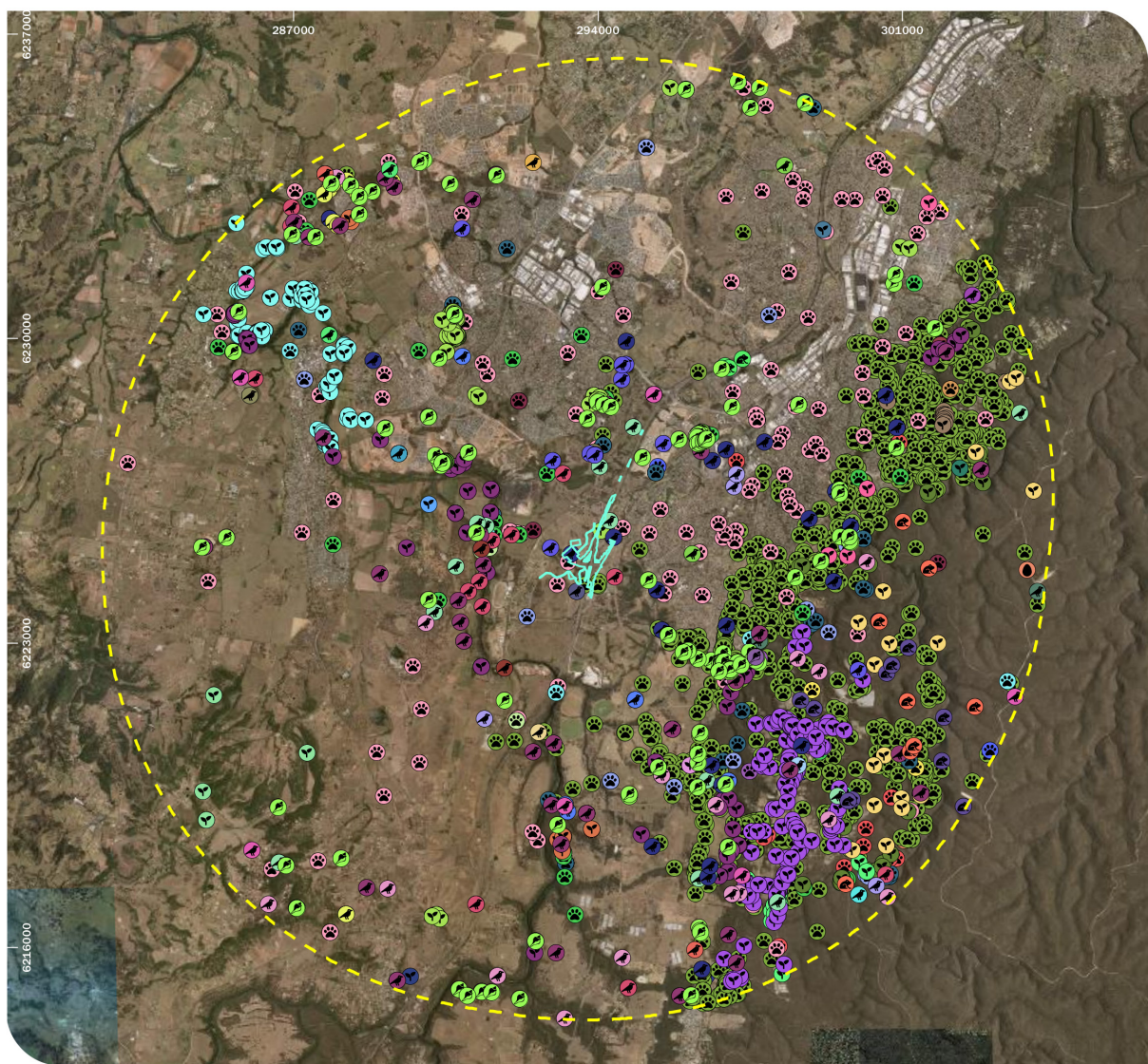
Threatened fauna

Threatened flora records are shown in Figure 6-2. No threatened fauna were observed during the 2021 or 2022 surveys. However, five threatened species were recorded during the 2019 surveys, including:

- Little Lorikeet (*Glossopsitta pusilla*)
- Little Eagle (*Hieraaetus morphnoides*)
- Grey-headed Flying-fox (*Pteropus poliocephalus*)
- Eastern Freetail-bat (*Micronomus norfolkensis*)
- Greater Broad-nosed Bat (*Scoteanax rueppellii*).

A total of 52 hollow-bearing trees have previously been recorded within the project area. Of the 52, the proposed modification would remove 24 hollow-bearing trees (nine of which are stags).

During the 2021 survey one hollow-bearing tree was recorded on Glenlee Road. However, the hollow was not recorded in the limbs overhanging the road that have been identified for trimming works. This hollow would not be directly impacted.



Drawn by: Neil Berry File: T:\Spatial\Working\6910\A2REF_Figures\6910_Figure_6_ThreatenedFloraFauna_Jones.mxd Last updated: 5/18/2022 2:48:35 PM

GDA 1994 MGA Zone 56

Threatened Flora and Fauna records
Spring Farm Parkway Stage 1

Niche PM: Isabel Lyons
Niche Proj. #: 6910
Client: Jacobs

Figure 6

Figure 6-2 Threatened flora and fauna records

Aquatic habitat

The project is located approximately two kilometres east of the Nepean River. Within the project area there are three unnamed tributaries/drainage lines that are directly traversed by the project, all of which drain west towards the Nepean River. These three drainage lines are described in detail in Section 6.4.2 of the project REF. In summary:

- The upstream section of the major drainage line between the Hume Motorway and Menangle Road has not been identified as key fish habitat and is classed as Class 4 unlikely fish habitat with regards to fish passage.
- There are farm dams downstream of the major drainage line. It is likely that this downstream section of the tributary including the farm dams would contain more aquatic habitat characteristics including instream aquatic macrophytes. This section of the tributary has been conservatively classified as Type 2 moderately sensitive key fish habitat (however, farm dams are not typically considered key fish habitat). With respect to fish passage, the downstream tributary is classified Class 3 minimal key fish habitat.
- The minor drainage lines traversed by the project have limited instream aquatic habitat and aquatic vegetation is restricted to a sparse density of rushes along the banks. These drainage lines have not been identified as key fish habitat. With respect to fish passage, they are classified 'Class 4' unlikely key fish habitat.

6.1.3 Potential impacts

Construction

Vegetation impacts

The majority of vegetation impacted by the proposed modification is non-native exotic vegetation dominated influenced by pasture grasses and *Olea europaea* subsp. *cuspidata* (African Olive). The impacts to vegetation described in the project REF have been cumulatively considered within this biodiversity assessment. The vegetation to be impacted by the approved project and the additional area to be impacted by the proposed modification are shown in Table 6-3.

The cumulative vegetation impacts for the proposed modification include:

- 12.98 ha of PCT 850 in the following conditions:
 - 10.09 Low_DNG
 - 0.07 Low_Grass
 - 2.50 Low_Olive
 - 0.23Moderate_Bursaria
 - 0.09 Moderate_DNG
- 0.48 ha of PCT 1800 in a Low condition

Assessments of Significance have been prepared for impacts to CPW and SOFF under the BC and EPBC Act in Appendix C. Based on a consideration of the criteria provided under section 7.3 of the BC Act and the EPBC Act's Significant Impact Guidelines, it was concluded that a significant impact to CPW and SOFF is unlikely.

Table 6-3 Impacts to PCTs within the project area

Plant Community Type	Description	Vegetation integrity score ¹	Threatened Ecological Community	Status under relevant legislation		Impact (hectares)			
				BC Act	EPBC Act	Approved project	Proposed modification	Cumulative	Trimming ⁴
PCT 850 – <i>Grey Box – Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion</i>	Low condition derived native grassland	45.2	Cumberland Plain Woodland in the Sydney Basin Bioregion	CE2	-	0.19	0.23	0.42	-
	Low condition woodland with grassy understorey	26.6		CE	-	0.02	0.09	0.11	-
	Low condition woodland dominated by African Olive	23.5		CE	CE	1.06	2.50	3.56	0.85
	Moderate condition woodland with native shrub layer	16.3		CE	-	0.65	0.07	0.72	-
	Moderate condition derived native grassland	10.8		CE	-	0	10.09	10.09	-
	Total impacts to PCT 850					1.92	12.98	14.91	0.85

Plant Community Type	Description	Vegetation integrity score ¹	Threatened Ecological Community	Status under relevant legislation		Impact (hectares)			
				BC Act	EPBC Act	Approved project	Proposed modification	Cumulative	Trimming ⁴
1800 – Swamp Oak open forest on riverflats of the Cumberland Plain and Hunter Valley	Low condition forest	22.8	Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions	E3	-	0.06	0.48	0.54	-
Total impacts to all PCTs						1.98	13.46	15.45	0.85

Note 1: The vegetation integrity score is the quantitative measure of vegetation condition calculated in accordance with the Biodiversity Offset Methodology

Note 2: Critically endangered

Note 3: Endangered

Note 4: Trimming required of overhanging branches of a small component of the 0.85 hectare patch for access purposes only, with a predicted short-term temporary impact

Threatened flora

The proposed modification is likely to impact 0.53 ha of potential habitat for *Pimelea spicata* (Spiked Rice-flower), comprising 0.42 ha of Moderate_Bursaria and 0.11 ha of Moderate_DNG. Given impacts from heavy grazing and its very low vegetation integrity score, the PCT 850 Low_DNG vegetation zone is no longer considered to be potential habitat for *Pimelea spicata* and is not included in this assessment of impact for this species.

About 161 individuals of *Pimelea spicata* have previously been recorded during targeted surveys beyond the project area and in association with PCT 850 Moderate_Grass vegetation zone.

An Assessment of Significance under the BC Act and EPBC Act was undertaken for *Pimelea spicata* and is presented in Appendix C. That assessment concluded that a significant impact to this species as a result of the proposed modification was unlikely.

Threatened fauna

A total of 52 hollow-bearing trees were previously recorded within the project area. The proposed modification would remove 24 of these 52 hollow-bearing trees (nine of which are stags).

Of the 15.44 hectares of native vegetation to be removed, 5.25 hectares comprises woodland with low to moderate foraging habitat potential.

