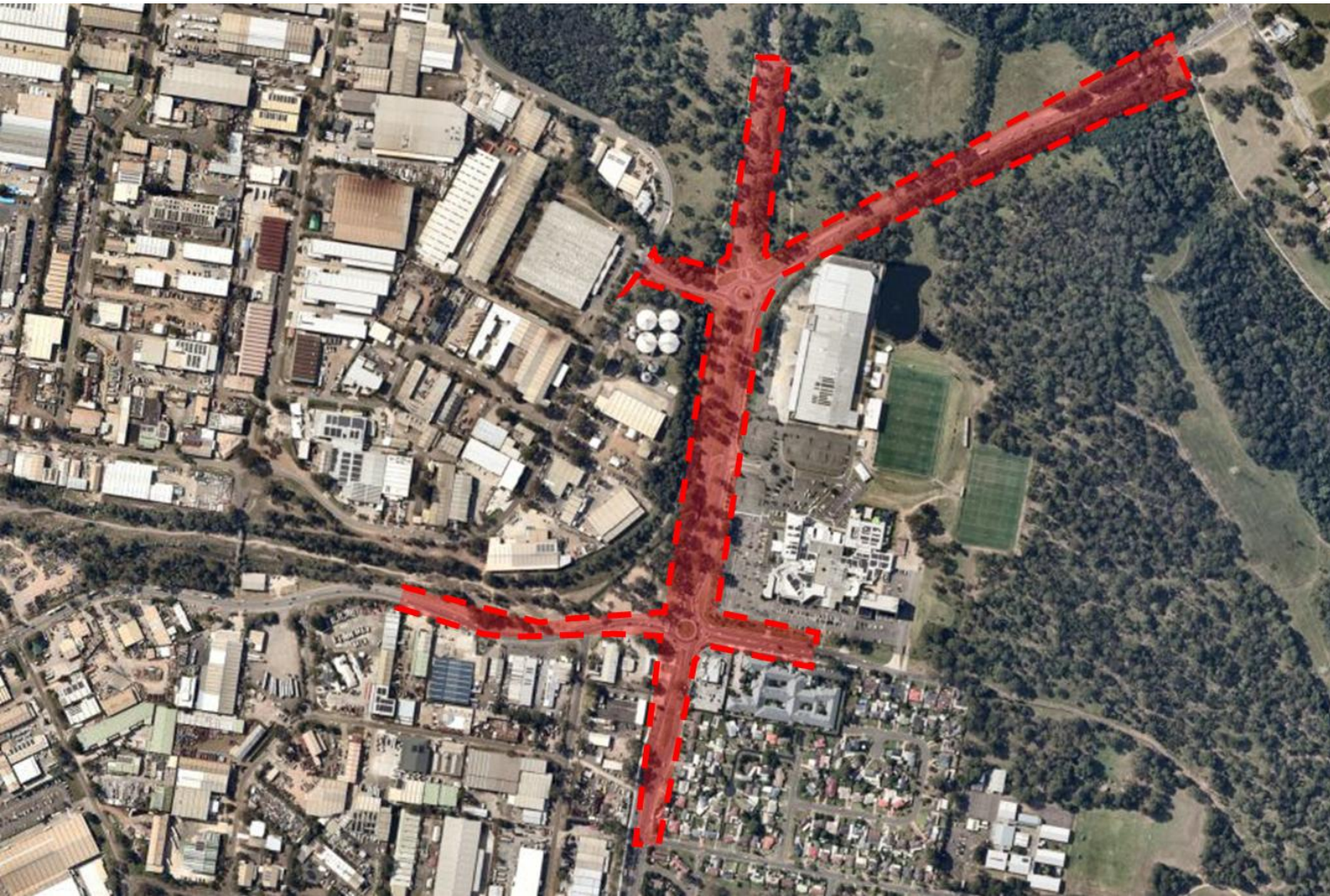


Review of Environmental Factors

Road and intersection upgrades St Marys and North St Marys



Prepared for Lendlease
Submitted to Penrith City Council

Amended July 2026

This report has been prepared by:

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Cover image: the site (Source: Nearmap)

This amended report is dated 24 July 2026 and includes information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Keylan Consulting Pty Ltd (Keylan) opinion in this report.

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This report has been prepared with due care and diligence by Keylan and the statements and opinions given by Keylan in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.

Declaration

This Review of Environmental Factors (REF) has been prepared by *Keylan Consulting Pty Ltd* for *Penrith City Council* (Council) and provides an assessment of the potential environmental impacts associated with the proposed roadworks to Forrester Road between and surrounding the intersections at Christie Street/Boronia Road and Links Road/Ropes Crossing Boulevard, St Marys and North St Marys (the activity), in the Penrith City Local Government Area (LGA).

In 2006, *Lendlease Development Pty Ltd / St Marys Land Limited* (the Joint Venture) entered into a planning agreement with Council. The St Marys Penrith Planning Agreement (the Planning Agreement), and subsequent 2018 revision, sets out obligations for the Joint Venture including the provision of 'local transport works' to Forrester Road. This is outlined in Section 17 and Annexure 2A of the Planning Agreement and further discussed in Section 2.1 of this REF.

Council is a public authority and therefore the determining authority pursuant to Section 5.3 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) as the works are being carried out on behalf of Council. The proposal satisfies the definition of an "activity" under Part 5.1(1)(d) of the EP&A Act and, as such, Council must assess and consider the environmental impacts before determining whether to proceed with the proposed activity.

This REF has been prepared in accordance with the guidelines and legislation outlined below:

- The Department of Planning, Housing and Infrastructure's (DPHI) *Guidelines for Division 5.1 Assessments* (the Guidelines) as required under Clause 170 of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation 2021).
- Section 5.5 of the EP&A Act and Clause 171 of the EP&A Regulation 2021 which relate to consideration of environmental impacts.

The REF provides a true and fair assessment of the likely impact on the environment and addresses to the fullest extent possible, all matters affecting or likely to affect the environment as a result of the activity. The REF concludes that:

1. The activity is not likely to have a significant impact on the environment and therefore, an Environmental Impact Statement (EIS) is not required.
2. The activity is not likely to significantly affect any threatened flora and fauna species, populations or ecological communities or their habitats as defined under the *Biodiversity Conservation Act 2016* and therefore a Species Impact Statement (SIS) or Biodiversity Development Assessment Report (BDAR) is not required.
3. The activity will not affect Commonwealth land as it is not being carried out on Commonwealth land and is not likely to significantly impact on any Matters of National Environmental Significance listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The proposed activity is therefore recommended for approval, subject to implementation of the measures to avoid, minimise or manage the environmental impacts identified in this REF.

REF author and reviewer

Author's name and qualifications	Danielle Wigg BP Lauren Donohoe BCP (Hons)
Reviewer's name and qualifications	Dan Keary BSc MURP RPIA
Approved by	Dan Keary
Title	Director
Organisation	Keylan Consulting Pty Ltd
Signature	<i>Dan Keary</i>
Date	24 July 2026

Determining authority verification and determination

I have examined the Review of Environmental Factors and the declaration by the author and accept the report on behalf of Penrith City Council.

Name	Adam Wilkinson
Title	Director Asset Services.
Organisation	Penrith City Council
Signature	
Date	

I determine that the proposal is approved and may proceed.

Name	Adam Wilkinson
Title	Director Asset Services.
Organisation	Penrith City Council
Signature	
Date	

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1 Introduction

The REF has been prepared by Keylan Consulting on behalf of Penrith City Council (Council) to assess the environmental impacts associated with the proposed Forrester Road upgrade works (the activity) between and surrounding the intersections at Christie Street/Boronia Road and Links Road/Ropes Crossing Boulevard, St Marys and North St Marys, within the Penrith City Local Government Area.

The proposed activity seeks to upgrade of a section of Forrester Road to fulfill the St Marys Penrith Planning Agreement requirements. The works aim to enhance current road network efficiency and to accommodate future growth within the St Marys development area.

The proposed activity, which is to be carried out by, or on behalf of a public authority, is permitted without consent in accordance with Section 2.109 of *State Environmental Planning Policy (Transport and Infrastructure SEPP) 2021* (Transport and Infrastructure SEPP), which states:

'Development for the purpose of a road or road infrastructure facilities may be carried out by or on behalf of a public authority without consent on any land.'

Therefore, the proposal is an activity in accordance with to Part 5, Division 5.1 of the EP&A Act because it involves the carrying out of work as defined under Section 1.4 of the EP&A Act and therefore requires an environmental assessment.

Council, as the determining authority, is required to consider the environmental impacts of the proposal in the context of Part 5 of the EP&A Act and Clause 171 of the EP&A Regulation. Accordingly, this REF is submitted to Council for consideration.

1.1 Purpose of report

The purpose of the REF is to describe the proposal, document the likely impacts of the proposal on the environment and detail protective measures to be implemented to mitigate potential impacts.

The REF helps to fulfil the requirements of section 5.5 of the EP&A Act, which requires that Council examine, and take into account to the fullest extent possible, all matters affecting, or likely to affect, the environment by reason of the proposed activity, including:

- whether the proposal is likely to have significant impact on the environment and therefore requires preparation of an EIS (the REF concludes that an EIS is not required).
- whether the proposal requires a SIS and/or BDAR to analyse impacts on threatened species, populations and ecological communities and their habitats or the impacts on biodiversity values respectively (the Flora and Fauna Assessment provided at Appendix 2 confirm a SIS is not required).
- whether the proposed activity can proceed subject to any mitigation measures and/or conditions (the proposed mitigation measures in Section 9 are suitable and have been recommended by expert consultants).

- the activity is not likely to affect Commonwealth land as it is not being carried out on Commonwealth land and is not likely to significantly impact on any Matters of National Environmental Significance listed under EPBC Act.

The proposed activity is therefore recommended for approval, subject to implementation of the measures to avoid, minimise or manage the environmental impacts identified in this REF.

1.2 Project overview

The activity proposes to upgrade sections of Forrester Road, Christie Street, Boronia Road, Links Road and the intersections of Christie Street/Boronia Road and Links Road/Ropes Crossing Boulevard to enhance the safety, capacity, and accessibility of the road network.

Specifically, the works include:

- approximately 520m of road widening between Links Road intersection to Ropes Creek Bridge
- converting two existing dual lane roundabouts to new signalised intersections (Links Road/Ropes Crossing Boulevard and Christie Street/Boronia Road)
- utility works and drainage infrastructure
- provision of supporting infrastructure including a new shared path on the western side of Forrester Road, street lighting, signage and line marking
- earthworks
- landscaping
- establishment of a temporary construction compound

The design and construction of the proposed activity will be undertaken in accordance with the outcomes and mitigation measures as outlined within this REF.

2 Subject site and environment

2.1 Project area

The site is located within the suburbs of St Marys and North St Marys, in the Penrith LGA. It is approximately 2 kilometres (km) north of St Marys town centre, 7km north-east of Penrith, and 45km west of the Sydney Central Business District.

Forrester Road is a regional road within the LGA and provides a key link between St Marys, Penrith and the Dunheved Industrial Area. The extent of the site is described in the Table 1 and shown in the figure below.

Legal description	Address	Land description
Lot 2151, DP740147	1-25 Christie Street St Marys	Partially vegetated lot
Lot 50, DP774585	4 Christie Street St Marys	Industrial
Lot 51 DP774585	2 Christie Street St Marys	Industrial
Lot 27 DP261433	197 Forrester Road North St Marys	Residential
Lot 28 DP261433	199 Forrester Road North St Marys	Residential
Lot 311 DP863203	199-201 Boronia Road North St Marys	McDonald's
Lot 312 DP863203	183 Boronia Road North St Marys	Retirement community
Lot 11 DP1192443	Boronia Road North St Marys	St Marys Leagues Club, St Marys Leagues Stadium and vegetation
Lot 12 DP1192443	243 Forrester Road St Marys	Industrial
Lot 2 DP598653	263-283 Forrester Road St Marys	Vegetated lot
Lot 1 DP598653	263-283 Forrester Road St Marys	Vegetated lot
Lot 1 DP598653	285-309 Forrester Road North St Marys	Vegetated lot
Lot 5 DP1128159	5 Ropes Crossing Boulevard St Marys	Vegetated lot
Lot 6 DP1128159	350-376 Forrester Road St Marys	Vegetated lot
Lot 8 DP217323	348 Forrester Road St Marys	Vegetated lot
Lot 2 DP1128159	3-31 Links Road St Marys	Vegetated lot
Lot 94 DP31909	129-139 Dunheved Circuit St Marys	Industrial
Lot 98 DP31909	105B Dunheved Circuit St Marys	Vegetated lot