While no threatened fauna were observed during the 2021 and 2022 surveys, five threatened species were recorded during the 2019 surveys:

- Little Lorikeet (*Glossopsitta pusilla*)
- Little Eagle (*Hieraaetus morphnoides*)
- Grey-headed Flying-fox (*Pteropus poliocephalus*)
- Eastern Freetail-bat (*Micronomus norfolkensis*)
- Greater Broad-nosed Bat (*Scoteanax rueppellii*).

Given the increased area of impact to potential foraging habitat and the number of hollow-bearing trees to be removed, Assessments of Significance have been undertaken for these five threatened fauna species and those with potential habitat that may be impacted. These assessments are presented in Appendix C and concluded that the proposed modification is unlikely to have a significant impact on any threatened fauna.

Aquatic habitat

While no bulk earthworks are proposed as a result of the proposed modification, this biodiversity assessment also considers the increase in the direct impact boundary as described in Section 3.6.

Construction of the approved project in proximity to watercourses would impact on water quality due to disturbance of bed and banks resulting in erosion, sedimentation and alteration of downstream flows and scouring of the bed near culvert inlets and outlets. Removal of vegetation, stripping of topsoil and sediment associated with general earth works can impact on water quality during construction if runoff is allowed to mobilise exposed soils, particularly when these sites are located close to waterways. Construction activities adjacent to waterways could introduce contaminants such as oil or greases and disturb contaminated sediments, potentially having an adverse impact on water quality.

Potential impacts to aquatic habitats through sedimentation and run-off from construction impacts will be mitigated and managed through the CEMP as described in Chapter 7.

Construction of the approved project may also require some obstruction to potential fish passage during works on the creek crossings. The installation of any culverts is also

considered a Key Threatening Process for in-stream structures and other mechanisms that alter natural flows. Culverts already occur under the Hume Highway and would be widened as a result of the approved project, thus altering shading regimes of waterways.

Construction of the approved project is likely to result in the temporary displacement of aquatic fauna (such as frogs and tadpoles) and temporary changes to the turbidity and sedimentation of waterways.

As per the NSW DPI Policy and Guidelines for fish habitat, under Section 199 of the FM Act, the Minister for Agriculture is to be consulted over any dredging or reclamation works carried out, or proposed to be authorised, by a public authority (other than a local government authority) (i.e. any excavation within, or filling or draining of, water land or the removal of woody debris, snags, rocks or freshwater native aquatic vegetation or the removal of any other material from water land that disturbs, moves or harms these in-stream habitats). A Part 7 Fisheries Management Act Permit may also be required.

Operation

The operational impacts of the proposed modification are consistent with the impacts outlined in Section 6.7.4 of the project REF.

Conclusion on significance of impacts

The potential impacts to threatened biodiversity within the project area have been assessed against the Commonwealth and NSW statutory framework with the conclusion that a significant impact to threatened biodiversity is unlikely.

6.1.4 Safeguards and management measures

Mitigation measure BD6 has been updated to identify that clearing limits and exclusion zones would be clearly identified prior to work outside of the direct impact boundary or within no-go zones.

The remaining safeguards and mitigation measures described in Section 6.7.4 of the project REF and Section 6.7.4 of A1REF are considered adequate to manage the potential impacts of the proposed modifications. Safeguards and mitigation measures are provided in full in Chapter 7

6.1.5 Biodiversity offsets

Despite avoidance and mitigation measures to minimise the impact to biodiversity, the residual impact from the clearing of threatened ecological communities as a result of the proposed modification require offsetting in accordance with Transport for NSW Offset Guidelines (TfNSW, 2016).

The proposed modification triggers the need for offsetting through the clearing of 14.91 ha of the CEEC Cumberland Plain Woodland. Given that the clearing of SOFF TEC is less than 1 hectare in size (0.54 hectares), offsetting is not required for this TEC. However, together the CPW and SOFF that would be disturbed by the proposed modification constitute over 5 hectares (5.25) of potential habitat for five ecosystem credit species (Little Lorikeet, Little Eagle, Grey-headed Flying-fox, Eastern Freetail-bat and Greater Broad-nosed Bat), therefore credits have been included for SOFF. A total of 79 ecosystem credits would be required to offset impacts to CPW and SOFF as a result of the proposed modification.

The proposed modification triggers the need for species credit offsetting due to clearing vegetation comprising habitat for one species credit species and three dual (species/ ecosystem) credit species. A total of 57 species credits are required to offset impacts to Cumberland Plain Land Snail.

The remaining three dual credit species will only have their foraging habitat impacted by the proposed modification. These impacts will be offset via the ecosystem credits provided in Appendix C. The species credit component of these dual credit species does not require offsetting as no breeding habitat for the species will be impacted by the proposed modification.

A Biodiversity Offset Strategy will be prepared prior to works commencing.

6.2 Aboriginal heritage

6.2.1 Methodology

Several previous archaeological investigations have been undertaken to assess the impact of Spring Farm Parkway Stage 1 on Aboriginal sites and objects within and adjacent to the project REF proposal area. A summary of these investigations and other pertinent archaeological investigations is presented in the Spring Farm Parkway Stage 1: Aboriginal Cultural Heritage Assessment (KNC, December 2021).

This assessment has focused on parts of the proposed modification that were not previously assessed but are now included as part of the A2REF project area. The assessment has included:

- A review of previously identified Aboriginal archaeological sites and existing Aboriginal Heritage Impact Permits within the A2REF project area.
- An updated search of the Aboriginal Heritage Information Management System (AHIMS) database on 10 November 2021 and 19 May 2022
- An archaeological survey of the parts of the A2REF project area that have not been previously assessed for Aboriginal heritage, undertaken on 23 May 2022.

Additional detail of the Aboriginal heritage methodology, including detailed AHIMS search results, is provided in Appendix D.

6.2.2 Existing environment

The existing environment of the modified project is generally consistent with that outlined in Section 6.8.2 of the project REF and Section 6.3.2 of A1REF. This is summarised below.

Landscape context

The A2REF project area is located on a mid north-western slope overlooking an unnamed north flowing creek that flows into the Nepean River approximately two kilometres to the north. The A2REF project area is located within the Hume Motorway corridor and the hillslope has previously been cut to level the corridor.

The near surface geology of the A2REF project area at Menangle is Hawkesbury Sandstone, which consists of medium to coarse-grained quartz sandstone with minor shale and laminate lenses. The A2REF project area contains residual Blacktown soils, which have developed in situ on the slopes and consist of shallow to moderately deep hard-setting red, brown and yellow podzolic soils. The A2REF project area is subject to minor erosion where surface vegetation is not maintained. The soil landscape is often close to water sources and associated resources without being within flooding areas.

Historical aerial photographs of the present-day Hume Motorway corridor within and in the vicinity of the A2REF project area show that it was subject to extensive disturbance from construction activities undertaken during the 1970s and early 1980s. The corridor was subject to large scale bulk earthworks with elevated landforms cut and low-lying landforms filled to reduce the road gradient. The landscape context of the Hume Motorway corridor within and in the vicinity of the A2REF project area indicates that intact archaeological deposits are unlikely to occur due to subsurface disturbance.

AHIMS search results

AHIMS searches for the project REF proposal area were previously undertaken in September 2018 and August 2021 as described in Section 6.8.2 of the project REF and Section 6.3.2 of A1REF.

Additional AHIMS were undertaken in November 2021 and May 2022. These searches were undertaken for areas within 250 metres of the parts of the proposed modification that were not previously assessed but are now included as part of the A2REF project area.

AHIMS site locations are shown in Figure 6-3. The results of the November 2021 and May 2022 searches are consistent with previous searches, and no additional Aboriginal archaeological sites were identified as part of this assessment.

Archaeological survey results

An archaeological survey of the parts of the A2REF project area that have not been previously assessed for Aboriginal heritage was undertaken on 23 May 2022. Areas with ground surface visibility were targeted and closely inspected for stone artefacts. These included vehicle tracks and areas of sheet erosion. Large mature or dead trees were inspected for signs of cultural modification.

The surveyed areas were generally located within the existing Hume Motorway corridor and had been subject to historical subsurface disturbance. The surveyed areas were assessed as having no potential for intact Aboriginal archaeological deposits.

6.2.3 Potential impacts

Construction

No additional Aboriginal archaeological objects or sites would be impacted by the proposed modification. No Aboriginal objects or sites were identified within the previously unassessed parts of the A2REF project area, and the findings of the archaeological assessment are consistent with previous archaeological investigations undertaken for the approved project.

The previously identified impact to site Menangle Park Rezoning Project 8 (AHIMS ID 52-2-3915) would be reduced due to the removal of the access track from project area to Fitzpatrick Street.

As a result, the construction impacts of the proposed modification are improved from those outlined in Section 6.8.3 of the project REF and Section 6.3.3 of A1REF.

Operation

The operational impacts of the proposed modification are consistent with the impacts outlined in Section 6.8.3 of the project REF and Section 6.3.3 of A1REF.

6.2.4 Safeguards and management measures

The safeguards and mitigation measures described in Section 6.8.4 of the project REF and Section 6.3.4 of A1REF are considered adequate to manage the potential impacts of the proposed modification. Safeguards and mitigation measures are provided in full in Chapter 7.

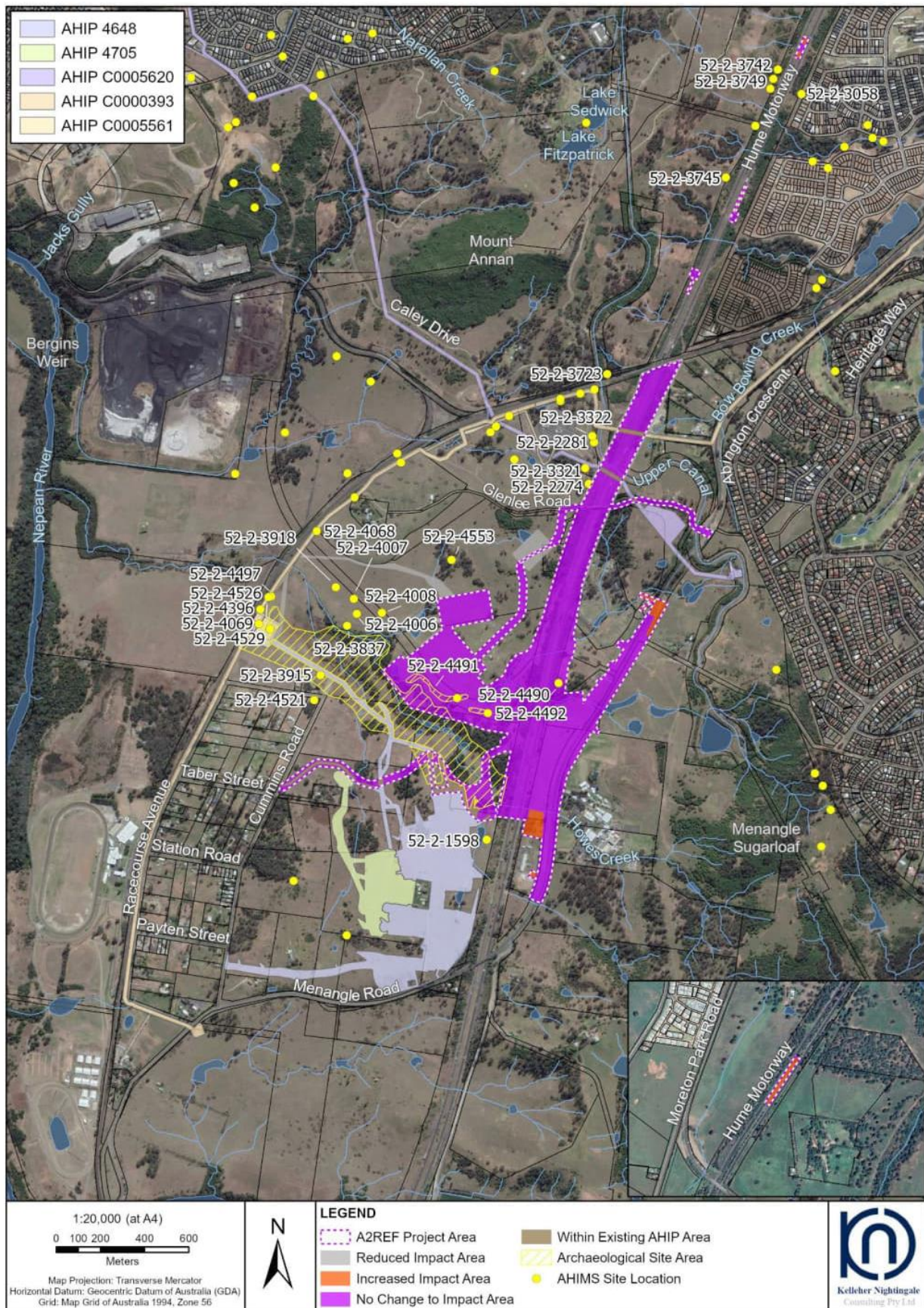


Figure 6-3 AHIMS search results within A2REF project area

6.3 Contamination

6.3.1 Methodology

The methodology of the ACM assessment involved:

- A review of previous contamination assessment undertaken for the approved project as described in Section 6.6 of the project REF and 6.8 of A1REF
- A site walkover conducted across the following additional areas of disturbance associated with the proposed modification.

Additional detail of the contamination methodology is provided in Appendix E.

The results and conclusions detailed of the contamination investigation should be considered in context of the following limitations.

- The contamination inspection was limited to visual observations of additional areas that would be impacted by the A2REF direct impact boundary. No sampling and analysis was undertaken to assess/quantify potential contamination sources and/or impacts
- Observations across all surfaces within some of the A2REF direct impact boundary was restricted by heavy grass cover
- The results and conclusions are considered to be representative of the potential contamination conditions of the additional disturbance areas at the time of undertaking the inspection.

6.3.2 Existing environment

The existing environment of the modified project is generally consistent with that outlined in Section 6.6.2 the project REF and Section 6.8.2 of A1REF. This is summarised below.

Acid Sulfate Soils

Acid sulfate soils (ASS) are soils and sediments containing iron sulphides that, when disturbed and exposed to oxygen, generate sulphuric acid and toxic quantities of aluminium and other heavy metals. The majority of ASS are formed by natural processes under specific environmental conditions. A review of the online ASS maps (CSIRO, 2006) for the A2REF direct impact boundary indicates that there are no known occurrences of ASS within the A2REF direct impact boundary, with areas of low to high potential further to the west associated with the Nepean River.

No ASS testing has been carried out and ASS is not considered a risk for the proposed modification.

Salinity

An assessment of the soil salinity hazard map for western Sydney (DIPNR, 2002) indicates that the site is located within an area of 'moderate' soil salinity potential. An area of 'high' salinity potential associated with the creek line is mapped along the western side of the A2REF direct impact boundary. No specific salinity testing or assessment has been carried out as part of the investigations and it is unlikely that soil salinity would pose any specific design constraints for the major structures, other than provision of appropriate durability allowances.

Site inspection

A site inspection was undertaken on 12 May 2022 to inspect the additional areas of disturbance associated with the proposed modification. The results of the site inspection are shown in Table 6-4.

Table 6-4 Contamination site investigation results

Area inspected	Site description	Results of visual contamination investigation	Identified potential contamination sources
Footprint of new private driveway construction Located within the existing fenced construction compound to the west of Menangle Road	Scattered trees and grass covered areas are present adjacent to the existing fenced construction compound Stockpiles of material, including soil, recycled materials, concrete, ceramics and brick, are located within the existing fenced construction compound.	The contamination status of the stockpiled material is unknown. Inspection of the surface of the stockpiles did not observe any potential contamination indicators (i.e. stained or discoloured materials, odorous materials, erroneous wastes, potential asbestos containing materials, areas of significant filling). No visual evidence of potential contamination indicators (i.e. stained or discoloured materials, odorous materials, erroneous wastes, potential asbestos containing materials, areas of significant filling) were observed across the surface of the A2REF direct impact boundary.	A number of road base and soil stockpiles are present within and/or adjacent to the footprint of the new private driveway construction. Inspection of the surface of the stockpiles did not observe any potential contamination indicators. It is understood that these stockpiles will be removed by the current site occupier prior to construction activities associated with Spring Farm Parkway Stage 1 commencing.
Footprint of high voltage underground electricity lines to the west of Menangle Road	To the north of the electricity line footprint, there is a small concrete service pit surrounded by cleared open space used for cattle grazing. To the south of the electricity line footprint, there is a large concrete service pit surrounded by cleared open space used for cattle grazing.	Although no contamination indicators were observed (e.g. fibres) within the matrix of the northern service pit, it may be possible that the concrete of the service pit may contain asbestos. It is unlikely that the matrix of the southern service pit would contain asbestos. No visual evidence of potential contamination indicators (i.e. stained or discoloured materials, odorous materials, erroneous wastes, potential asbestos containing materials, areas of significant filling) were observed across the surface of the A2REF direct impact boundary.	The northern service pit may contain asbestos. At the time of the inspection, there was no observable fibres within the matrix of the pit (where inspected) and the pit was observed to be structurally sound (concrete was bonded – not delaminating or becoming friable) and undamaged.
Footprint of utilities to the east of Menangle Road	Grass covered area (former paddock) bordered by fence lines, paddock, driveway and recently disturbed areas associated with construction activities (service installation).	No visual evidence of potential contamination indicators (i.e. stained or discoloured materials, odorous materials, erroneous wastes, potential asbestos containing materials, areas of significant filling) were observed across the surface of the A2REF direct impact boundary.	None identified

Area inspected	Site description	Results of visual contamination investigation	Identified potential contamination sources
Footprint of high voltage overground electricity lines to the west of Menangle Road	Single wooden power pole surrounded by scattered trees and grass covered areas.	Access to this area was restricted because of the presence of high grass. Where inspected, no visual evidence of potential contamination indicators (i.e. stained or discoloured materials, odorous materials, erroneous wastes, potential asbestos containing materials, areas of significant filling) were observed within disturbance area.	None identified

6.3.3 Potential impacts

Based on the results of the site inspection, the potential contamination sources detailed above would be suitably managed by the safeguards and management identified for the approved project.

6.3.4 Safeguards and management measures

The safeguards and mitigation measures described in Section 6.6.4 of the project REF and Section 6.8.4 of A1REF are considered adequate to manage the potential impacts of the proposed modification. Safeguards and mitigation measures are provided in full in Chapter 7.

6.4 Cumulative impacts

6.4.1 Other projects, proposals and developments

A cumulative impact occurs when two or more projects are carried out concurrently and in proximity to one another. The impacts may be caused by both construction and operational activities and can result in a greater impact to the surrounding area than would be expected if each project was carried out in isolation.

In addition to the projects outlined in Section 6.14.2 of the Project REF, the project outlined in Table 6-5 below would potentially result in cumulative impacts with the modified project.

Table 6-5 Other projects and developments within proximity of the modified project

Project	Construction impact	Operational impact
<p>Menangle Park Development Dahua Group (Aust) Pty Ltd propose to construct a master planned community at Menangle Park Urban Release Area (URA) which involves:</p> <ul style="list-style-type: none">• Approximately 5,250 dwellings in a range of densities and lot sizes• The relocation and expansion of the town centre comprising 30,000 square metres of retail and employment Gross Floor Area• The introduction of a new neighbourhood centre with approximately 3,500 square metres of retail floor space• A new 7.6 to 9.6 metre wide north-south green active transport link• 134.81 hectares of parks and sporting fields• 43.96 hectares of land for environmental conservation• Two primary schools• One hectare of open space.	<p>The modified project would result in up to the cumulative disturbance of 15.45 hectares of native vegetation There will be some removal of fauna habitat features such as hollow-bearing trees, coarse woody debris and blossom producing trees and shrubs as well.</p>	<p>Operation of the proposed modification would result in ongoing economic activity through direct turnover generated by retail, commercial and industrial operational activities. The proposed modification envisages a larger population base which would inevitably support greater levels of economic activity on the site, and the broader Campbelltown LGA.</p>

6.4.2 Potential impact

Construction

The modified project and the Menangle Park Development are likely to be constructed concurrently. The most direct cumulative impact may be from construction noise levels affecting nearby sensitive receivers. As the modified project would not result in any changes to noise impacts from those described for the approved project, the noise mitigation measures for the approved project (described in Chapter 7) are considered adequate to manage the cumulative noise impacts of the proposed modification.

Traffic management issues may also occur during the construction of both projects. As the modified project would not result in any changes to construction traffic movements or impacts from those described for the approved project, the Traffic Management Plan implemented for the approved project is considered adequate to manage the cumulative noise impacts of the proposed modification.