Table 1: Legal descriptions of site

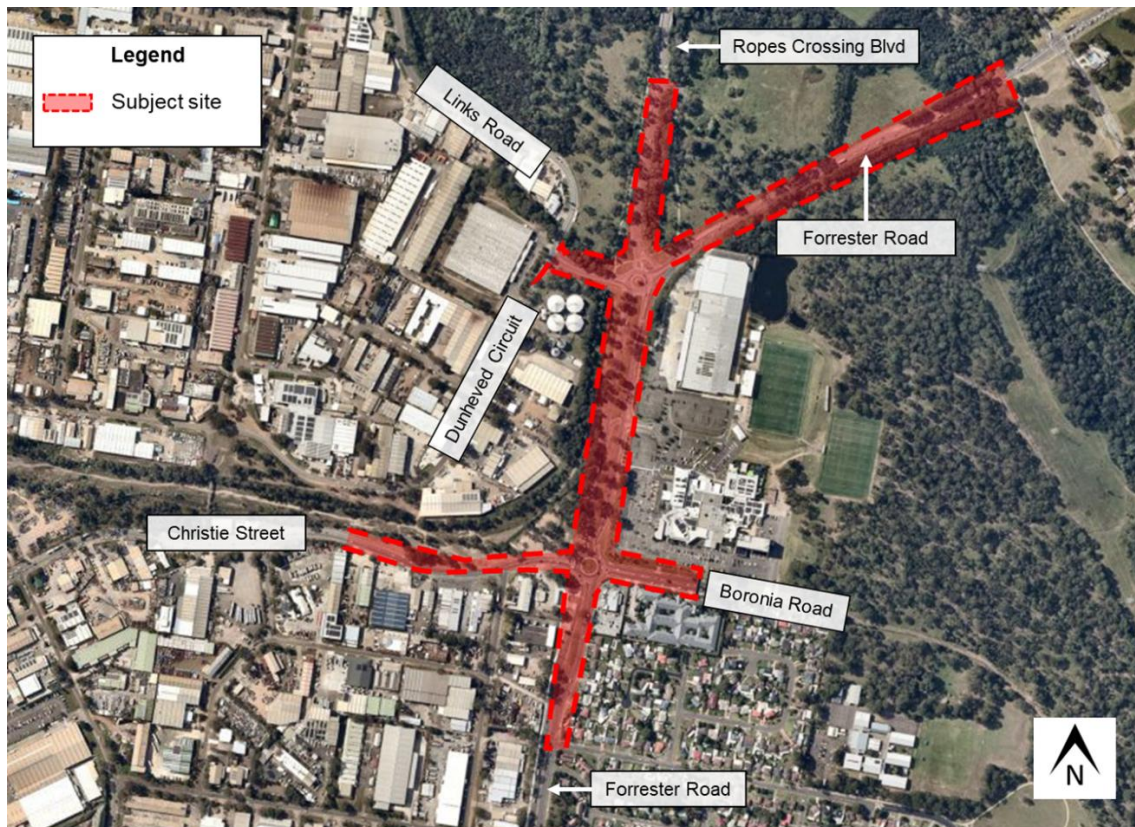


Figure 1: Site and site context (Base source: Nearmaps)

The Traffic Impact Assessment (Appendix 3) describes the existing road environment characteristics. A summary is provided within the table below.

Road name/s	Description
Forrester Road	- classified regional road with two lanes in each direction separated by a median - footpath on both sides - no bike lanes - speed limit of 60 km/hr - provides access to St Marys Train Station for suburbs to its north and connects to Palmyra Avenue at its northmost point
Ropes Crossing Boulevard	- local two-way road with two lanes separate by a median - speed limit of 50 km/hr and is north-south aligned - majority of the road does not provide kerbside parking with some exceptions in the southbound lane south of the intersection with Maiden Street - connects the Ropes Crossing town centre to Forrester Road
Links Road	- local two-lane, two-way road - speed limit of 60 km/hr - provides access to the existing Dunheved Business Park located north of Christie Street (note, the proposal includes extension of this road to connect with Christie Street at Lee Holm Road intersection) - no kerbside parking restrictions are implemented, and on-street parking is utilised where the road width permits.

Road name/s	Description
Christie Street / Boronia Road	- regional road with an east-west alignment connecting Forrester Road and The Northern Road - accommodates one traffic lane and one parking lane in each direction - kerbside parking is provided along most of its length except for the kerb sections at driveways or no stopping/no parking zones - speed limit is 60km/ hr

Table 2: Description of road environment

2.2 Surrounding land uses

The surrounding locality comprises a range of land uses, including:

- **North** – Ropes Creek and Winamatta Regional Park are located directly to the north of the site. The suburb of Ropes Crossing is located further north, including low-medium density housing, Ropes Crossing Village Shopping Centre, Ropes Crossing Public School and St Marys Water Recycling Plant.
- **South** – The Dunheved Business Park (East Precinct) and low-density residential dwellings are located to the south of the site. Further south is St Marys North Public School and St Marys train station.
- **East** – Directly to the east of the site is the St Marys League Club and St Marys Leagues Stadium. Further east is Tregear Reserve, Ropes Creek, Chifley College (Dunheved Campus) and the suburb of Tregear, comprising of low-density residential dwellings.
- **West** – Dunheved Business Park (North and South Precinct) directly adjoins the site to the west. Further west is the Dunheved Golf Club and South Creek.

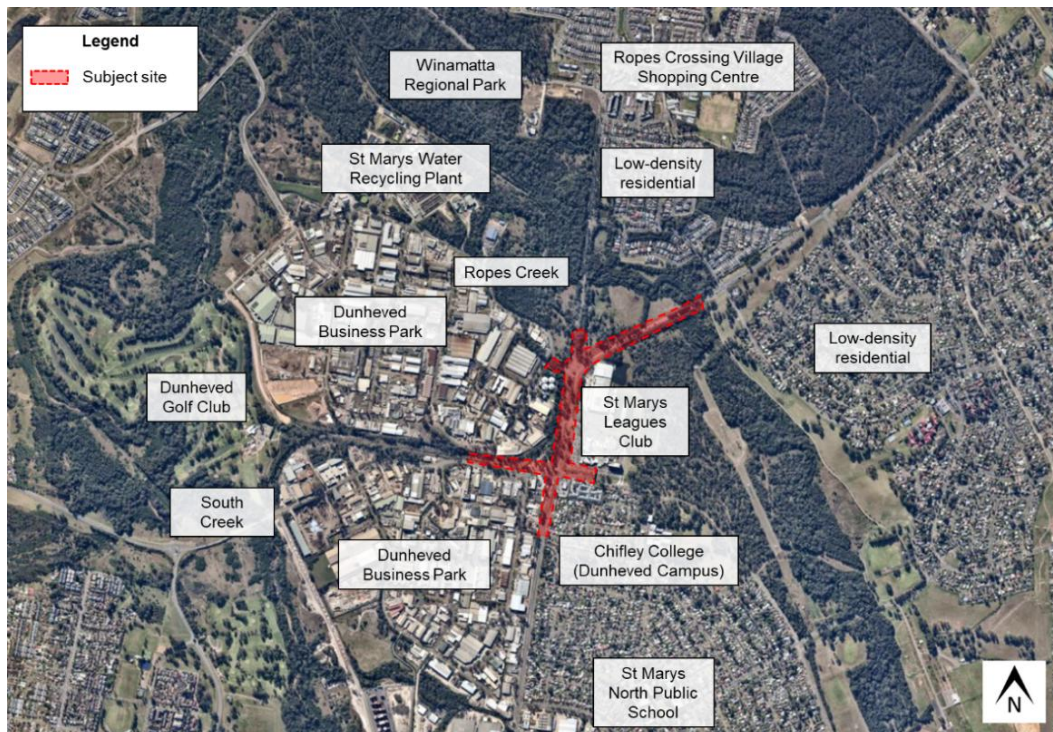


Figure 2: Surrounding locality (Base source: Maps)

3 Background

3.1 St Marys Penrith Planning Agreement

The REF has been prepared in accordance with the St Marys Penrith Planning Agreement.

In 2006, Lendlease Development Pty Ltd/ St Marys Land Limited (the Joint Venture) entered into the Planning Agreement with Council for the delivery of a variety of infrastructure upgrades as part of the Jordan Springs development. The Planning Agreement was amended in December 2018.

Regarding Forrester Road, the Planning Agreement requires the completion of items 1, 2 and 7 of the Planning Agreement, as outlined within the table below and shown indicatively in Figure 3, Figure 4 and Figure 5. The REF seeks approval to complete these works.

Item	Proposed scope of works	Notional works value
<u>ITEM 1</u> <i>Intersection upgrade – Forrester Road, Links Road and Ropes Crossing Boulevard</i>	<i>Staged removal of existing roundabout and installation of traffic signals and increased lane approaches (see Drawing SK701 Rev 2 in Annexure 2B).</i>	\$7,696,451
<u>ITEM 2</u> <i>Intersection upgrade – Forrester Road, Christie Street, Boronia Avenue</i>	<i>Staged removal of existing roundabout and installation of traffic signals and increased lane approaches (see Drawing SK702 Rev 2 in Annexure 2C)</i>	\$6,690,499
<u>ITEM 7</u> <i>Road widening: Forrester Road (Links Road intersection to Ropes Creek Bridge)</i>	<i>Upgrade Forrester Road to 4 lanes with sealed shoulders between Ropes Creek and Links Road intersection (not including Ropes Creek bridge) (see Drawing SK608 Rev 2 in Annexure 2G)</i>	\$2,400,000

Table 3: Annexure 2A Planning Agreement Extract (Source: St Marys Penrith Planning Agreement)



Figure 3: VPA item 1 – Intersection upgrade – Forrester Road Links Road and Ropes Crossing Boulevard (Source: St Marys Penrith Planning Agreement)



Figure 4: VPA item 2 – Intersection upgrade – Forrester Road, Christie Street, Boronia Avenue (Source: St Marys Penrith Planning Agreement)

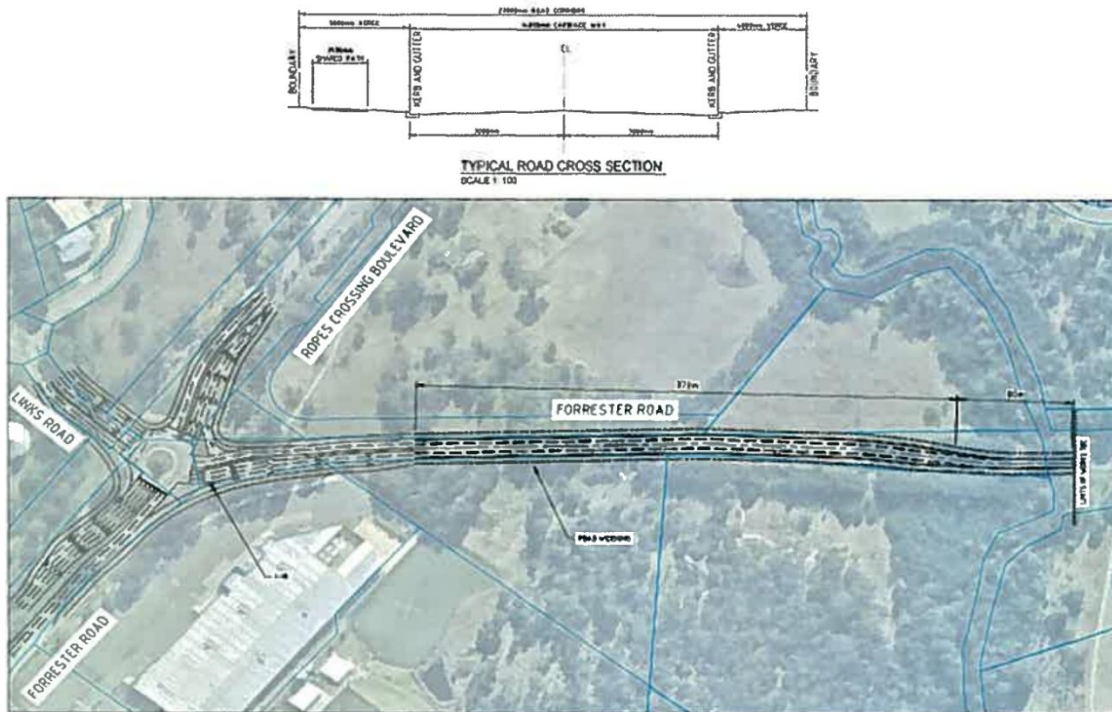


Figure 5: VPA item 7 – Road widening: Forrester Road (Links Road intersection to Ropes Creek Bridge)
(Source: St Marys Penrith Planning Agreement)

4 Proposed activity

4.1 Overview

The proposed activity seeks to upgrade of a section of Forrester Road to fulfill VPA requirements described above. The works aim to enhance current road network efficiency and to accommodate future growth within the St Marys development area.

Specifically, the proposed works will involve:

- approximately 520m of road widening between Links Road intersection to Ropes Creek Bridge
- converting two existing dual lane roundabouts to new signalised intersections (Links Road/Ropes Crossing Boulevard and Christie Street/Boronia Road)
- utility works and drainage infrastructure
- provision of supporting infrastructure including a new shared path on the western side of Forrester Road, street lighting, signage and line marking
- earthworks
- landscaping
- establishment of a temporary construction compound

The proposed works are shown within the 50% Detailed Design at Appendix 4 and Figure 6 below.

4.2 Construction timing and duration

A detailed construction methodology will be developed at a later design stage by the nominated contractor in consultation with Council as the relevant road authority.

However, a summary of key construction activities and equipment and timing is detailed within the Traffic Impact Assessment (Appendix 3). A summary is provided below.