Given that the potential impacts to threatened biodiversity as a result of the proposed modification are not considered to constitute a significant impact to threatened biodiversity, and would be offset as described in Section 6.1.5, cumulative biodiversity impacts of the proposed modification are not considered to be significant.

Operational

The modified project would continue to work beneficially with the Menangle Park Development as it would cater for the future traffic growth expected from the operation of the Development. Both projects would provide opportunities for future economic growth for the Menangle Park area.

7 Environmental management

7.1 Environmental management plans

A number of safeguards and management measures have been identified to minimise adverse environmental impacts, including social impacts, which could potentially arise as a result of the proposed modification. Should the proposed modification proceed, these management measures would be addressed if required during detailed design and incorporated into the Project Environmental Management Plan (PEMP) and Construction Environmental Management Plan (CEMP) and applied during the construction and operation of the proposed modification.

7.2 Summary of safeguards and management measures

Environmental safeguards and management measures for the modification of Spring Farm Parkway Stage 1 are summarised in Table 7-1. Additional safeguards and management measures identified in A1REF are included in italicised font and include an 'A' in their number. The safeguards and management measures will be incorporated into the CEMP and the PEMP and implemented during construction and operation of the proposed modification, should it proceed. These safeguards and management measures will minimise any potential adverse impacts arising from the proposed works on the surrounding environment.

Safeguard ***italicised and in bold*** are in addition to the safeguards detailed in the project REF and A1REF.

Table 7-1 Summary of safeguards and management measures

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
Traffic and transport					
TT1	Traffic and transport	<p>A Traffic Management Plan (TMP) would be prepared and implemented as part of the CEMP. The TMP would be prepared in accordance with the Roads and Maritime <i>Traffic Control at Work Sites Manual</i> (RTA, 2010) and <i>QA Specification G10 Control of Traffic</i> (Roads and Maritime, 2008). The TMP would include:</p> <ul style="list-style-type: none"> • Confirmation of haulage routes • Measures to maintain access to local roads and properties • Site specific traffic control measures (including signage) to manage and regulate traffic movement • Measures to maintain pedestrian and cyclist access • Requirements and methods to consult and inform the local community of impact on the local road network • Access to construction sites including entry and exit locations and measures to prevent construction vehicles queuing on public roads • A response plan for any construction traffic incident • Consideration of other developments that may be under construction to minimise traffic conflict and congestion that may occur due to the cumulative increase in construction vehicle traffic • Monitoring, review and amendment mechanisms. 	Contractor	Detailed design / Pre-construction	Project REF

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
TT2	Road damage	Undertake a pre-construction dilapidation survey of local roads used for construction. Defects caused by construction activities would be rectified prior to completion of construction.	Contractor	Construction	Project REF
TT3	Property access	Access to properties along Menangle Road would be maintained during construction. The need for any alternative and/or temporary access arrangements would be agreed with affected property managers/owners.	Contractor	Construction	Project REF
TT4	Broughton Anglican School access	Access to Broughton Anglican School would be maintained during construction. The need for any alternative and/or temporary access arrangements would be agreed with affected property managers/owners.	Contractor	Construction	Project REF
TT5	Traffic and transport – bus services	Interaction between commuters accessing Menangle Park Station across Racecourse Avenue, and construction traffic would be managed to ensure safety for road users as part of the construction traffic management plan.	Contractor	Construction	Project REF
TT6	Traffic and transport – bus services	The final location of temporary bus stops would be confirmed based on consultation with the bus route operator (Picton Buslines).	Contractor	Construction	Project REF
TT7	Traffic and transport – cycling facilities	Alternative routes would be identified as part of the construction traffic management plan which may require closure of the motorway to cyclists between Picton Road and Narellan Road.	Contractor	Construction	Project REF
TT8	Construction traffic	In relation to the proposed modification, the TMP would include: The temporary upgrade of the intersection at Menangle Road/Glenlee Road during construction in order to safely accommodate construction heavy vehicle movement.	Contractor	Construction	Additional safeguard

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
Noise and vibration					
NV1	Noise and vibration	<p>A Noise and Vibration Management Plan (NVMP) would be prepared and implemented as part of the CEMP. The NVMP would generally follow the approach in the Interim <i>Construction Noise Guideline</i> (ICNG) (DECC, 2009) and identify:</p> <ul style="list-style-type: none"> • all potential significant noise and vibration generating activities associated with the activity • feasible and reasonable mitigation measures to be implemented, taking into account <i>Beyond the Pavement: urban design policy, process and principles</i> (Roads and Maritime, 2014). • a monitoring program to assess performance against relevant noise and vibration criteria • arrangements for consultation with affected neighbours and sensitive receivers, including notification and complaint handling procedures • contingency measures to be implemented in the event of non-compliance with noise and vibration criteria. 	Contactor	Detailed design / pre-construction	Project REF

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
NV2		<p>Viable mitigation measures that would be expected to be deployed by the construction contractor once the final construction sequencing and scheduling is known include:</p> <ul style="list-style-type: none"> • Restricting work to standard construction hours as far as practicable, considering safety and traffic management requirements • Selecting quieter plant and equipment • Erecting temporary acoustic hoarding to reduce noise from work within a confined area • Deploying mobile hoardings (eg, acoustic screen curtains mounted on a wheeled trailer) to track moving, but tightly-contained processes • Maximising offset distances between receivers and noisy plant or activities • Orientating plant and processes away from residences, where reasonably practicable • Scheduling work for times outside of heightened sensitivity for the impacted receiver, eg, outside of school hours; • Scheduling respite periods for noise-intensive processes undertaken near receivers, eg. limiting operation of pavement sawing to three hours at a time • Planning any out-of-hours work (OOHW) so that noisier work is carried out in the earlier part of the evening or night-time • Minimising the number of consecutive nights of work adjacent to any particular set of receivers • Restricting heavy vehicle movements, heavy deliveries and loading and unloading processes to daytime periods and to areas well away from receivers • Regularly maintaining and monitoring plant and equipment to ensure that their noise emissions are not excessive • Minimising the annoyance from reversing alarms by either fitting closed circuit monitors or non-tonal reversing alarms (“quackers”) on vehicles or deploying ‘spotters’ to oversee reversing movements • Reducing throttle settings and switching off equipment when it is not being used. 	Contractor	Construction	Project REF

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
NV3	Noise and vibration	<p>All sensitive receivers (eg schools, local residents) likely to be affected would be notified at least [insert no. of days] prior to commencement of any work associated with the activity that may have an adverse noise or vibration impact. The notification would provide details of:</p> <ul style="list-style-type: none"> • the project • the construction period and construction hours • contact information for project management staff • complaint and incident reporting • how to obtain further information. 	Contactor	Detailed design / pre-construction	Project REF
NV4	Construction noise	Consider respite periods and verification for receiver identified as being eligible for additional mitigation in accordance with CNVG.	Contractor	Construction	Project REF
NV5	Construction traffic	Schedule construction of the Hume Motorway deceleration lane and northbound access ramp as early as practicable to limit construction traffic impacts to residents of Menangle Park.	Contractor	Pre-construction /	Project REF
NV6	Construction vibration	<p>Where vibration intensive plant such as vibratory rollers, rock hammers or bored piling rigs are used, vibration must be managed to minimise disturbance to building occupants and to avoid damage to buildings and other structures.</p> <p>Specific measures to manage the potential for vibration impacts would be determined as part of the CNVMP developed at the detailed design stage once the specific equipment schedule and localised geotechnical conditions are known.</p>	Contractor	Pre-construction / Construction	Project REF

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
NV7	Construction vibration	<p>CNVMP should consider implementing the following measures to limit construction vibration levels:</p> <ul style="list-style-type: none"> • Use lower vibration generating items of excavation plant and equipment, such as smaller capacity rockbreakers or concrete crushers/pulverisers in place of rockbreakers, where feasible. • Suitably program the hours of operation of major vibration generating plant and equipment; • Minimise consecutive work in the same locality; • Use dampened rockbreakers and/or “city” rockbreakers; • Undertake attended vibration monitoring where vibration-intensive work is required to be undertaken within the safe working distances; • Complete building condition surveys before and after vibration-intensive work to identify existing damage and any damage due to the works. 	Contractor	Pre-construction	Project REF
NV8	Operational noise – at property treatment	Determine the specific form of acoustic building treatment required to meet the necessary noise reductions of internal noise levels at least 10 dB(A) below external noise goals, with regard for the existing construction of the building, and in consultation with the landowner.	Transport for NSW	Pre-construction	Project REF
ANV9	Vibration impact on Upper Canal (Pheasants Nest Weir to Prospect Reservoir) (SHR 01373)	When vibration intensive works are to take place near the Upper Canal heritage item, a certified engineer should inspect the structure for visual damage prior to and during the works taking place.	Transport for NSW	Pre-construction / Construction	Additional safeguard
ANV10		If new visual impacts are identified as a result of the works by a certified engineer, works would be stopped and reviewed. Any new visual impacts should then be suitably repaired.	Transport for NSW/Contractor	Construction	Additional safeguard
ANV11		<p>A vibration monitoring device should be installed and operated by a suitably qualified specialist for the duration of the vibration intense works.</p> <p>Where vibration reaches levels, which may result in damage to the structure, works should be ceased and revised to minimise vibration impacts.</p>	Transport for NSW/Contractor	Pre-construction / Construction	

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
Non-Aboriginal heritage					
HH1	Non-Aboriginal heritage	A Non-Aboriginal Heritage Management Plan (NAHMP) will be prepared and implemented as part of the CEMP. It will provide specific guidance on measures and controls to be implemented to avoid and mitigate impact to Non-Aboriginal heritage.	Contactor	Detailed design / pre-construction	Project REF
HH2	Non-Aboriginal heritage – unexpected finds	The Standard Management Procedure – Unexpected Heritage Items (Roads and Maritime, 2015) will be followed in the event that any unexpected heritage items, archaeological remains or potential relics of Non-Aboriginal origin are encountered. Work will only re-commence once the requirements of that Procedure have been satisfied.	Contactor	Detailed design / pre-construction	Project REF
HH3	Sugarloaf Farm	Work associated with the widening of Menangle Road would limit incursions into the curtilage of Sugarloaf Farm as far as practical and in accordance with the Conservation Management Plan (Graham Brooks & Associates, 2001).	Contractor	Construction	Project REF
HH4	Impact to areas of archaeological potential	If relics of the Sugarloaf Farm, Glenlee or Grazier's Arms Inn are identified during works then the Roads and Maritime <i>Standard Management Procedure: Unexpected Heritage Items</i> (Roads and Maritime Services 2015) should be followed. This should include consideration of, and management of potential vibration related impacts.	Contractor	Construction	Project REF
AHH6	Scope of works	It is noted that there are items of State heritage significance and archaeological potential in proximity to the proposed modification areas, and if the scope of works significantly change outside of the footprint currently presented, the impacts to these items would need to be reassessed.	Transport for NSW	Detailed design / Pre-construction	Additional safeguard
AHH7	Vibration impacts	For works in proximity to the Upper Canal and other WaterNSW lands, assets or infrastructure, the maximum allowable limit of vibration specified in <i>DIN 1450 (Deutsches Institut für Normung 1999)</i> should be applied.	Contractor	Construction	Additional safeguard

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
AHH8	Impacts to Upper Canal System (Pheasants Nest Weir to Prospect Reservoir) (SHR 01373)	As per <i>WaterNSW risk management guidelines</i> (WaterNSW, 2020) the following documentation is required prior to construction: <ul style="list-style-type: none"> Heritage Impact <ul style="list-style-type: none"> Heritage Impact Assessment (this assessment) Unexpected Finds Protocol Vibration <ul style="list-style-type: none"> Assessment of the potential effects of vibration from the proposed works i.e. a dilapidation survey Vibration monitoring plan (can be contained within the project CEMP) Additional loads on WaterNSW structures – specific to Glenlee Road bridge <ul style="list-style-type: none"> A structural engineers report Geotechnical report Drawings or plans. 	Transport for NSW	Pre-construction	Additional safeguard
AHH9		Following completion of the additional documentation and assessment, a revised assessment of impacts to the Glenlee Road bridge must be completed prior to its usage during construction in order to determine the suitability of proposed impacts and any requisite permit approvals.	Transport for NSW	Pre-construction	Additional safeguard
AHH10	Former Grazier's Arms Inn Site	A site inspection should be conducted prior to construction to determine levels of site disturbance and confirm levels of archaeological potential. Any historical vegetation on site should also be determined and, if required, advice should be sought from a suitably-qualified arborist.	Transport for NSW	Pre-construction	Additional safeguard
AHH11		Archaeological test excavations are to be completed at the site to identify the presence of any archaeological material within the construction footprint. This will be completed with an excavation permit as per Section 140 of the Heritage Act. Further management measure recommendations can be added as appropriate, following the findings of the test excavation.	Transport for NSW	Pre-construction	Additional safeguard

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
Aboriginal heritage					
ABH1	Impact to known Aboriginal heritage	An Aboriginal Heritage Management Plan (AHMP) will be prepared in accordance with the Procedure for Aboriginal cultural heritage consultation and investigation (Roads and Maritime, 2012) and Standard Management Procedure – Unexpected Heritage Items (Roads and Maritime, 2015) and implemented as part of the CEMP. It will provide specific guidance on measures and controls to be implemented for managing impact on Aboriginal heritage. The AHMP will be prepared in consultation with all relevant Aboriginal groups.	Contactor	Detailed design / pre-construction	Project REF
ABH2	Impact to known Aboriginal heritage	An AHIP for the proposal would be obtained prior to construction, and any salvage would be undertaken in accordance with the proposed salvage methodology and any conditions of approval (if granted).	Transport for NSW and contractor	Pre-construction and construction	Project REF
ABH3	Finding unexpected artefacts	<i>The Standard Management Procedure – Unexpected Heritage Items</i> (Roads and Maritime, 2015) will be followed in the event that an unknown or potential Aboriginal object/s, including skeletal remains, is found during construction.	Contactor	Pre-construction and construction	Project REF
AABH4	Impact to Menangle Park Rezoning Project 8	The proposed works are within the AHIP 4648 and AHIP C0005561 and may be completed under the existing AHIPs, provided that works are undertaken in accordance with the AHIP conditions. An AHIP is required prior to commencement of work affecting the site outside existing AHIP areas.	Transport for NSW	Pre-construction	Additional safeguard
AABH5	Impact to Menangle Park Rezoning Project 8	Barrier fencing to be erected on the AHIP boundary for the extent of the site to ensure that no construction impact extends into the portion of the site outside the impact area. Portion of site area outside of impact area should be identified on the Construction Environmental Management Plan (CEMP) as environmentally sensitive no-go zone to ensure no impact.	Contractor	Construction	Additional safeguard
AABH6	Impact to Menangle Park Rezoning Project 8	Workers should be inducted as to appropriate protection measures for Aboriginal heritage.	Contractor	Construction	Additional safeguard

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
Flooding					
AF1	Construction flood impacts	A Flood Management Plan should be prepared by the contractor during construction planning phase to outline procedures for managing construction site operations and personnel safety in the event of a flood. Access for emergency services will be retained throughout construction and the construction contractor would consult with emergency services prior to construction.	Contractor	Pre-construction	Additional safeguard
AF2	Operational flood impacts	Development of an evacuation plan will be undertaken. The evacuation plan will be consulted with the resident of the impacted dwelling.	Transport for NSW	Post-construction	Additional safeguard
Biodiversity					
BD1	Removal of native vegetation	Native vegetation removal will be minimised through detailed design.	Transport for NSW	Detailed design	Project REF
BD2		Pre-clearing surveys will be undertaken in accordance with Guide 1: Pre-clearing process of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011).	Contractor	Pre-construction	Project REF
BD3		Vegetation removal will be undertaken in accordance with Guide 4: Clearing of vegetation and removal of bushrock of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011).	Contractor	Construction	Project REF
BD4		Native vegetation will be re-established in accordance with Guide 3: Re-establishment of native vegetation of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011).	Contractor	Construction	Project REF
BD5		The unexpected species find procedure is to be followed under Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011) if threatened ecological communities, not assessed in the biodiversity assessment, are identified in the proposal site.	Contractor	Construction	Project REF
BD6		<i>Clearing limits and exclusion zones would be clearly identified prior to work outside of the direct impact boundary or within no-go zones.</i> within/adjacent Cumberland Plain Woodland and Swamp Oak Floodplain Forest.	Contractor	Construction	Project REF

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
BD7		<p>A Flora and Fauna Management Plan will be prepared in accordance with Roads and Maritime's Biodiversity Guidelines: Protecting and Managing Biodiversity on RTA Projects (RTA, 2011) and implemented as part of the CEMP. It will include, but not be limited to:</p> <ul style="list-style-type: none"> Plans showing areas to be cleared and areas to be protected, including exclusion zones, protected habitat features and revegetation areas Requirements set out in the Landscape Guideline (RTA, 2008) Pre-clearing survey requirements Procedures for unexpected threatened species finds and fauna handling Procedures addressing relevant matters specified in the Policy and guidelines for fish habitat conservation and management (DPI Fisheries, 2013) Protocols to manage weeds and pathogens. 	Contractor / Transport for NSW	Detailed design / pre-construction	Project REF
BD8	Removal of threatened species habitat and habitat features	Habitat removal will be minimised through detailed design.			Project REF
BD9		Habitat removal will be undertaken in accordance with Guide 4: Clearing of vegetation and removal of bushrock of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011).	Transport for NSW	Detailed design	Project REF
BD10		Habitat will be replaced or re-instated in accordance with Guide 5: Re-use of woody debris and bushrock and Guide 8: Nest boxes of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011). This will include installation of nest boxes to replace lost hollows and salvage and re-use / installation of hollows from hollow-bearing trees that are removed.	Contractor	Construction	Project REF
BD11		The unexpected species find procedure is to be followed under Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011) if threatened fauna, not assessed in the biodiversity assessment, are identified in the proposal site.	Contractor	Construction	Project REF
BD12		Important habitat features such as woody debris and bushrock would be re-used in suitable locations nearby, in accordance with Roads and Maritime Biodiversity Guidelines – Guide 5 (Re-use of woody debris and bushrock.	Contractor	Construction	Project REF

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
BD13	Removal of threatened plants	Pre-clearing surveys will be undertaken in accordance with Guide 1: Pre-clearing process of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011).	Contractor	Construction	Project REF
BD14		Clearing limits and exclusion zones clearly identified prior to work within the vicinity of the population of <i>Pimelea spicata</i> to ensure no impacts to the population.	Contractor	Construction	Project REF
BD15	Aquatic impacts	Aquatic habitat will be protected in accordance with Guide 10: Aquatic habitats and riparian zones of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011) and Section 3.3.2 Standard precautions and mitigation measures of the Policy and guidelines for fish habitat conservation and management Update 2013 (DPI (Fisheries NSW) 2013).	Contractor	Construction	Project REF
BD16	Groundwater dependent ecosystems	Interruptions to water flows associated with groundwater dependent ecosystems will be minimised through detailed design.	Contractor	Construction	Project REF
BD17	Fragmentation of identified habitat corridors	Connectivity measures will be implemented in accordance with the Wildlife Connectivity Guidelines for Road Projects (RTA 2011).	Transport for NSW	Detailed design	Project REF
BD18		Any connectivity measures implemented will be designed and installed under the supervision of an experienced ecologist.	Transport for NSW	Detailed design / operation	Project REF
BD19		Wildlife signage, street lighting and appropriate vehicle calming devices will be considered in areas with a history of fauna vehicle strike.	Contractor / Transport for NSW	Detailed design / pre-construction	Project REF
BD20		Consider installation of glider poles and/or rope crossings to assist fauna to cross the road safely.			Project REF
BD21	Edge effects on adjacent native vegetation and habitat	Exclusion zones will be set up at the limit of clearing in accordance with Guide 2: Exclusion zones of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011).	Contractor	Construction	Project REF
BD22		Clearing limits and exclusion zones clearly identified prior to within/adjacent Cumberland Plain Woodland and Swamp Oak Floodplain Forest.	Contractor	Construction	Project REF