Activity	Associated work	Indicative equipment
Preparation and enabling	• Obtain leases and licenses • Complete property acquisition • Survey the construction site • Relocate fencing • Notify the community and stakeholders • Establish the site compounds and access routes • Fence the site boundaries and areas to be used for stockpile sites • Protect sensitive areas as defined by the construction environmental management plan • Install temporary erosion, sediment and water quality controls, including site fences, and stormwater diversion drains • Mark trees that would need to be removed or trimmed and mark any 'no-go' areas	• Light vehicles • Trucks • Excavators • Generators • Graders • Site sheds • Back hoes • Water carts • Cranes • Hand tools • Low loaders

Activity	Associated work	Indicative equipment
	- Install traffic management controls including and road closures and diversions - Install noise mitigation measures and safeguards	
Utilities	Adjust/relocate utility infrastructure (water, gas, electricity and telecommunications) where required	- Light vehicles - Truck - Hand tools - Concrete saws - Generators - Back hoes - Water carts - Elevated work platforms
Surface preparation	- Remove and mulch vegetation in stages along the new road alignment - Strip and stockpile topsoil in stages - Prepare the surface using graders, dozers and other equipment	- Light vehicles - Trucks - Excavators - Chainsaws - Mulchers - Rollers - Generators - Back hoes - Water carts - Cranes - Hand tools
Earthworks	- Excavate cuttings - Create fill embankments - Place select materials - Construct roadside cuts and fill batters - Prepare batter treatments - Dispose of unsuitable and/or surplus material	- Excavators - Dump trucks - Compactors - Graders - Front-end loaders - Rollers - Water carts - Profilers - Bulldozers - Vibratory rollers - Rock breakers
Road surface	- Gravel base/sub-base layers and asphaltic concrete paving - Apply spray-seal	- Concrete trucks - Concrete pumps - Vibratory rollers - Compactors - Concrete saws - Compressors - Bitumen sprayers - Generators Milling machines - Trucks - Asphalt paving machines - Asphalt trucks - Rollers - Batch plants

Activity	Associated work	Indicative equipment
<i>Tie in and road markings</i>	Remove section of old road surface and complete road widening and tie in the new road to existing roads	- Light vehicles - Trucks - Hand tools - Generators - Line marking machines
<i>Finishing works</i>	- Conclude property access - Complete tie-in - Install safety barriers - Install, gutters and verges - Rehabilitate disturbed areas and landscape - Install line marking, signs and guideposts - Decommission temporary facilities - Installation of street lighting and signage	- Generators - Trucks - Cranes - Light vehicles

Table 4: Anticipated key construction activities and equipment

4.3 Construction hours

For works described within the table above, the anticipated construction hours are as follows:

- 7.00 am to 6.00 pm Monday to Friday
- 8.00 am to 1.00 pm Saturdays and
- no work on Sundays or public holiday

The following works may occur outside of these construction hours to minimise disruption to the community:

- intersection upgrade works that are considered high-risk to be undertaken whilst maintaining the operation of all existing traffic lanes
- pavement upgrade and re-surfacing works
- traffic switch works to maintain property access during the daytime
- delivery of oversized plant or large prefabricated structures

Noise and traffic impacts for these works have been assessed by the relevant consultants (Appendix 5 and 3 respectively) which found the impacts were acceptable.

Relevant approval(s) from TfNSW would be required for any out of hours work and the affected community would be notified as outlined in TfNSW's Construction Noise Strategy.

4.4 Construction duration

Subject to planning approvals, land acquisition, weather and coordinating with other construction activities in St Marys, construction is anticipated to take about 18 months to complete.

4.5 Site compound

As outlined within the Traffic Impact Assessment (Appendix 3), detailed access arrangements to the site compounds such as temporary driveways would be developed prior to commencement of construction activities as part of the Construction Traffic Management Plan to ensure safety.

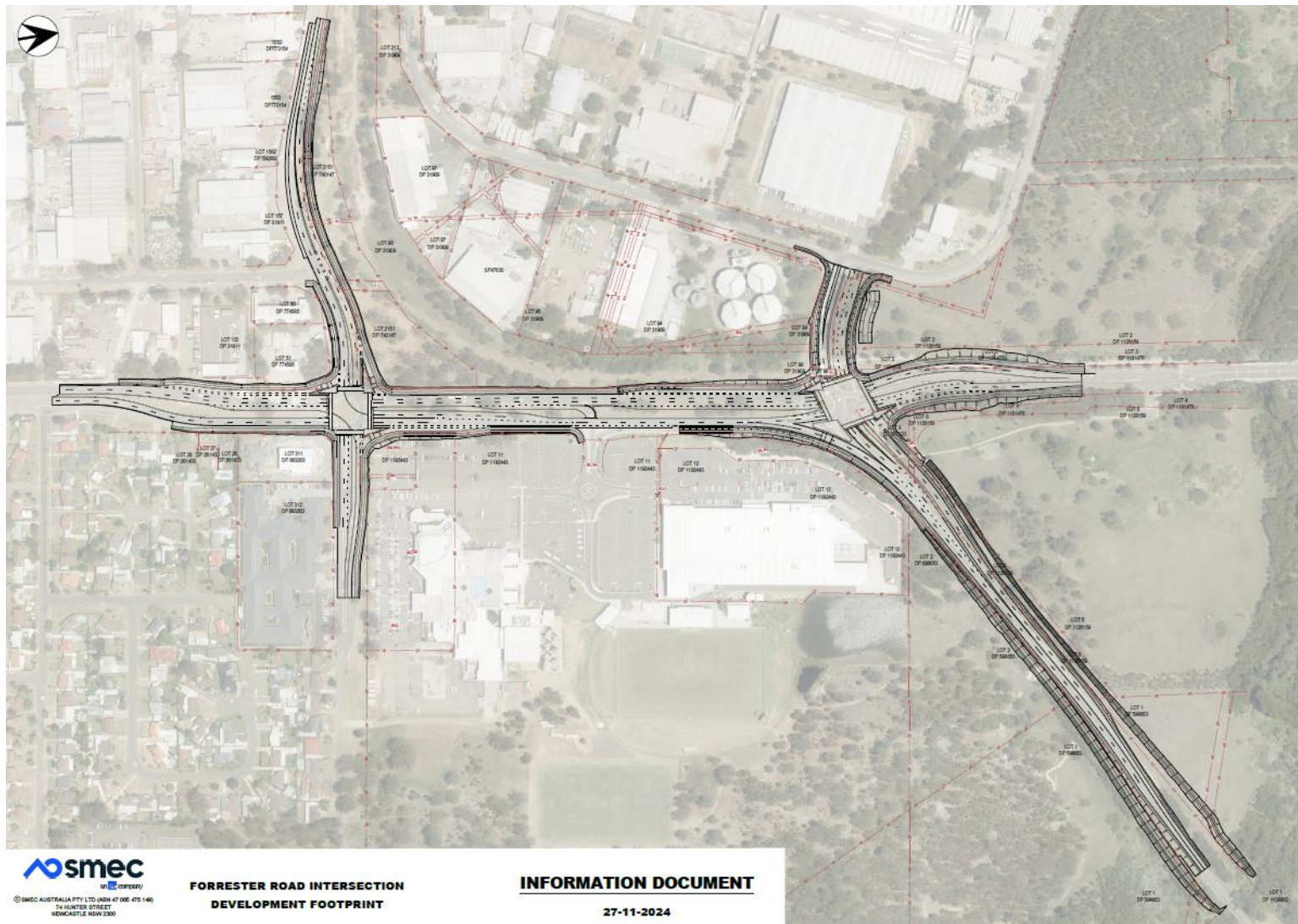


Figure 6: Proposed roadworks (Source: SMEC)

5 Need for the activity and consideration of alternatives

5.1 Objectives and reasons for the proposal

As discussed in Section 3, Lendlease has entered into a Planning Agreement with Council for the delivery of a variety of infrastructure upgrades.

The objective of this REF is to fulfil the requirements for Forrester Road, specifically items 1, 2 and 7 of the Planning Agreement.

Completion of these works will improve the current road network efficiency and accommodate future growth within the St Marys development area.

5.2 Consideration of alternatives

The following options were considered during the development of the proposal:

- **Option 1** – ‘Do nothing’
- **Option 2** – ‘Upgrade Forrester Road’

Option 1 – ‘Do nothing’ would retain the existing road environment and intersection configurations. The ‘do nothing’ approach is not suitable for the following reasons:

- It would fail to meet the established requirements of the Planning Agreement between Penrith City Council and the Joint Venture.
- It would forego the opportunity to enhance local road infrastructure and shorten travel times.

The ‘do nothing’ option would not meet the requirements of the Planning Agreement or strategic objectives to improve road infrastructure in the locality. For these reasons, Option 1 is discounted.

Given this, there is no alternative to the proposed activity, other than to pursue Option 2. Justification for this pathway and option is further outlined in the section below.

5.3 Justification for preferred option

As noted, pursuing the proposed roadworks, in accordance with the Planning Agreement is the preferred option. This option involves road and intersection upgrades (converting roundabouts to signalised intersections) to improve the road network within the locality.

Other works include utility works, infrastructure (drainage, street lighting, signage and line marking), property acquisition, earthworks, landscaping and establishment of a temporary construction compound.

Option 2 is the preferred option as it achieves the strategic need of the Planning Agreement. The existing configuration of the intersection is unable to meet future traffic demand. Option 2 will help contribute to enhanced motorist capacity, improved safety due to the signalised intersections and minimised environment impacts.

6 Consultation

6.1 Transport and Infrastructure SEPP Consultation

Sections 2.10 - 2.15 of the *State Environmental Planning Policy (Transport and Infrastructure) 2021* (Transport and Infrastructure SEPP) contain the requirements for consultation with Council and public authorities based on the level of impact arising from the works.

Section 2.17(c) states that Sections 2.10 – 2.15 do not apply to the extent that they would require notice to be given to a council or public authority that is carrying out the development or on whose behalf it is being carried out. Accordingly, as Council is responsible for the carrying out of the proposed works, these Sections requiring consultation with Council are not applicable.

Notwithstanding, an assessment against relevant Sections 2.10-2.12 and Section 2.14 have been undertaken and is provided in the table below.

Transport and Infrastructure SEPP Consultation Requirements	Consultation required?	Comment
Consideration of Planning for Bush Fire Protection – section 2.16		
<i>This section applies to development for the following purposes of health services facilities, correctional centres, and residential accommodation</i>	N	N/A - the proposal does not involve health services facilities, correctional centres or residential accommodation.
Exceptions – section 2.17(d)		
<i>Sections 2.10-2.15 do not apply with respect to the development to the extent that they would require notice to be given to a council or public authority that is carrying out the development or on whose behalf it is being carried out.</i>	Y	Consultation with Council is not required.

Table 5: Consultation requirements under the Transport and Infrastructure SEPP

6.2 Penrith City Council

The development is being carried out on behalf of Council, who are also the determining authority and the relevant road authority.

The table below details the consultation between Council, WSP, The APP Group (APP) (Project Manager) and Lendlease to date. As outlined, consultation has been extensive and collaborative to ensure the REF is submitted in accordance with Council's expectations.

Date	Matter discussed
7 November 2019	To ensure this REF aligns with Council expectations, a draft REF dated 7 November 2019 was prepared by WSP and submitted to Council in 2019 for feedback (referred to as the 'Draft 2019 REF' through this report). The Draft 2019 REF was supported by technical reports including Noise Impact Assessment, Aboriginal and Non-Aboriginal Heritage Due Diligence and a Geotechnical Assessment. As shown within Figure 7, the project's site area has remained largely the same since 2019 (the green outline indicates the Draft 2019 REF project boundary prepared by WSP whilst the red outline shows the boundary applicable to this REF prepared by SMEC). Given there are no substantial changes to the project area and the consultant reports supporting the Draft 2019 REF, Council agreed at a meeting dated 28 August 2024 with APP Group and Lendlease that: - the 2019 heritage and noise and vibration consultant reports can be resubmitted with supporting addendum letters confirming (if eligible), that the current proposal remains aligned with the previous scope of works and relevant legislation and therefore new reports do not need to be prepared - The applicability of the 2019 geotechnical report to be addressed as part of new Civil Engineering Design Report.
27 November 2019	Council provided feedback on the Draft 2019 REF. The comments related to noise, land contamination, protection of waterways, air quality, waste management, road/drainage, property access and road widening. These comments have been addressed in this REF.
Ongoing monthly meetings (September 2022 - current)	In addition to seeking feedback on the Draft 2019 REF, monthly meetings between Council, APP Group and Lendlease have occurred since September 2022 to ensure the roadworks and associated planning reports discussed in Section 3.1 are completed in accordance with Council's expectations.

Table 6: Council meetings



Figure 7: Draft 2019 REF (green) vs 2024 REF (red) boundary overlay (Source: SMEC)

6.3 Transport for NSW (TfNSW)

Consultation with TfNSW has not occurred for the proposal given:

- it is not a legislative requirement under Clause 2.15 of the *State Environmental Planning Policy (Transport and Infrastructure) 2021*; and
- the proposal is not located on any classified roads described within the *Schedule of Classified Roads and Unclassified Regional Roads* maintained by TfNSW

It is also noted that TfNSW will seek Council's approval prior to progressing their assessment.

6.4 Landowners impacted by land acquisition

The proposed works require land acquisition from TfNSW, NSW Government and several private landowners.

Draft Acquisition Plans (as required under VPA Clause 17) will be submitted to Council post REF approval, as part of a separate process.

In the interim, Indicative Acquisition Plans (Appendix 9) and 50% Detailed Design (Appendix 4) have been prepared to identify the extent of proposed future acquisitions.

In summary, 4569.5m² of non-Council owned land is required to facilitate the road works.

A full breakdown of the land required for acquisition is provided in the table below.