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
BD23	Injury and mortality of fauna	Fauna will be managed in accordance with Guide 9: Fauna handling of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011).	Contractor / Transport for NSW	Detailed design / pre-construction	Project REF
BD24		Implementation of two stage clearing process to allow fauna to disperse from habitat voluntarily; inspection of hollows by experienced ecologist/fauna spotter/catcher prior to and after clearing of hollow-bearing trees/stags to safely remove and relocate any injured /displaced fauna.			Project REF
BD25	Invasion and spread of weeds	Weed species will be managed in accordance with Guide 6: Weed management of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011).	Contractor / Transport for NSW	Detailed design / pre-construction	Project REF
BD26		Establishment of clearing limits and exclusion zones within/adjacent to Cumberland Plain Woodland and Swamp Oak Floodplain Forest.			Project REF
BD27		To prevent the spread of weed seed, all weed material removed will be disposed of in a suitable waste facility and not mulched on site. This is to avoid the reintroduction and further spread of weeds in the area.	Contractor	Construction	Project REF
BD28	Invasion and spread of pests	Pest species will be managed within the proposal site.	Contractor	Construction	Project REF
BD29	Invasion and spread of pathogens and disease	Pathogens will be managed in accordance with Guide 2: Exclusion zones of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA 2011).	Contractor	Construction	Project REF
BD30	Noise, light and vibration	Shading and artificial light impacts will be minimised through detailed design.	Contractor	Construction	Project REF
BD31	Removal of native vegetation	Exclusion zone around the Freshwater Wetlands adjacent to the impact area to reduce the risk of accidental impacts.	Contractor	Construction	Additional safeguard
BD32		The compound sites and access tracks will be left to regenerate post construction work.	Contractor / Transport for NSW	Post-construction	Additional safeguard

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
BD33	Aquatic impacts	Works in the vicinity of the unnamed first order ephemeral waterway and third order waterway will occur during dry periods where possible to prevent soil compression, bank slumping, soil erosion and sediment laden runoff from entering the waterway.	Contractor	Construction	Additional safeguard
BD34		Sediment and erosion controls will be installed around the perimeter of all soil disturbance and the proposed waterway crossing to reduce potential soil erosion and sediment laden runoff from entering the waterway or affecting nearby native vegetation.	Contractor	Construction	Additional safeguard
BD35	Fauna impacts	If microbats are encountered or spotted during construction, a stop works and further assessment procedure (by an ecologist) should be implemented.	Contractor	Construction	Additional safeguard
BD36	Invasion and spread of weeds and pests	Ensure machinery is clean and free of introduced plant seeds prior to activities on site. Under Biosecurity Act 2015 there are recommended measures for removal of weed species within the Greater Sydney region Woody weed species require removal from site and are not to be mulched onsite.	Contractor	Construction	Additional safeguard
BD37		Measures to prevent the spread of Chytrid fungus would be employed in accordance with the Hygiene protocol for the control of disease in frogs (DECC 2008).	Contractor	Construction	Additional safeguard
Socio-economic					
SEC1	Property acquisition	All property acquisition will be carried out in accordance with the <i>Land Acquisition Information Guide</i> (Roads and Maritime, 2012) and the <i>Land Acquisition (Just Terms Compensation) Act 1991</i> .	Roads and Maritime project manager	Pre-construction and construction	Project REF

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
SEC2	Socio-economic	<p>A Communication Engagement and Stakeholder Management Plan (CESMP) will be prepared and implemented as part of the CEMP to help provide timely and accurate information to the community during construction. The CP will include (as a minimum):</p> <ul style="list-style-type: none"> • Mechanisms to provide details and timing of proposed activities to affected residents, including changed traffic and access conditions • Contact name and number for complaints. <p>The CESMP will be prepared in accordance with the <i>Community Involvement and Communications Resource Manual</i> (RTA, 2008)</p>	Contactor	Detailed design / pre-construction	Project REF
SEC3		Ongoing consultation will be carried out with managers and users of potentially affected social infrastructure (for example Broughton Anglican College, Campbelltown Steam and Machinery Museum, and Bellbirds Early Learning Centre) regarding the timing, duration and likely impact of construction activities.	Contactor	Construction	Project REF
SEC4		Consideration will be given to the timing of construction activities near to social infrastructure in relation to key usage times of social infrastructure (for example, open days at Campbelltown Steam and Machinery Museum).	Contactor	Construction	Project REF
SEC5	Access and connectivity	Communication will be carried out with the Broughton Anglican College about the timing of haulage activities and potential changes to road conditions.	Contactor	Construction	Project REF
SEC6	Property acquisition	Awareness programs will be carried out for construction workers and transport operators for the proposal about potential road safety risks, including near to Broughton Anglican College and Bluebells ELC.	Contactor	Construction	Project REF
ASEC7	Closure of the informal rest area	Ongoing consultation will be carried out with users of the informal rest area regarding the timing of its closure.	Transport for NSW	Pre-construction	Additional safeguard

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
Contamination					
C1	Contaminated land	If contaminated areas are encountered during construction, appropriate control measures will be implemented to manage the immediate risks of contamination. All other work 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 Roads and Maritime Environment Manager and/or EPA.	Contractor	Detailed design / Pre-construction	Project REF
C2	Accidental spill	A site specific emergency spill plan will be developed, and include spill management measures in accordance with the Roads and Maritime Code of Practice for Water Management (RTA, 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 Roads and Maritime and EPA officers).	Contractor	Detailed design / Pre-construction	Project REF
AC3	Contamination	<p>A Remediation Action Plan (RAP) and an Unexpected Find Protocol (UFP) will be prepared and implemented to manage the potential for soil or water quality contamination during construction of the proposal. The RAP will:</p> <ul style="list-style-type: none"> • evaluate potential remedial options and recommend a preferred option to manage the ACM during the construction. • include a Long-Term Environmental Management Plan for the ACM material (should it remain in the proposal alignment). • include a preliminary plan to manage potential risks to human health and the environment during the remediation activities. <p>The RAP will form a part of the overall CEMP.</p>	Contractor	Pre-construction	Additional safeguard

7.3 Licensing and approvals

All relevant licenses, permits, notifications and approvals needed for the modified project are described in Section 7.3 of A1REF. No additional licenses, permits, notifications and approvals would be required as a result of the proposed modification.

8 Conclusion

8.1 Justification

The progression of the detail design from the concept design (as assessed in the project REF) and ongoing stakeholder consultation has resulted in a number of design refinements across the Spring Farm Parkway Stage 1 (Jacobs, 2019).

The proposed modification would involve:

- The decommissioning of existing above and below ground electricity lines along Menangle Road
- The construction and use of a new private driveway off the western side of Menangle Road, opposite the Broughton Anglican College exit
- The use of an alternative section of the existing AGL track off Cummins Rd by construction vehicles
- The removal of the access track from the project area to Fitzpatrick Street
- The removal of the ancillary facility near Glenlee Road
- A change in the direct impact boundary to account for:
 - The above modifications
 - The latest detailed design, inclusive of the project as described in A1REF
 - Access to and adjustment of utilities.

The proposed modification would provide improved constructability and additional long-term operational benefits to Spring Farm Parkway Stage 1. These long term benefits include:

- Improved future intersection performance for Spring Farm Parkway Stage 1
- Improved safety for users of the northbound Hume Motorway entry ramp
- Improved connectivity of Spring Farm Parkway Stage 1 to future stages.

There would be some short-term impacts from the proposed modification which include traffic, noise, and amenity-based impacts, which are generally consistent with the impacts outlined in the project REF and A1REF, however, impacts from the proposed modification would impact a wider area and an additional number of people. These impacts would not be extensive and would be managed with the safeguards and mitigation measures outlined in this A2REF .

There would be some additional permanent impacts to biodiversity and Aboriginal heritage as a result of the proposed modification. These impacts include the removal of 14.9 hectares of PCT 850 in various conditions (an increase of 12.98 hectares) and the removal of 0.54 hectares of PCT 1800 in low condition (an increase of 0.48 hectares). These impacts are not considered significant and safeguards and mitigation measures recommended by technical specialists would be implemented to manage these impacts.

The operation of the modified project would continue to improve accessibility by allowing additional road capacity and efficiency, which will further facilitate the wider development of the area.

Overall, the proposed modification is considered to be justified. It has been developed to best meet the project objectives, whilst minimising the construction and operational impact.

8.2 Objects of the EP&A Act

The objects of the EP&A Act were assessed for the approved project as described in Section 8.2 of A1REF. This section presents an overview of the modified project, consisting of both the approved project and the proposed modification.

Object	Comment
1.3(a) To promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources.	<p>The modified project would manage, develop and conserve natural and other resources appropriately and result in social and economic benefit to the community.</p> <p>The modified project would assist in providing the infrastructure for the new Menangle Park land release area and provide residents with access to and from the Hume Motorway and Menangle Road. The modified project would not impact the social and economic welfare of the community.</p>
1.3(b) To facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment.	Ecologically sustainable development is considered in Section 8.3 below.
1.3(c) To promote the orderly and economic use and development of land.	<p>The proposed modification would support the development of the Menangle Park land release area, and in the longer term supports the wider objectives of the Greater Macarthur Growth Area, by providing opportunities for future road widening and tie-in connections for stage 2 of Spring Farm Parkway.</p> <p>Spring Farm Parkway would ultimately support the future residential development within Spring Farm, Elderslie, Menangle Park and Mount Gilead.</p>
1.3(d) To promote the delivery and maintenance of affordable housing.	Not relevant to the project.
1.3(e) To protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats.	<p>Opportunities to minimise the footprint of the proposed modification have been considered where possible to reduce the potential environmental impact.</p> <p>The process of selecting the additional construction access routes and site compounds considered ways to avoid and minimise the impact to the environment, by maximising the use of existing road corridor and access tracks where possible, and realigning these routes where environmental impact would have been significant.</p>

Object	Comment
1.3(f) To promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage).	The modified project would result in minor impacts to non-Aboriginal heritage through the acquisition of an area of Sugarloaf Farm and excavation on the Grazier's Arms Inn site for the widening of Menangle Road. Temporary construction works may also impact two overbridges that form part of the Upper Canal System. An assessment of these impacts are provided in Section 6.2. The modified project would potentially impact one Aboriginal archaeological site. Several impacted portions of the site are within areas covered by existing Aboriginal Heritage Impact Permits. Impacted portions outside these AHIP areas would require an AHIP prior to commencement of work. An assessment of this impact is provided in Section 6.2.
1.3(g) To promote good design and amenity of the built environment.	The design and placement of roadside furniture including bridge design, signage and shared paths were considered in the modified project.
1.3(h) To promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants.	Not relevant to the project.
1.3(i) To promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State.	Not relevant to the project.
1.3(j) To provide increased opportunity for community participation in environmental planning and assessment.	Relevant consultation with stakeholders has occurred and is outlined in Section 5.

8.3 Ecologically sustainable development

8.3.1 The precautionary principle

Principle 15 of the United Nations Conference on Environment and Development 1992 (the Rio Summit) defined the precautionary principle: “where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”. In 2000, a European Union communication further refined the definition to account for action where scientific evidence is “insufficient, inconclusive or uncertain”. Also realised was the responsibility placed on the developer to prove their actions as being safe and act in instances where there is uncertainty.

In all cases impact assessment is a subjective process. It relies on professional judgement and interpretation. Consequently, precaution has been built into the assessment carried out and reported in this A2REF . This includes adopting a number of worst-case assumptions, such as all noise-generating equipment operating at its maximum output at the same time in the same location, or the assumption of the worst-case vegetation impact within the project area.

This A2REF has been prepared using the precautionary principle and appropriate mitigation measures are outlined to address all of the potential impact identified for the modified project.

Additional environmental assessment would be carried out where there is an identified inconsistency with this A2REF as well as the project REF. This again would ensure that uncertainty is identified, addressed and resolved throughout the project's design lifecycle by implementing precaution at all stages.

8.3.2 Intergenerational equity

Intergenerational equity refers to the principle that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

The proposed modification would not impact on the health, diversity and productivity of the local environment or communities in a way that would disadvantage future generations.

8.3.3 Conservation of biological diversity and ecological integrity

Preserving biological diversity and ecological integrity requires that ecosystems, species, and biological diversity are maintained and improved to ensure their survival. It is accepted that this proposed modification would result in the loss of about 14.9 hectares of PCT 850 in various conditions (an increase of 12.98 hectares), the trimming of 0.85 hectares of PCT 850 and the clearing of 0.54 hectares of PCT1800 (an increase of 0.48 hectares).

Assessments of significance were carried out for the following threatened species under the BC Act that were considered to potentially occur in the project area:

- *Pimelea spicata* (Spiked Rice-flower)
- Little Lorikeet (*Glossopsitta pusilla*)
- Little Eagle (*Hieraaetus morphnoides*)
- Grey-headed Flying-fox (*Pteropus poliocephalus*)
- Eastern Freetail-bat (*Micronomus norfolkensis*)
- Greater Broad-nosed Bat (*Scoteanax rueppellii*).

These assessments, which are reported in Appendix C, conclude that the impact is not significant. Providing the safeguard measures in Chapter 7 are implemented, the proposal would not have a material or significant impact on biological diversity and ecological integrity.

8.3.4 Improved valuation, pricing and incentive mechanisms

The pricing of environmental resources involves placing a monetary value on natural assets and services. The principle suggests that Transport for NSW should:

- Bear reasonable costs to avoid pollution risks (the 'polluter pays principle') and implement controls to contain or reduce pollution should it occur
- Consider the lifecycle environmental, social and economic costs of building, operating and maintaining the proposal
- Implement the proposal's environmental goals by enabling specialists to identify the most cost-effective safeguards and management measures to respond to its predicted environmental impact.

As outlined in Section 8.2.4 of the Project REF, Transport for NSW will continue adhere to this principle for the modified project.

8.4 Conclusion

This A2REF has examined and taken into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposed activity.

This has included consideration where relevant, of conservation agreements and plans of management under the NPW Act, biodiversity stewardship sites under the BC Act, wilderness areas, areas of outstanding value, impacts on threatened species, populations and ecological communities and their habitats and other protected fauna and native plants. It has also considered potential impacts to matters of national environmental significance listed under the COMM wealth EPBC Act.

While there would be some impacts to the environment as a result of the proposed modification, they have been avoided or minimised wherever possible through design development and site specific safeguards.

The proposed modification is considered consistent with state and local transport strategies to improve the road safety and efficiency and would help to meet ongoing and future road network needs. The proposed modification would support improved access through the area and facilitate pedestrians, cyclists and vehicle access to the adjacent residential development. On balance, the proposed modification's long-term benefits outweigh its impacts, and the proposed modification is considered to be justified.

Significance of impact under NSW legislation

The proposed modification would not result in a change to the findings of the project REF and would be unlikely to cause a significant impact on the environment. Therefore it is not necessary for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning under Division 5.2 of the EP&A Act. A Biodiversity Development Assessment Report or Species Impact Statement is not required. The proposed modification is subject to assessment under Division 5.1 of the EP&A Act. Consent from Council is not required.

Significance of impact under Australian legislation

The proposed modification is not likely to have a significant impact on matters of national environmental significance or the environment of Commonwealth land within the meaning of the EPBC Act. A referral to the Australian Department of Agriculture, Water and the Environment is not required.

9 Certification

This addendum review of environmental factors provides a true and fair review of the proposed modification in relation to its potential effects on the environment. It addresses to the fullest extent possible all matters affecting or likely to affect the environment as a result of the proposed modification.



Damian Wagner
Principal Environmental Scientist
Jacobs Group (Australia) Pty Ltd
Date: 31 May 2022

I have examined this review of environmental factors and accept it on behalf of Transport for NSW.

Sayema Huq
Project Manager, Transport for NSW
Date:

10 References

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11 Terms and acronyms used in this A2REF

Term / Acronym	Description
BC Act	<i>Biodiversity Conservation Act 2016 (NSW).</i>
Biodiversity and Conservation SEPP	State Environmental Planning Policy 2021 (Biodiversity and Conservation)
CEMP	Construction / Contractor's environmental management plan
DPE	Department of Planning and Environment (formerly Department of Planning, Industry and Environment (DPIE))
EIA	Environmental impact assessment
EP&A Act	Environmental Planning and Assessment Act 1979 (NSW). Provides the legislative framework for land use planning and development assessment in NSW
EP&A Regulation	Environmental Planning and Assessment Regulation 2021 (NSW)
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth). Provides for the protection of the environment, especially matters of national environmental significance, and provides a national assessment and approvals process.
ESD	Ecologically sustainable development. Development which uses, conserves and enhances the resources of the community so that ecological processes on which life depends, are maintained and the total quality of life, now and in the future, can be increased
FM Act	<i>Fisheries Management Act 1994 (NSW)</i>
Heritage Act	<i>Heritage Act 1977 (NSW)</i>
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan. A type of planning instrument made under Part 3 of the EP&A Act.
LoS	Level of Service. A qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers.
NES	Matters of national environmental significance under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> .
NPW Act	<i>National Parks and Wildlife Act 1974 (NSW)</i>
Resilience and Hazards SEPP	State Environmental Planning Policy (Resilience and Hazards) 2021
Roads and Maritime	NSW Roads and Maritime was dissolved by the Transport Administration Amendment Bill in August 2019, all function are now managed by Transport for NSW
SEPP	State Environmental Planning Policy. A type of planning instrument made under Part 3 of the EP&A Act.
TISEPP	State Environmental Planning Policy (Transport and Infrastructure) 2021

Appendix A Consideration of Section 171 factors and matters of National Environmental Significance and Commonwealth land

Clause 171 Checklist

In addition to the requirements of the Is an EIS required? (1995/1996) guideline and the Roads and Related Facilities EIS Guideline (DUAP, 1996) as detailed in this A2REF, the following factors, listed in clause 171 of the Environmental Planning and Assessment Regulation 2021, have also been considered to assess the likely impacts of the modified project, inclusive of the proposed modification, on the natural and built environment.

The factors listed in Clause 228 of the Environmental Planning and Assessment Regulation 2000 were assessed for the approved project as described in Section 8.2 of A1REF. This section presents an overview of the modified project, consisting of both the approved project and the proposed modification of Clause 171 of the now-updated Environmental Planning and Assessment Regulation 2021.

Factor	Impact
<p>Any environmental impact on a community?</p> <p>The modified project would result in some short-term amenity-related impact during construction to the community, including a noise and air quality impact, increased traffic and temporary delays from partial road closures and disruption to access for some receivers on Menangle Road.</p> <p>Once operational, the modified project would provide access to the Menangle Park urban release area and increase the capacity of Menangle Road. This would have a long term positive impact to the community, by not only enabling the existing road to cope with forecasted traffic volumes but also by supporting the development of the region. It is expected that this would support future development and growth of businesses and employment in the region.</p>	<p>Short-term, minor negative.</p> <p>Long-term positive.</p>
<p>Any transformation of a locality?</p> <p>The modified project would result in short-term disruption during construction leading to a noise and traffic impacts. The impact would be mitigated with the implementation of recommended safeguards identified in Chapter 7.</p> <p>The modified project supports the transformation of the Greater Macarthur Priority Growth Area by providing roads, interchanges and intersections to connect and service future residential land releases within the Greater Macarthur Priority Area, including alternative connection to Spring Farm, Elderslie, Menangle Park, and Mount Gilead and connection to connect Camden Bypass, the Hume Motorway and Menangle Road</p> <p>The removal and trimming of vegetation will have a low impact on the locality.</p>	<p>Short-term minor negative.</p> <p>Long-term positive</p> <p>Long-term minor negative</p>
<p>Any environmental impact on the ecosystems of the locality?</p> <p>The modified project would require clearance of 12.9 hectares of PCT 850 in various conditions, and 0.48 hectares of PCT 1800 in a low condition. These impacts have been assessed to not be significant as described in Section 6.1.</p>	<p>Long-term minor negative.</p>

Factor	Impact
<p>Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality?</p> <p>The modified project would result in short-term impacts to traffic and transport as well as noise and vibration during construction. Some occasional night work would also be required. In all cases, the impact would be minimised by including a range of safeguards. These safeguards would also include controls to prevent any unnecessary impact while minimising any risks to other values locally.</p>	Short-term minor negative.
<p>Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations?</p> <p>The modified project would impact an area of Grazier's Farm Inn and require the acquisition of an area within the Sugar Loaf Farm (State Heritage Listed) curtilage. Impacts to these heritage items are considered minor and the likelihood of encountering any archaeological relics is low.</p>	Long term minor negative.
<p>Any impact on the habitat of protected fauna (within the meaning of the <i>National Parks and Wildlife Act 1974</i>)?</p> <p>Further assessment via Assessments of Significance for potential impacts to protected species were undertaken for the modified project (refer to Appendix C) These assessments found that significant impacts as a result of the proposed modification works were unlikely.</p>	Nil.
<p>Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?</p> <p>Further assessment via Assessments of Significance for potential impacts to protected species were undertaken for the modified project (refer to Appendix C) These assessments found that significant impacts as a result of the proposed modification works were unlikely.</p>	Nil.
<p>Any long-term effects on the environment?</p> <p>The modified project would require clearance of 12.9 hectares of PCT 850 in various conditions, and 0.48 hectares of PCT 1800 in a low condition, and impact an area of Grazier's Farm Inn and require the acquisition of an area within the Sugar Loaf Farm (State Heritage Listed) curtilage. These impacts are considered to be minor.</p>	Long term minor negative.
<p>Any degradation of the quality of the environment?</p>	Nil.
<p>Any risk to the safety of the environment?</p> <p>During construction, the modified project may require the transportation and storage of hazardous or contaminated materials in limited quantities. These materials would be managed in accordance with the mitigation measures proposed in Chapter 7. The potential risk to the safety of the environment would be minor and limited to the construction period.</p>	Short term minor negative.
<p>Any reduction in the range of beneficial uses of the environment?</p> <p>The modified project is located almost exclusively within land zoned for the provision of a new road corridor. Some property acquisition would be required immediately adjacent to the road corridor, including acquisition of some private property, and partial acquisition of an area of Sugarloaf Farm (State heritage listed item). This acquisition would not affect the use and enjoyment of Sugarloaf Farm.</p>	Long term minor negative.