Lot / address	Area (m ²)	Ownership
Lot 2 / DP 1128159	1479.3	St Marys Land Limited
Lot 98 / DP 31909	550.9	St Marys Land Limited
Lot 6 / DP 1128159	1340.8	TfNSW
Lot 11 / DP 1192443	811.5	St Marys Rugby League Club
Lot 51 / DP 774585	297.4	Convenience Properties Pty Ltd
Lot 1 & 2 / DP 598653	69.7	NSW Planning and Environment Commission
Lot 5 / DP 1128159	9.0	Department of Planning
Total	4558.6	

Table 7: Proposed future acquisition

Given Council is the proponent of this application, any land owned by Council and identified for acquisition has been excluded from the Table 9. However, for completeness the extent of Council land required for the proposal is identified in Table 10 below and Appendix 9.

Lot / address	Area (m ²)	Ownership
Lot 3 / DP 1181478	1558.9	Penrith City Council
Lot 2151 / DP 740147	2615.7	Penrith City Council
Lot 8 / DP 217323	1174.7	Penrith City Council
Total	5349.3	

Table 8: Council land required for the proposed works

It is noted that Lot 12 in DP 1192443 and Lot 50 in DP 774585 (private landholdings) were originally identified for partial acquisition and are shown as such in Appendix 9. However, subsequent design refinements have removed the need to acquire these properties. The Acquisition Plans will therefore be amended post exhibition to remove these lots from the proposed acquisition area.

6.5 Notification

Section 171(4) of the EP&A Regulation 2021 outlines that the REF must be published on the determining authority's website or the NSW planning portal, subject to certain criteria.

The assessment provided in the table below concludes the REF needs to be published on Council (as the determining authorities) website given the proposal has a capital investment value of over \$5 million.

EP&A Regulation 2021 Notification Requirements	Y / N	Comment
171 Review of environmental factors—the Act, s 5.10(a)		
(4) The review of environmental factors must be published on the determining authority's website or the NSW planning portal if—		
(a) <i>the activity has a capital investment value of more than \$5 million, or</i>	Y	Proposal is greater than \$5 million.
(b) <i>the activity requires an approval or permit as referred to in any of the following provisions before it may be carried out—</i>	N	N/A
(i) <i>Fisheries Management Act 1994, sections 144, 201, 205 or 219,</i>	N	N/A
(ii) <i>Heritage Act 1977, section 57,</i>	N	N/A – as described within the Addendum Report to the Aboriginal and Non-Aboriginal Heritage Assessment (Appendix 7), no approvals under the <i>Heritage Act 1977</i> are required.
(iii) <i>National Parks and Wildlife Act 1974, section 90,</i>	N	N/A – as described within Appendix 7 there are no gazetted Aboriginal places within the site and therefore an Aboriginal Heritage Impact Permit is not required. In accordance with the recommendations of Appendix 7, if Aboriginal objects are identified, works will cease until an AHIP is issued by Heritage NSW.
(iv) <i>Protection of the Environment Operations Act 1997, sections 47–49 or 122, or</i>	N	N/A – waste will be less than 150,000 tonnes and no contaminated soil treatments are required .
(c) <i>the determining authority considers that it is in the public interest to publish the review</i>	TBC	Clause 171(4)(c) is at the discretion of Council.

Table 9: Notification requirements under the Environmental Planning and Assessment Regulation 2021

7 Statutory Framework

This section provides a summary of the statutory planning context of the proposal including consideration of the relevant provisions of the EP&A Act, other legislation and relevant environmental planning instruments.

7.1 Environmental Planning and Assessment Act 1979

The EP&A Act sets out the statutory planning framework for NSW. Part 5 of the EP&A Act specifies the environmental impact assessment requirements for activities undertaken by public authorities which are permissible without development consent under Part 4 of the Act.

Clauses 170 and 171 of the EP&A Regulation outline the factors which must be considered when determining if an activity under Part 5 of the EP&A Act has a significant impact on the environment. Appendix 1 provides a checklist assessment these clauses.

In accordance with Clause 5.5 of the EP&A Act, Council, as the proponent and determining authority, must examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposed activity.

This section provides a full environmental impact assessment of the proposal in accordance with these requirements. Mitigation measures are provided in Section 9.

7.2 Environmental Planning and Assessment Regulation 2021

Section 171(1) of the *Environmental Planning and Assessment Regulation* (2021) notes that when considering the likely impact of an activity on the environment, the determining authority must take into account the environmental factors specified in the guidelines that apply to the activity.

The *Guidelines for Division 5.1 Assessments* (DPHI June 2022) provides a list of environmental factors that must be taken into account for an environmental assessment of the activity under Part 5 of the EP&A Act. These factors are considered at Section 6 of this REF and Appendix 1.

The *Guidelines for Division 5.1 Assessments* (June 2022) apply to the activity. The relevant assessment considerations under Section 3 of these Guidelines are provided below:

Factor	Impact	Comment
a) any environmental impact on a community (social, economic and cultural impacts)	Positive	The proposal reduces travel times and improves intersection performance which has a positive social and economic on the locality.
b) any transformation of a locality	Neutral	The proposal does not transform the existing character of the locality, which is defined by existing roads and surrounding industrial and residential developments.

Factor	Impact	Comment
c) <i>any environmental impact on the ecosystems of the locality</i>	Neutral	The Flora and Fauna Assessment (Appendix 2) concludes the proposal is unlikely to have significant impact on any threatened species, populations or ecological communities. Mitigation measures will be implemented to avoid and minimise the potential biodiversity impacts associated with construction and operation of the roads.
d) <i>any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality</i>	Neutral	The proposal has no impact on the aesthetic quality of the locality, will not impact on any recreation areas or assets and does not have an adverse ecological impact.
e) <i>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.</i>	Neutral	As outlined in Appendix 6 and 7, there are no adverse impacts on Aboriginal or built heritage.
f) <i>any impact on the habitat of protected animals (within the meaning of the Biodiversity Conservation Act 2016)</i>	Neutral	The Flora and Fauna Assessment (Appendix 2) concludes the proposal is unlikely to have significant impact on any protected animals and therefore their habitats.
g) <i>any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air</i>	Neutral	The Flora and Fauna Assessment (Appendix 2) concludes that, subject to implementation of mitigation measures in Section 9.3, there will be no endangering of any species.
h) <i>any long-term effects on the environment</i>	Neutral	The Flora and Fauna Assessment (Appendix 2) concludes that, subject to implementation of mitigation measures in Section 9.3, there will be no significant ecological impacts.
i) <i>any degradation of the quality of the environment</i>	Neutral	The Flora and Fauna Assessment (Appendix 2) concludes subject to implementation of mitigation measures in Section 9.3, there will be no significant ecological impacts.
j) <i>any risk to the safety of the environment</i>	Positive	As outlined within the Traffic Impact Assessment (Appendix 3), the proposal will improve road safety through upgrading two intersections which currently perform poorly.
k) <i>any reduction in the range of beneficial uses of the environment</i>	Neutral	As described above, the Forrester Road/ Christie Street intersection and Forrester Road/ Ropes Crossing Boulevard intersections currently underperforming. Therefore, the site is not currently subject to a beneficial use.

Factor	Impact	Comment
		The proposed works will enable satisfactory performance of the intersections.
<i>l) any pollution of the environment</i>	Neutral	The proposal will not result in any adverse contamination, waste or run off issues subject to implementation of migration measures identified within the Soil Characterisation Assessment (Appendix 10).
<i>m) any environmental problems associated with the disposal of waste</i>	Neutral	All waste generated from the proposal will be managed appropriately. This is discussed further in Section 8.9.
<i>n) any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply</i>	Neutral	The proposal will not have an impact on resources which are in short supply.
<i>o) any cumulative environmental effect with other existing or likely future activities</i>	Neutral	Construction will be managed to minimise environmental impacts and once completed, the proposed works will result in improved road network performance.
<i>p) any impact on coastal processes and coastal hazards, including those under projected climate change conditions</i>	N/A	The proposal does not impact on any coastal processes or coastal hazards.
<i>q) Any applicable local strategic planning statement, regional strategic plan or district strategic plan made under Division 3.1 of the Act</i>	Positive	As discussed in Section 8.12 of this REF, there is strategic need for the roadworks as the proposal satisfies the planning priorities/actions within the following documents: • <i>Greater Sydney Region Plan</i> • <i>Western City District Plan</i> • <i>Penrith City Strategy</i>
<i>r) any other relevant environmental factors</i>	N/A	All factors have been addressed above.

Table 10: Assessment against Section 3 of the Guidelines

7.3 Commonwealth Legislation

7.3.1 Environment Protection and Biodiversity Conservation Act 1999

Under the Commonwealth EPBC Act, a referral is required to the Australian Government for any proposed actions that have the potential to significantly impact on Matters of National Environmental Significance or other matters protected by the EPBC Act.

An assessment against the EPBC Act checklist is provided below and confirms the proposal does not impact any Matters of National Environmental Significance.

Consideration	Yes/No	Comment
<i>Will the activity have, or likely to have, a significant impact on a declared World Heritage Property?</i>	N	N/A
<i>Will the activity have, or likely to have, a significant impact on a National Heritage place?</i>	N	N/A
<i>Will the activity have, or likely to have, a significant impact on a declared Ramsar wetland?</i>	N	N/A
<i>Will the activity have, or likely to have, a significant impact on listed threatened species or endangered community?</i>	N	The Flora and Fauna Assessment (Appendix 2) conclude the proposal is unlikely to have a significant impact on any threatened species, populations or ecological communities.
<i>Will the activity have, or likely to have, a significant impact on listed migratory species?</i>	N	The Flora and Fauna Assessment (Appendix 2) conclude the proposal is unlikely to have a significant impact on any migratory species.
<i>Will the activity involve any nuclear actions?</i>	N	N/A
<i>Will the activity have, or likely to have, a significant impact on Commonwealth marine areas?</i>	N	N/A
<i>Will the activity have any significant impact on Commonwealth land?</i>	N	N/A
<i>Would the activity affect a water resource, with respect to a coal seam gas development or large coal mining development?</i>	N	N/A

Table 11: EPBC Checklist

7.4 Other relevant legislation

Legislation	Description	Relevance to the project
<i>National Parks and Wildlife Act 1974 (NPW Act)</i>	This Act relates to the establishment, preservation and management of national parks, historic sites and certain other areas and the protection of certain fauna, native plants and Aboriginal objects.	The Aboriginal and Non-Aboriginal Heritage Due Diligence Assessment (ANHDDA) (Appendix 6) and Addendum ANHDDA (Appendix 7) confirms an Aboriginal heritage impact permit under section 90 of the NPW Act is not required as there are no gazette Aboriginal places in the study area.
<i>Threatened Species Conservation Act 1995 (TSC Act)</i>	The TSC Act provides for the protection of vulnerable and endangered flora, fauna and communities and populations and their habitat. It makes it an offence to harm	The Flora and Fauna Assessment (Appendix 2) acknowledges there is threatened flora, fauna and communities on site. However,

Legislation	Description	Relevance to the project												
	terrestrial critical flora and fauna habitat or threatened species populations and ecological communities and their habitat without an appropriate assessment, inclusion of safeguards and /or the appropriate permissions to carry out certain work.	BC Act Tests of Significance (5-part Test) and an EPBC Assessment of Significant Impact were conducted for all threatened entities considered to have the potential to be impacted by the proposed activity. These assessments concluded that the proposed activity will not have a significant impact on any threatened entities.												
Heritage Act 1977	The <i>Heritage Act 1977</i> provides for the protection of conservation of buildings, works, archaeological relics and places of heritage value through their listing on various state and local registers. The Act makes it an offence to harm any non-aboriginal heritage clause without permission.	The site is not listed as a State heritage item or subject to an interim heritage order and therefore a Section 60 application is not required. The Addendum ANHDDA (Appendix 7) confirms there are no gazette Aboriginal places within the site. Therefore, an excavation permit under Section 139 is not required. If Aboriginal objects are identified during construction, works will cease until archaeological mitigation and an Aboriginal Heritage Impact Permit is issued.												
Roads Act 1993	Clause 71 outlines ‘A roads authority may carry out road work on any public road for which it is the roads authority and on any other land under its control’ Clause 76(1) outlines ‘A roads authority may not carry out road work on a public road (being work that has an estimated cost of more than \$2,000,000 or such other amount as may be prescribed by the regulations) unless it has forwarded particulars of the proposed work to TfNSW at least 28 days before the commencement of the work.’	The proposal involves carrying out work on the following public roads: <table><tr><th>Road Name/s</th><th>Description</th></tr><tr><td>Christie St</td><td>Unclassified regional road</td></tr><tr><td>Forrester Rd</td><td>Classified regional road</td></tr><tr><td>Boronia Rd</td><td>Local road</td></tr><tr><td>Links Rd</td><td>Local road</td></tr><tr><td>Ropes Crossing Blvd</td><td>Local road</td></tr></table> Table 12: Location of roadworks Council is the relevant road authority and therefore can undertake the work in accordance with Clause 71. As described in Section 6, the estimated development cost is greater than \$5 million. In	Road Name/s	Description	Christie St	Unclassified regional road	Forrester Rd	Classified regional road	Boronia Rd	Local road	Links Rd	Local road	Ropes Crossing Blvd	Local road
Road Name/s	Description													
Christie St	Unclassified regional road													
Forrester Rd	Classified regional road													
Boronia Rd	Local road													
Links Rd	Local road													
Ropes Crossing Blvd	Local road													

Legislation	Description	Relevance to the project
		accordance with Clause 76, TfNSW will be forwarded the particulars of the proposed work a minimum of 28 days before commencement of the work.
<i>Protection of the Environment Operations Act 1997</i>	Clause 5 of the PEO Act focuses on environmental protection and introduces licensing provisions for 'scheduled activities' which intend to manage pollution and waste for these activities. Schedule 1 sets out the activities for which a license is required.	Item 35 of Schedule 1 lists 'road works' as a scheduled activity. However, as the proposed road widening does not result in either of the below, it is not a scheduled activity: • >50,000 tones of material during construction • 4 or more traffic lanes
<i>Biodiversity Conservation Act 2016</i>	The <i>Biodiversity Conservation Act 2016</i> aims to maintain the diversity and quality of ecosystems and enhance their capacity to adapt to change and provide for the needs of future generations.	It is noted the site contains land of high biodiversity value. The Flora and Fauna Assessment (Appendix 2) identifies the likelihood of threatened species to occur as well as the severity of potential impacts. A Part 5 Test of Significance was undertaken in accordance with this Act. The test concluded the proposed activity will not have significant impacts on any threatened species.
<i>Rural Fires Act 1997</i>	The aim of this Act is to prevent, mitigate and suppress rural fires.	As shown in Figure 8, the site (outlined in black) is identified as containing Category 1 and 2 bushfire prone land and is within the vegetation buffer. Despite this, the proposal is classified as a non-habitable development, and it is unlikely the roadworks will be impacted by bushfire or increased the likelihood of bushfires within the area. A Bushfire Assessment Report has therefore not been prepared.
<i>Water Management Act 2000</i>	Part 3 of this Act identifies activities which require approval.	The Flora and Fauna Assessment (Appendix 2) identifies a controlled activity may be required given its proximity to a mapped water course.

Table 13: Assessment against relevant legislation

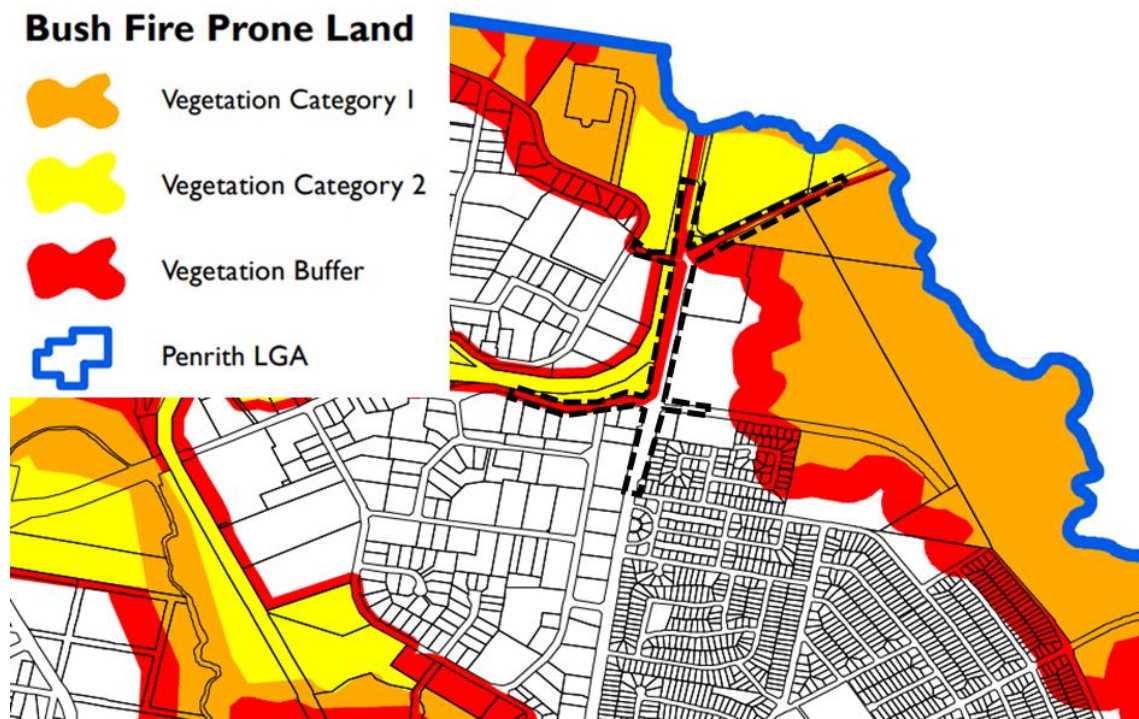


Figure 8: Bushfire Prone Land (Source: Council)

7.5 Relevant State Environmental Planning Policies

An assessment of the relevant State Environmental Planning Policies (SEPPs) is provided in the table below.

State Environmental Planning Policy	Response
State Environmental Planning Policy (Transport and Infrastructure) 2021 This SEPP aims to facilitate the effective delivery of infrastructure across the state. Section 2.109(1) states <i>development for the purposes of road or road infrastructure facilities may be carried out by or on behalf of a public authority without consent on any land.</i>	The proposal meets the requirements of Section 2.109 for the following reasons: - the development is for the purpose of a road; and - the development is being carried out on behalf of a public authority (i.e., Council) It is noted that subdivision is required to facilitate the road widening works. The subdivision is directly for the purposes of a road and is therefore captured by Section 2.109. A plan of subdivision will be prepared for the proposed subdivision. A future application will address relevant provisions under the <i>Conveyancing Act 1919</i> which may apply to the registration of the subdivision. In addition, Sections 2.10 - 2.15 contain the provisions for public authorities to consult with local councils and other public authorities before starting certain types of development. Consultation as required under these sections is discussed in Section 5 above.
State Environmental Planning Policy (Resilience and Hazards) 2021 The <i>State Environmental Planning Policy (Resilience and Hazards) 2021</i> establishes a planning approach to the remediation of contaminated land to minimise the risk of harm to human health or any other aspect of the environment.	Section 4.6 states that the consent authority must not grant consent to the carrying out of any development on land unless: <i>it has considered whether the land is contaminated, and</i> <i>if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and</i> <i>if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.</i> Whilst this section only applies to development applications under Part 4 of the EP&A Act, contamination has still been assessed as part of this REF. A Soil Characterisation Assessment has been prepared by JBS&G (Appendix 10) which concludes development footprint is suitable for its proposed use as a road and no remediation is required.
State Environmental Planning Policy (Biodiversity and Conservation) 2021 <i>State Environmental Planning Policy (Biodiversity and</i>	The proposal involves the removal of 332 trees within a non rural area (Arboriculture Impact Assessment Report, Appendix 11). However, approval is not required under this SEPP as sections 2.6 and 2.9 (relating to clearing of vegetation in non rural areas) only apply to an area declared by a

State Environmental Planning Policy	Response
<i>Conservation</i>) 2021 applies and establishes when approval is and is not required to clear vegetation in non rural areas in NSW. Section 2.6 outlines the clearing which requires a permit or approval.	development control plan to be vegetation to which Part 2.3 of the SEPP applies. The PDCP 2014 does not reference Part 2.3 of the SEPP.
<i>State Environmental Planning Policy (Precincts – Western Parkland City) 2021</i>	Section 6.1 outlines the area to which this SEPP applies, see extract below. 1) <i>This Chapter applies to certain land in the region declared under the Act that is known as the Sydney Region and is within the Blacktown City and Penrith City local government areas.</i> 2) <i>The location and boundaries of the land are shown on the Zoning Map.</i> 3) <i>Despite subsections (1) and (2), this Chapter does not apply to land referred to on the Zoning Map as “DEFERRED MATTER”.</i> The figure below is an extract of the zoning map. As shown, a small portion of the site along Ropes Crossing Boulevard is zoned for ‘road and road widening’ purposes. Section 6.41 outlines the objectives of the road and road widening zone which are reproduced below: 1) <i>The objective of the Road and Road Widening zone is to identify certain land that will be required for the purpose of a road.</i> 2) <i>In the Road and Road Widening zone—</i> a) <i>development for the purpose of the following is allowed only with the consent of the consent authority— drains, parks, regeneration activities, roads, utility installations, and</i> b) <i>any other development (except that identified by this Chapter as exempt or complying) is prohibited.</i> It is noted Section 6.41(2)(a) requires the consent of the consent authority (i.e. preparation of a Development Application). However, section 2.7 of the Transport and Infrastructure SEPP specifies ‘<i>if there is an inconsistency between this Chapter and any other environmental planning instrument, whether made before or after the commencement of this Chapter, this Chapter prevails to the extent of the inconsistency</i>’. Therefore, section 2.7 of the Transport and Infrastructure SEPP prevails and the REF has been prepared accordingly.

Table 14: SEPP assessment

Sydney Regional Environmental Plan No 30 —St Marys—Zoning (Amendment No 3)

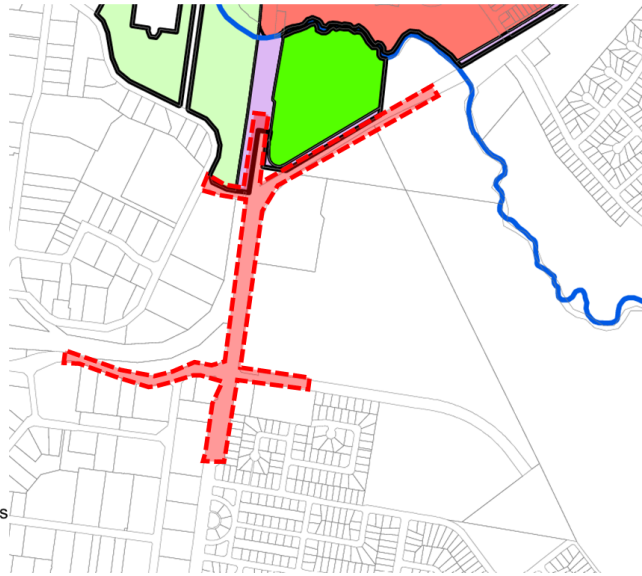
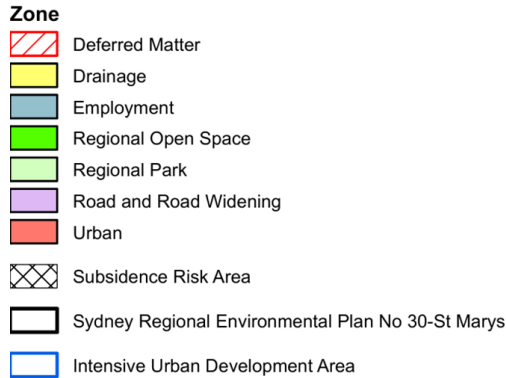


Figure 9: SREP Map (Source: SREP)

7.6 Penrith Local Environmental Plan 2010

7.6.1 Zoning

As discussed in Section 7.5, a small portion of the site is zoned under the *State Environmental Planning Policy (Precincts – Western Parkland City) 2021*. The remainder of the site is zoned under the PLEP 2010.

The site is subject to four separate zonings under the PLEP 2010. These are described below and shown on Figure 10.

- E4 General Industrial
- RE1 Public Recreation
- RE2 Private Recreation
- C2 Environmental Conservation
- R2 Low Density Residential

Development for the purposes of a *road* is permissible with consent in all of the four zones. Irrespective of this, as noted in Section 7.5 of this REF, the development is permissible without consent in accordance with clause 2.109(1) of the Transport and Infrastructure SEPP.

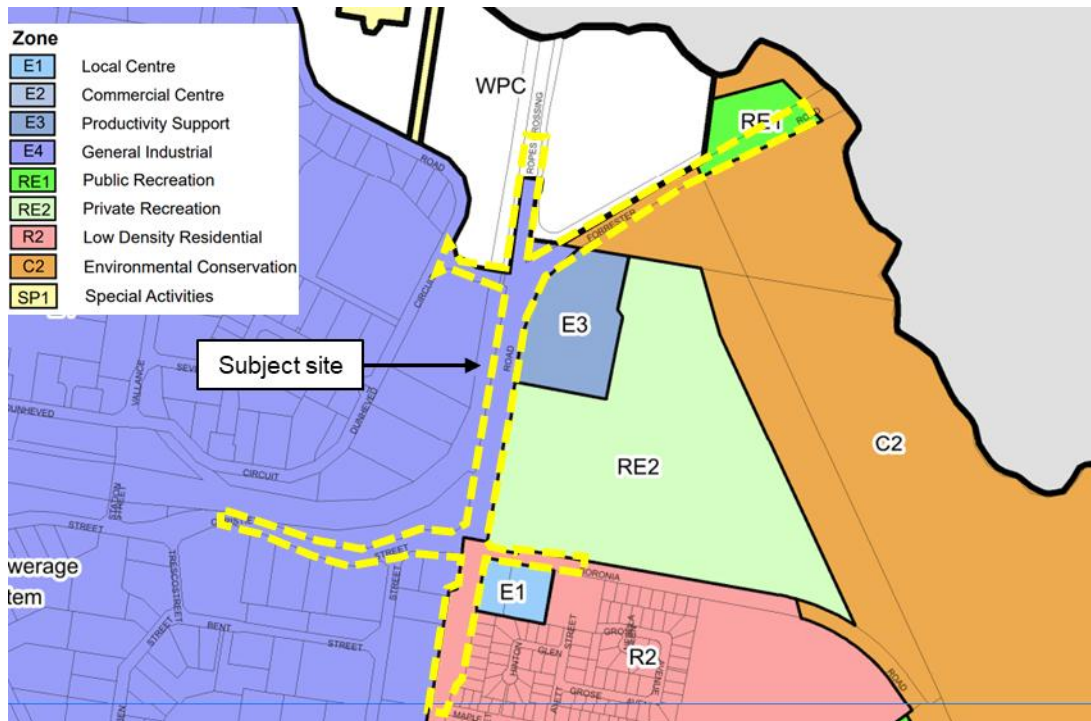


Figure 10: Land Zoning Map (Base source: PLEP 2010)

7.6.2 Clause 5.21 Flooding

As identified within the Flood Study Report (Appendix 8), the site is flood affected.