Factor	Impact
<p>Any pollution of the environment?</p> <p>Construction of the modified project would result in dust generation and air and noise emissions from machinery and construction vehicles. There is a risk of pollution to the surrounding watercourses and drainage lines. The management measures proposed would help reduce the impact.</p> <p>During operation, pollution would largely be consistent with the current use. The proposal has been designed to ensure it complies with all safety requirements. As such, this reduces the impact of any accidents or incidents that may result in pollution, contamination or other environmental safety concerns. While this risk cannot be full discounted it has been reduced to a level that is achievable, feasible and reasonable. This includes controls to manage the stormwater runoff from the operational site via grassed swales and gross pollutant traps.</p>	<p>Short term minor negative.</p> <p>Nil.</p>
<p>Any environmental problems associated with the disposal of waste?</p> <p>During construction, a number of waste streams would be produced by the modified project. Where possible, excavated materials would be used on site. Where this is not possible, waste would be classified to identify suitable recycling and safe disposal methods in accordance with Roads and Maritime Environmental Procedure – Management of Wastes on Roads and Maritime Services Land and the requirements of the Waste Classification Guidelines.</p> <p>During operation, waste generation is expected to be minimal and consistent with the current use.</p>	<p>Short term minor.</p> <p>Nil.</p>
<p>Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply?</p> <p>It is predicted that about 400 000 m³ of imported fill would be required for construction of the modified project. It is unlikely this, or any other resources required for the modified project would be in short supply.</p>	<p>Nil.</p>
<p>Any cumulative environmental effect with other existing or likely future activities?</p> <p>Construction of the modified projects may be carried out with other proposals, including the Menangle Park Development. Cumulative impacts could include noise impacts, dust or other amenity impacts and community fatigue. Where necessary environmental management measures would be coordinated to reduce cumulative construction impacts. The proposal is unlikely to have any long-term impacts.</p>	<p>Short term minor negative.</p>
<p>Any impact on coastal processes and coastal hazards, including those under projected climate change conditions?</p> <p>None, as the proposal is located outside of coastal areas.</p>	<p>Nil.</p>

Matters of National Environmental Significance and Commonwealth land

Under the environmental assessment provisions of the EPBC Act, the following matters of national environmental significance and impacts on Commonwealth land are required to be considered to assist in determining whether the proposed modification should be referred to the Australian Government Department of Water, Agriculture and the Environment.

Under the EPBC Act strategic assessment approval a referral is not required for proposed road actions that may affect nationally listed threatened species, populations, endangered ecological communities and migratory species. Impacts on these matters are assessed in detail as part of this A2REF in accordance with Australian Government significant impact criteria and taking into account relevant guidelines and policies.

Factor	Impact
Any impact on a World Heritage property?	Nil
Any impact on a National Heritage place?	Nil
Any impact on a wetland of international importance?	Nil
Any impact on a listed threatened species or communities?	Nil.
Any impacts on listed migratory species?	Nil.
Any impact on a Commonwealth marine area?	Nil
Does the proposed modification involve a nuclear action (including uranium mining)?	Nil
Additionally, any impact (direct or indirect) on Commonwealth land?	Nil

Appendix B Statutory consultation checklists

State Environmental Planning Policy (Transport and Infrastructure) 2021 Checklist

Certain development types

Development type	Description	Yes / No	If 'yes' consult with	TISEPP section
Car Park	Does the project include a car park intended for the use by commuters using regular bus services?	No	NA	TISEPP Section 2.110
Bus Depots	Does the project propose a bus depot?	No	NA	TISEPP Section 2.110
Permanent road maintenance depot and associated infrastructure	Does the project propose a permanent road maintenance depot or associated infrastructure such as garages, sheds, tool houses, storage yards, training facilities and workers' amenities?	No	NA	TISEPP Section 2.110

Development within the Coastal Zone

Issue	Description	Yes / No / NA	If 'yes' consult with	TISEPP section
Development with impacts on certain land within the coastal zone	Is the proposal within a coastal vulnerability area and is inconsistent with a certified coastal management program applying to that land?	No	NA	TISEPP Section 2.14

Note: See interactive map here: <https://www.planning.nsw.gov.au/policy-and-legislation/coastal-management>. Note the coastal vulnerability area has not yet been mapped.

Note: a certified coastal zone management plan is taken to be a certified coastal management program

Council related infrastructure or services

Issue	Potential impact	Yes / No	If 'yes' consult with the relevant local council(s).	TISEPP section	Comment
Stormwater	Are the works likely to have a substantial impact on the stormwater management services which are provided by council?	No		TISEPP Section 2.10	
Traffic	Are the works likely to generate traffic to an extent that will strain the capacity of the existing road system in a local government area?	Yes	Campbelltown City Council	TISEPP Section 2.10	Consultation undertaken during Project REF
Sewerage system	Will the works involve connection to a council owned sewerage system? If so, will this connection have a substantial impact on the capacity of any part of the system?	No		TISEPP Section 2.10	
Water usage	Will the works involve connection to a council owned water supply system? If so, will this require the use of a substantial volume of water?	Yes	Campbelltown City Council	TISEPP Section 2.10	Consultation undertaken during Project REF
Temporary structures	Will the works involve the installation of a temporary structure on, or the enclosing of, a public place which is under local council management or control? If so, will this cause more than a minor or inconsequential disruption to pedestrian or vehicular flow?	No		TISEPP Section 2.10	
Road & footpath excavation	Will the works involve more than minor or inconsequential excavation of a road or adjacent footpath for which council is the roads authority and responsible for maintenance?	Yes	Campbelltown City Council	TISEPP Section 2.10	Consultation undertaken during Project REF

Local heritage items

Issue	Potential impact	Yes / No	If 'yes' consult with the relevant local council(s)	TISEPP section	Comment
Local heritage	Is there is a local heritage item (that is not also a State heritage item) or a heritage conservation area in the study area for the works? If yes, does a heritage assessment indicate that the potential impacts to the heritage significance of the item/area are more than minor or inconsequential?	No		TISEPP Section 2.11	

Flood liable land

Issue	Potential impact	Yes / No	If 'yes' consult with	TISEPP section	Comment
Flood liable land	Are the works located on flood liable land? If so, will the works change flood patterns to more than a minor extent?	No		TISEPP Section 2.12	
Flood liable land	Are the works located on flood liable land? (to any extent). If so, do the works comprise more than minor alterations or additions to, or the demolition of, a building, emergency works or routine maintenance	Yes	NSW State Emergency Services (SES)	TISEPP Section 2.12	Consultation undertaken during Project REF and A1REF

Note: Flood liable land means land that is susceptible to flooding by the probable maximum flood event, identified in accordance with the principles set out in the manual entitled Floodplain Development Manual: the management of flood liable land published by the New South Wales Government.

Public authorities other than councils

Issue	Potential impact	Yes / No	If 'yes' consult with	TISEPP section	Comment
National parks and reserves	Are the works adjacent to a national park or nature reserve, or other area reserved under the <i>National Parks and Wildlife Act 1974</i> , or on land acquired under that Act?	No	DPE	TISEPP Section 2.15	
National parks and reserves	Are the works on land in Zone E1 National Parks and Nature Reserves or in a land use zone equivalent to that zone?	No	DPE	TISEPP Section 2.15	
Aquatic reserves and marine parks	Are the works adjacent to an aquatic reserve or a marine park declared under the <i>Marine Estate Management Act 2014</i> ?	No	Department of Industry	TISEPP Section 2.15	
Sydney Harbour foreshore	Are the works in the Sydney Harbour Foreshore Area as defined by the <i>Sydney Harbour Foreshore Authority Act 1998</i> ?	No	Sydney Harbour Foreshore Authority	TISEPP Section 2.15	
Bush fire prone land	Are the works for the purpose of residential development, an educational establishment, a health services facility, a correctional centre or group home in bush fire prone land?	No	Rural Fire Service	TISEPP Section 2.15	
Artificial light	Would the works increase the amount of artificial light in the night sky and that is on land within the dark sky region as identified on the dark sky region map? (Note: the dark sky region is within 200 kilometres of the Siding Spring Observatory)	No	Director of the Siding Spring Observatory	TISEPP Section 2.15	

Issue	Potential impact	Yes / No	If 'yes' consult with	TISEPP section	Comment
Defence communications buffer land	Are the works on buffer land around the defence communications facility near Morundah? (Note: refer to Defence Communications Facility Buffer Map referred to in clause 5.15 of Lockhardt LEP 2012, Narrandera LEP 2013 and Urana LEP 2011).	No	Secretary of the Commonwealth Department of Defence	TISEPP Section 2.15	
Mine subsidence land	Are the works on land in a mine subsidence district within the meaning of the <i>Mine Subsidence Compensation Act 1961</i> ?	Yes	Mine Subsidence Board	TISEPP Section 2.15	Consultation undertaken during Project REF