Clause 5.21(2) and (3) of the PLEP 2010 outline the matters to be considered when granting development consent. Although this clause only applies to development applications under Part 4 of the EP&A Act, an assessment against these provisions has still been undertaken. An extract from the Hydrology and Hydraulics Impact Assessment is provided in the table below.

Relevant provision	Compliance	Comment
2) Development consent must not be granted to development on land the consent authority considers to be within the flood planning area unless the consent authority is satisfied the development—		
a) is compatible with the flood function and behaviour on the land, and	Yes	The development is limited to the upgrade of existing road and associated infrastructure only
b) will not adversely affect flood behaviour in a way that results in detrimental increases in the potential flood affectation of other development or properties, and	Yes	The proposed works result in negligible flood affectation. Refer to afflux mapping in the Flood Report
c) will not adversely affect the safe occupation and efficient evacuation of people or exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood,	Yes	Road upgrades will improve the efficiency of vehicle movements

Relevant provision	Compliance	Comment
d) <i>incorporates appropriate measures to manage risk to life in the event of a flood, and</i>	Yes	<i>Works will not result in an increase in flood risk or impede the existing evacuation routes in the area</i>
e) <i>will not adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses</i>	Yes	<i>Existing flooding regime is generally maintained. Additional drainage works proposed</i>
4) In deciding whether to grant development consent on land to which this clause applies, the consent authority must consider the following matters—		
a) <i>the impact of the development on projected changes to flood behaviour as a result of climate change</i>	NA	<i>SMEC's flood model is established in line with the Study based on Council's requirement. The rainfall data and hydrology models adopted in SMEC's flood model are from the Study without altering.</i> <i>The Wainamatta South Creek Catchment Flood Study adopted the comparison result between 0.2% and 1% AEP flood level as a CC indicator with 35% rainfall increase.</i> <i>Since the proposed road upgrading has minimum impact to the flood condition, the CC outcome from the Wainamatta South Creek Catchment Flood Study remain suitable to indicate the impact of the development. Therefore, it is no need to replicate the flood result of CC at this stage.</i>
b) <i>the intended design and scale of buildings resulting from the development</i>	NA	<i>No buildings proposed as part of the works</i>
c) <i>whether the development incorporates measures to minimise the risk to life and ensure the safe evacuation of people in the event of a flood</i>	Yes	<i>Works will not result in an increase in flood risk or impede the existing evacuation routes in the area</i>
d) <i>the potential to modify, relocate or remove buildings resulting from development if the surrounding area is impacted by flooding or coastal erosion</i>	NA	<i>Proposed works limited to road upgrades only</i>

Table 15: Assessment against Clause 5.21 of the PLEP 2010

7.6.3 Clause 5.23 Public bushland

The proposal does not affect any public bushland as defined by the PLEP 2010 (definition below) as they are not on any land reserved for open space or environmental conservation:

public bushland means land—

- a) *on which there is vegetation that is—*
 - i) *a remainder of the natural vegetation of the land, or*
 - ii) *representative of the structure and floristics of the natural vegetation of the land,*
and
- b) *that is owned, managed or reserved for open space or environmental conservation by the Council or a public authority.*

7.6.4 Clause 7.1 Earthworks

Clause 7.1 of the PLEP 2010 specifies consent authorities must consider the impacts of earthworks in determining a development application lodged under Part 4 of the EP&A Act. The proposed earthworks involve minor excavation to accommodate the road development.

As the earthworks are minor, they will not have any significant adverse impacts in relation to flood, contamination, heritage, noise, biodiversity and traffic. This is further detailed in Section 8.

7.7 St Marys Planning Agreement

The REF has been prepared to meet Lendlease's commitment to local infrastructure road works as outlined in the St Marys Planning Agreement. Details of the Planning Agreement obligations and background information were previously discussed in Section 3.1 of this REF.

7.8 Summary

The proposal is permissible without consent pursuant to Section 2.109 of the Transport and Infrastructure SEPP. Accordingly, an assessment in accordance with Part 5 of the EP&A Act is required.

Council is both the proponent and the determining authority for the activity for the purpose of Part 5 of the EP&A Act.

The matters prescribed by the EP&A Regulation and Guidelines for consideration as part of the assessment under Part 5 are reviewed and included in Appendix 1.

No requirement for a referral under the EPBC Act has been identified.

8 Environmental Impact Assessment

This section is supported by the technical inputs listed below. The inputs provide an assessment of the potential impacts of the activity on the environment and provide mitigation measures for how these potential impacts will be managed.

- traffic and transport
- noise and vibration
- heritage
- contamination
- geotechnical
- biodiversity
- arboriculture
- landscaping
- hydrology

8.1 Traffic, Access and Parking

A Traffic Impact Assessment has been prepared by SMEC (Appendix 3) to support the proposal and considers the likely traffic impacts associated with the proposal during the construction and operations stages. It also details the measures that would be applied to mitigate these impacts.

8.1.1 Traffic model and performance

Traffic model

The proposed intersection upgrade replaces two existing roundabouts with signalised intersections. To address the road congestion shown in the figures above, the proposed layout has included additional lanes at all approaches.

There are also three full northbound lanes on Forrester Road between the two intersections. The TIA states:

'These enhancements contribute to a more robust design, better equipped to handle potential queue spillbacks, and are expected to ensure that the intersections perform at Level of Service (LoS) C in the assessed future year (2033).'

A comparison of the existing vs proposed intersection layout is provided in the figure below.

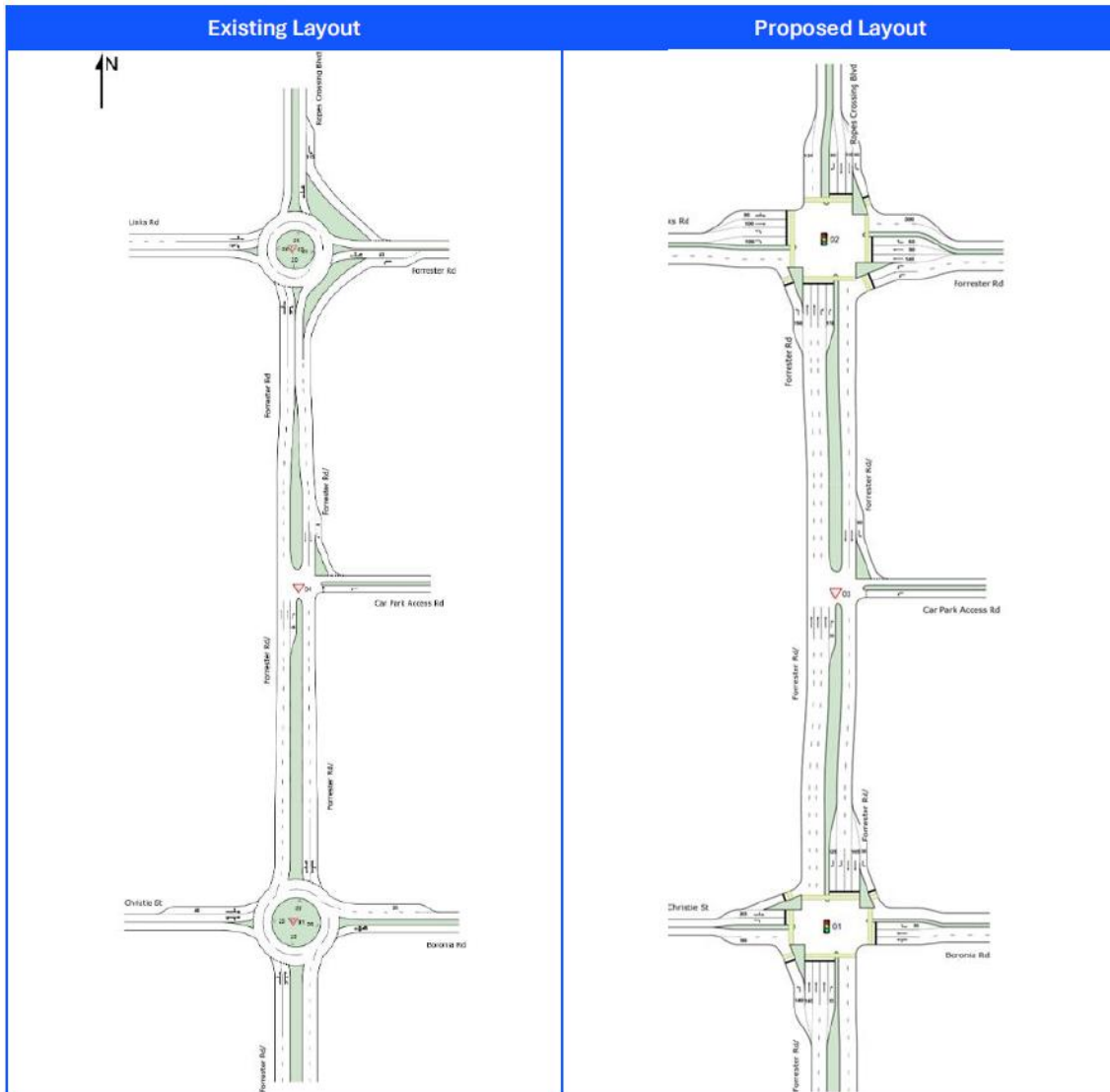


Figure 11: Existing vs proposed intersection layout (Source: SMEC)

Intersection performance assessment

The performance of an intersection is measured by the average delay per vehicle which corresponds to a Level of Service (LOS) measure for the intersection.

The TIA provides a detailed assessment of the existing and proposed intersections LOS. A summary of the key findings is provided in table below:

Existing layout	Proposed layout
Forrester Road/ Christie Street intersection operates good with acceptable delays and spare capacity during the AM peak in 2022, however in the PM peak, the intersection operates with capacity issues and LoS F.	- The increased capacity has improved the degree of saturation for all scenarios within the proposed layout to acceptable levels (< 0.9). - The performance of Christie Street and Ropes Crossing Boulevard intersections

Existing layout	Proposed layout
- Forrester Road/ Christie Street intersection would operate with a satisfactory LoS C during the AM peak in 2033. However, it would operate with DoS 0.93 which exceeds the practical degree of saturation of 0.85. The intersection would continue to operate with poor LoS F and DoS > 1 during the PM peak. The intersection would operate similarly with and without the additional traffic from Jordan Springs East. - In 2022, Forrester Road/ Ropes Crossing Boulevard intersection operates with an acceptable LoS C and poor LoS F in the respective the AM peak. However, it is noted that the degree of saturation on Ropes Crossing Boulevard exceeded the practical degree of saturation of 0.85 specified in the RTA guidelines, indicating that the intersection is operating beyond its practical capacity and performance of the intersection would likely be sensitive to any variance in demand. - In 2033, performance of Forrester Road/ Ropes Crossing Boulevard intersection deteriorates in the AM peak operating with LoS F. In the PM peak, the intersection would continue to operate unsatisfactorily with poor LoS F. Traffic redistribution resulting from the operation of Links Road extension would reduce traffic travelling through the network, however, both intersections would operate unsatisfactorily during the PM peak.	with Forester Road would be improved during all scenarios to LoS C. Both intersections would operate slightly better with Jordan Springs East traffic scenario compared to without Jordan Springs Development scenario as traffic redistribution due to the operation of Links Road extension would result in reduction of traffic travelling through the network.

Table 16: Intersection level of service assessment

8.1.2 Assessment of other potential road impacts

The table below provides a summary of the other potential impacts during construction and operation:

Matter	Construction Impacts	Operational Impacts
Road network capacity	50 light vehicle movements and 10 heavy vehicles per day. The surrounding road network has sufficient capacity to accommodate the additional traffic for the duration of the works.	Capacity will be substantially increased along Forrester Rd for commuters from North Dunheved, Ropes Crossing, Lethbridge Park and Willmot travelling to and from St Marys Station.

Matter	Construction Impacts	Operational Impacts
Public transport	Buses will continue to use the same travel route noting there may be some delayed due to construction activities. The existing bus stops would be maintained during construction with limited impacts or relocation.	No impact as the proposal will not alter any existing bus routes or bus stop locations
Active transport	Temporary modifications to footpath access along Forrester Road (northbound) may be required however will not result in any major detours	The conversion from roundabouts to signalised intersections introduces eight new signalised crossings which substantially improves pedestrian accessibility.
On-street parking capacity	There is no on-street parking within the existing or proposed layout.	

Table 17: Assessment of other potential impacts (Source: SMEC)

Summary

In summary, the TIA concludes:

- Existing intersections (Forrester Road/Christie Street and Forrester Road/Ropes Crossing Boulevard) are currently underperforming resulting in excessive delays.
- No adverse impacts on street road network capacity, public transport or active transport are anticipated during construction.
- Post construction, the proposed upgrades and intersection layout are anticipated to substantially improve travel times and intersection performance.

8.2 Noise

As noted in Section 6.2 above, a Noise Impact Assessment was prepared and submitted with the Draft 2019 REF (Appendix 5). An addendum Noise Impact Assessment (Appendix 13) has been prepared to support the 2019 report which:

- provides a review of the previous assessment, proposed design changes and any legislative changes to identify whether the proposed works would result in any unidentified impacts
- confirms the assessment and mitigation measures within the 2019 Noise Impact Assessment remain relevant with regard to the proposal and assessment criteria
- proposes additional mitigation measures to address Council's feedback

The figure below identifies the noise catchment areas, noise receivers and noise monitoring locations captured within the 2019 NIA. These are identified by yellow dashes, green dots and red dots respectively. Importantly, the addendum NIA confirms the noise criteria and noise catchment areas used for the 2019 report remain relevant to current site area.

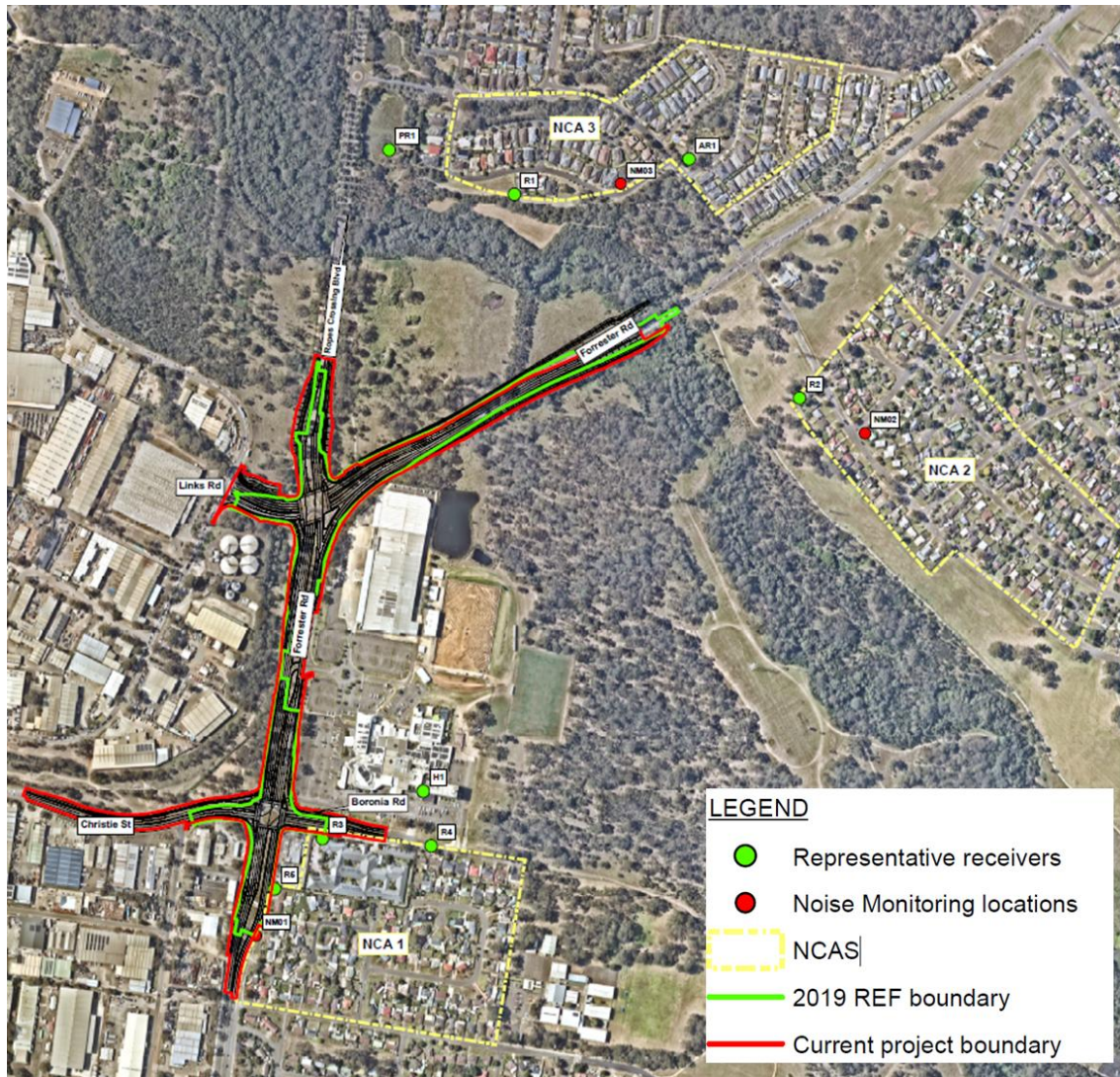


Figure 12: Sensitive receivers and noise monitoring locations (Source: addendum NIA)

As shown, there are three noise catchment areas (NCA); NCA1, NCA2 and NCA3. The table below presents the construction noise management levels for each NCA, assessment period and residential receiver. The noise management levels were calculated based on the measured Rating Background Level in each NCA.

NCA	Noise monitoring location	dBA RBL			NML dBA Leg (15min)			
		Standard hours	OOHW 1	OOHW 2	Standard hours	OOHW 1	OOHW 2	Highly noise affected
NCA01	NM01	54	46	37	64	51	42	75
NCA02	NM02	39	39	35	49	44	40	75
NCA03	NM03	42	42	37	52	47	42	75

Table 18: Noise Management Level at residential receivers taken from the original NIA (Source: RCA)

A summary of the operational, construction and vibration noise impacts for the above-mentioned NCA's and broader areas is below:

- During early works, earthworks, paving and finishing activities:
 - residences near NCA01 are expected to experience noise levels exceeding the highly noise-affected noise management levels
 - all NCA's (NCA01, NCA02 and NCA03) are expected to experience noise levels greater than 20 dB above noise management level
 - minor exceedances (up to 5 dB) are expected in active/passive recreational areas
 - construction noise is likely to exceed NMLs for commercial properties near the construction boundary
- Out-of-hours works in NCA01, NCA02, and NCA03 will likely exceed noise management level's when work is closest to residences
- Noise levels are acceptable for all activities in active and passive recreational areas for works other than early works, earthworks, paving and finishing activities (discussed above)
- Vibration-intensive activities could exceed guidelines for cosmetic damage and human comfort

The Noise Impact Assessment (Appendix 5) and Addendum Noise Impact Assessment (Appendix 13) include mitigation measures. These measures have been reproduced in 9.3 will ensure that the above matters are sufficiently addressed to mitigate any adverse impacts.

8.3 Heritage

As noted in Section 6.2 above, a Aboriginal and non-Aboriginal Due Diligence Heritage Assessment (DDHA) was prepared and submitted with the Draft 2019 REF (Appendix 6) An addendum DDHA (Appendix 6) has been prepared to support the 2019 report which provides a review of the previous assessment, proposed design changes and any legislative changes to identify whether the proposed works would result in any unidentified impacts to Aboriginal or non-Aboriginal heritage within the study area.

An overlay of the 2019 study area vs 2024 study area is provided within the figure below. As shown, there are variations in road width which are mostly within the 2019 study area (purple outline).

Two areas of the 2024 study area are outside of the area previously assessed. These include road widening along Christie Street and Boronia Road.

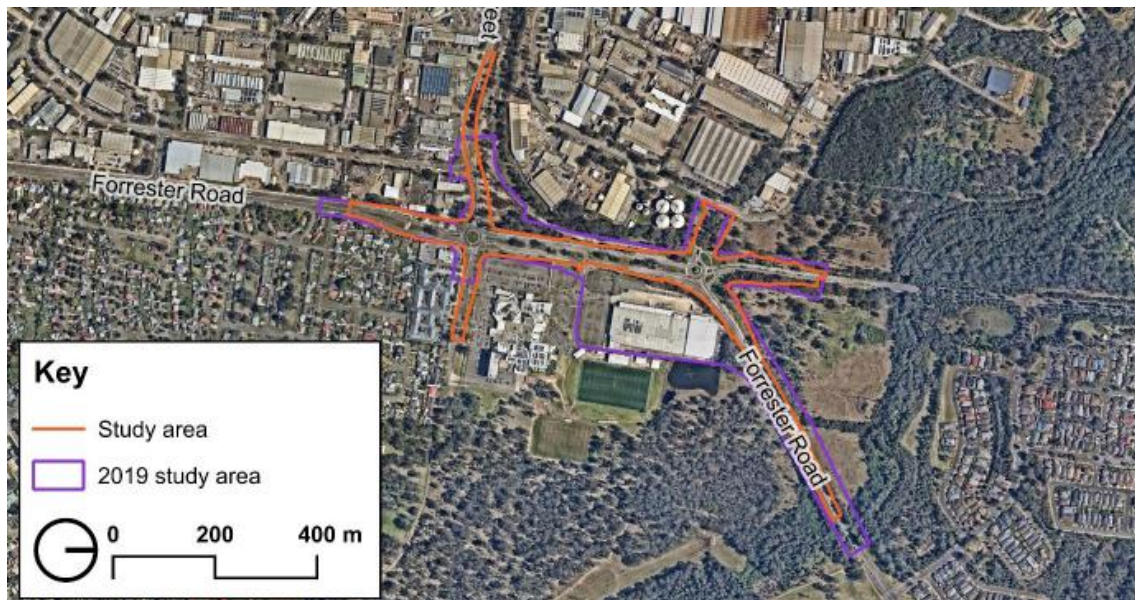


Figure 13: Overlay of current study area vs 2019 KNC assessment (Source: GNL Heritage)

The Addendum DDHA summarises the findings of the 2019 report and provides an assessment of the roadworks which were not previously captured. A summary of the findings for each heritage matter (Aboriginal cultural, historical archeology and built heritage) is provided below.

Aboriginal cultural heritage

Aboriginal heritage is protected under the *National Parks and Wildlife Act 1974* and EP&A Act.

Site visits and reviews of the Aboriginal Heritage Information Management System were undertaken in 2019 and 2024 to confirm any archaeological sensitivity within the site.

The DDHA found no areas of Aboriginal archeological sensitivity were identified within the study area and therefore it is concluded that the proposal will not result in any impacts to Aboriginal objects or archaeological deposits.

It is noted two sites are located within 200m of the study area.

Historical archeology

Historical archeology is protected under the *Heritage Act 1977*.

Based on the results of a site visit, historical maps/aerial imagery, background information and previous investigations in the vicinity of the site, it is concluded that the site is highly disturbed (with majority of the site comprising existing roads and verges) and that there are no potential areas for subsurface of historical archaeological remains. Therefore, there are no impacts to historical archeological remains or relics as defined under the Heritage Act.

Built heritage

Built heritage is protected under the *Heritage Act 1977* and the PLEP 2010.

A review of statutory and non-statutory heritage registers was undertaken to identify heritage items within or nearby the site was undertaken as part of the DDHA. The review found no items within the site and 4 items within 400m, see green shaded areas on the figure below which include Dunheved Fire Station, Explosive Storehouse, Beecroft Butchery and the North St Marys Staff Cottages Conservation Area.

The DDHA concludes that there are no built heritage constraints for the proposed works.



Figure 14: Heritage items within 400m (Source: Kelleher Nightingale Consulting)

In summary, the heritage assessments conclude that there are no aboriginal and non-aboriginal constraints within the site. It is noted there are nearby AHIMS registered sites. Although located outside the study area, adequate easements and fencing should be implemented during construction to avoid any impacts on these items. The proposed mitigation measures are outlined within the reports and reproduced in Section 9.3 below.

8.4 Contaminated land

A Soil Characterisation Assessment has been prepared by JBS&G (Appendix 10). The objective of the assessment is to characterise soils within the site area and determine the most appropriate management of materials during upgrade works.

The assessment included a detailed review against the relevant guidelines and technical documents listed below:

- *National Environment Protection (Assessment of Site Contamination) Measure 1999*
- *National Environment Protection Council*
- *Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme,*
- *Contaminated land guidelines: Consultants reporting on contaminated land, April 2020*
- *WA Department of Health 'Guidelines for the assessment, remediation and management of asbestos contaminated sites'*
- *The Heads of EPAs Australia and New Zealand (HEPA) National PFAS Environmental Management Plan*
- *Waste Classification Guidelines, Part 1: Classifying Waste, November 2014*
- *Sampling Design Part 1- Application, NSW EPA August 2022*

8.4.1 Site Characterisation and management

The soil characterisation works completed as part of this assessment observed no gross/widespread contamination impacts however identified small amounts of asbestos containing material and total recoverable hydrocarbons.

It is noted asbestos containing material is commonly identified with fly tipping (which was observed along the Forrester Road edges) and total recoverable hydrocarbons is common with asphalt roads.

Noting the current and proposed roadway have minimal landscaped areas or spaces used for public open space uses, the assessment finds the impacts identified are not considered to present a risk to future site users or the environment provided site cleanup measures including asbestos removal is completed.

8.4.2 Summary

In summary, the investigation found that the site is suitable for the use of a road provided the identified asbestos containing material is removed. Following the removal works, an asbestos clearance letter / certificate will be provided by a competent person or a licensed asbestos assessor to confirm asbestos has been removed and the site is cleared for works to proceed. Council confirmed they are willing to consider minor asbestos removal works without a Remediation Action Plan for Part 5 developments subject to final review of the contamination report to prepare a material management plan and an unexpected finds protocol with requirements for working with asbestos (if encountered). These mitigation measures are further discussed in Section 9.3.

8.5 Soils and Geology

A Geotechnical Interpretative Report has been prepared by WSP (Appendix 14) as shown in the figure below, the geotechnical investigation comprised three off pavement boreholes, eight on pavement boreholes and four off road hand augers and indicates the site overlies two soil landscapes:

- 'South Creek soil landscape' which is in the north and central regions of the site
- Blacktown soil landscape which is found in the southern edge of the site

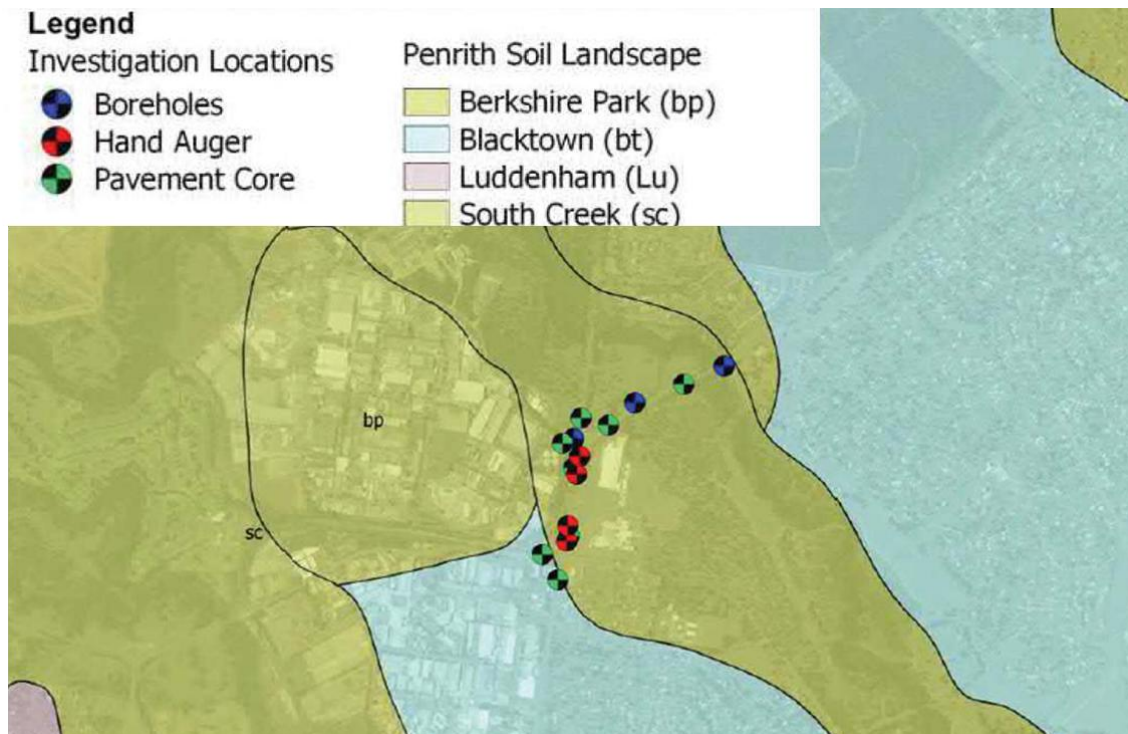


Figure 15: Geotechnical Report

The report provides a detailed geotechnical discussion with specific design parameters. The parameters recommended for preliminary geotechnical design are presented in the table below:

Geotechnical unit	Consistency/strength	Unit weight γ (kN/m ³)	Undrained shear strength (kPa)	Effective cohesion c' (kPa)	Effective friction angle ϕ' (°)
1. Fill/topsoil	-	18	-	-	-
2. Alluvial	Firm	18	25	0	26
	Stiff	18	50	2	26
	Very stiff	19	100	3	27
3. Residual	Stiff	18	50	2	26
	Very stiff	19	100	3	27

Table 19: Preliminary Geotechnical Design Parameters (Source: WSP)

The report also outlines requirements during excavations, earthworks, for which its applicability is addressed as part of the Civil Engineering Design Report (Appendix 16).

8.6 Biodiversity

A Flora and Fauna Assessment Report has been prepared by NARLA Environmental (Appendix 2) to identify any potential impacts associated with the proposed activity on terrestrial ecology (biodiversity), particularly ecological communities and threatened species.

8.6.1 Threatened Ecological Communities and vegetation loss

The Flora and Fauna Assessment Report (Appendix 2) identified six Threatened Ecological Communities within the site.

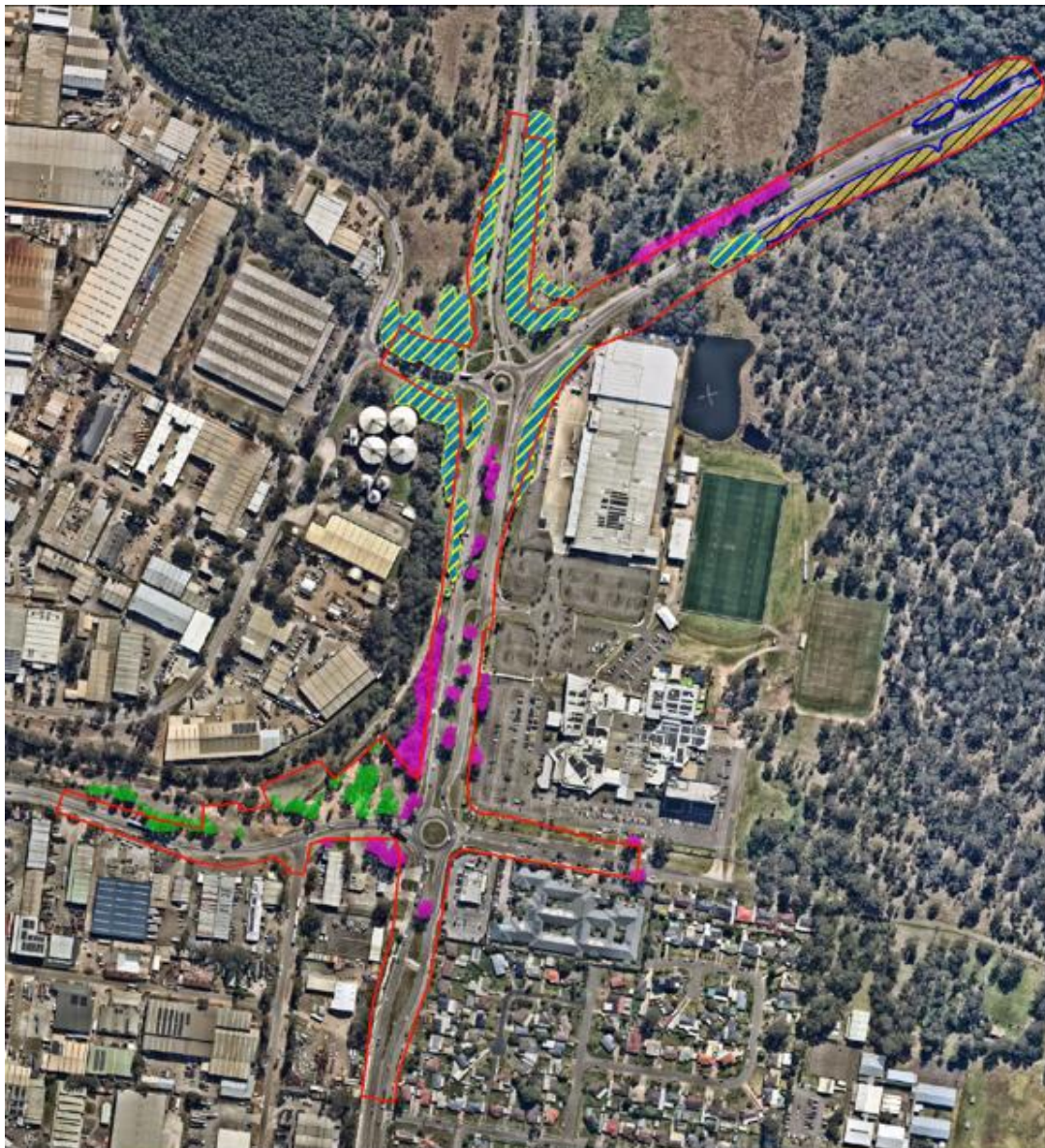
The table below provides a summary of the six communities, their condition and required vegetation loss to facilitate the proposed activity.

Threatened Ecological Community	Condition of community	Vegetation loss
Cumberland Shale Plains Woodland (Critically Endangered)	Poor and moderate	1.0ha
Shale Gravel Transition Forest (Endangered)	Poor	0.38ha
Swamp Oak Floodplain Forest (Endangered)	Poor	0.69ha
Coastal Swamp Oak Forest (Endangered)	Poor	
River-flat eucalypt forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions (Endangered)	Poor	1.99ha
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria (Critically Endangered)		

Table 20: Threatened Ecological Communities summary (Source: Narla)

In addition to the table above, 0.08ha of 'miscellaneous urban exotic vegetation' will be lost to facilitate the road works.

The location of each Threatened Ecological Community in relation to the proposed activity is shown within the figure below.



Threatened Ecological Communities within the Project Area

 Forrester Road Project Footprint

Biodiversity Conservation Act

 Cumberland Shale Plains Woodland in the Sydney Basin Bioregion

 Swamp Oak Floodplain Forest in the Sydney Basin Bioregion

 Shale Gravel Transition Forest in the Sydney Basin Bioregions

 River-flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregion

Environmental Protection and Biodiversity Conservation Act

 River-flat Eucalypt Forest on Coastal Floodplains of New South Wales and Eastern Victoria

 Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland

Figure 16: Threatened ecological communities (Source: Narla)

8.6.2 Threatened Flora

Several threatened flora species occur within a 10km x 10km radius of the site. These species were assessed for potential to occur within the site. The report concludes threatened flora is unlikely to occur within the site area and no further assessment is required.

8.6.3 Threatened Fauna

The report undertook a detailed assessment of potential threatened fauna on the site.

The following threatened species have the potential to occur within the site and will be impacted by the proposed activity:

- *Falsistrellus tasmaniensis* (Eastern False Pipistrelle)
- *Glossopsitta pusilla* (Little Lorikeet)
- *Micronomus norfolkensis* (Eastern Coastal Free-tailed Bat)
- *Miniopterus australis* (Little Bent-winged Bat)
- *Miniopterus oceanensis* (Large Bent-winged Bat)
- *Myotis macropus* (Southern Myotis)
- *Neophema pulchella* (Turquoise Parrot)
- *Saccolaimus flaviventris* (Yellow-bellied Sheath-tail-bat)
- *Scoteanax rueppellii* (Greater Broad-nosed Bat)

A Tests of Significance (5-part Test) under the *Biodiversity Conservation Act 2016* and an *Environment Protection and Biodiversity Conservation Act 1999* Assessment of Significant were conducted for all species listed above. The report concludes the proposed activity will not have a significant impact on any threatened entities.

8.6.4 Biodiversity summary

As outlined above, an assessment of the proposed activity has been undertaken in accordance with the relevant provisions of the *Biodiversity Conservation Act 2016* and *Environment Protection and Biodiversity Assessment Act 1999*.

The assessment concludes that the proposed activity will not have any significant impact on any ecological communities or threatened species.

8.7 Arboriculture

An Arboricultural Impact Assessment (AIA) has been prepared by Arborsure (Appendix 11) to assess and confirm the proposed is being undertaken in accordance with relevant legislation including *Biodiversity Conservation Act (NSW) 2016*, *Environmental Protection and Biodiversity Conservation Act (Commonwealth) 1999*, *Biosecurity Act (NSW) 2015*, and *Environmental Pest Species*.

Following preparation of the original AIA, Arborsure issued an Amended AIA dated 22 June 2026 to increase the study area to assess additional vegetation located within the proposed temporary construction compound and drainage swale areas (Appendix 17).

Importantly, the amendment included an assessment of an additional 63 trees and two *Casuarina glauca* stands and one *ligustrum*.

The amended AIA identifies a total of 486 trees within the study area and categorised the tree retention values based on the Institute of Australian Consulting Arboriculturist 'Tree Assessment Rating System (STARS)' methodology. The AIA found that:

- 13% have high retention value
- 52% have medium retention value
- 31% have low retention value
- 4% have very low retention value

To achieve the essential project outcomes, 307 trees (and vegetation stands) need to be removed whilst 179 trees are proposed to be retained.

To mitigate the ecological impact resulting from the proposed removed trees, the AIA proposes to develop a replacement planting strategy which focuses on using native species to support local biodiversity. The planting is proposed in council-approved green space/s nearby, creating ecological linkages that promote species habitat and connectivity within the urban landscape and surrounding ecosystem.

Further, stringent protective measures throughout the construction process will be implemented to ensure the health and structural integrity of retained trees and in addition to pre and post agricultural assessments.

A list of all mitigation measures is provided within the report and have been reproduced in Section 9.3.

8.8 Bushfire

As stated within Section 7.5, the site is identified as containing Category 1 and 2 bushfire prone land and vegetation buffer. However, as the proposal is a non-habitable development, it is unlikely the roadworks will be affected by bushfire or increase the likelihood of bushfires in the area.

On this basis a Bushfire Assessment Report has not been prepared.

8.9 Landscaping

A Concept Landscape Package has been prepared by Architectus and is provided at Appendix 15.

As shown within Appendix 15, it is proposed to plant native grasses and trees along all roads.

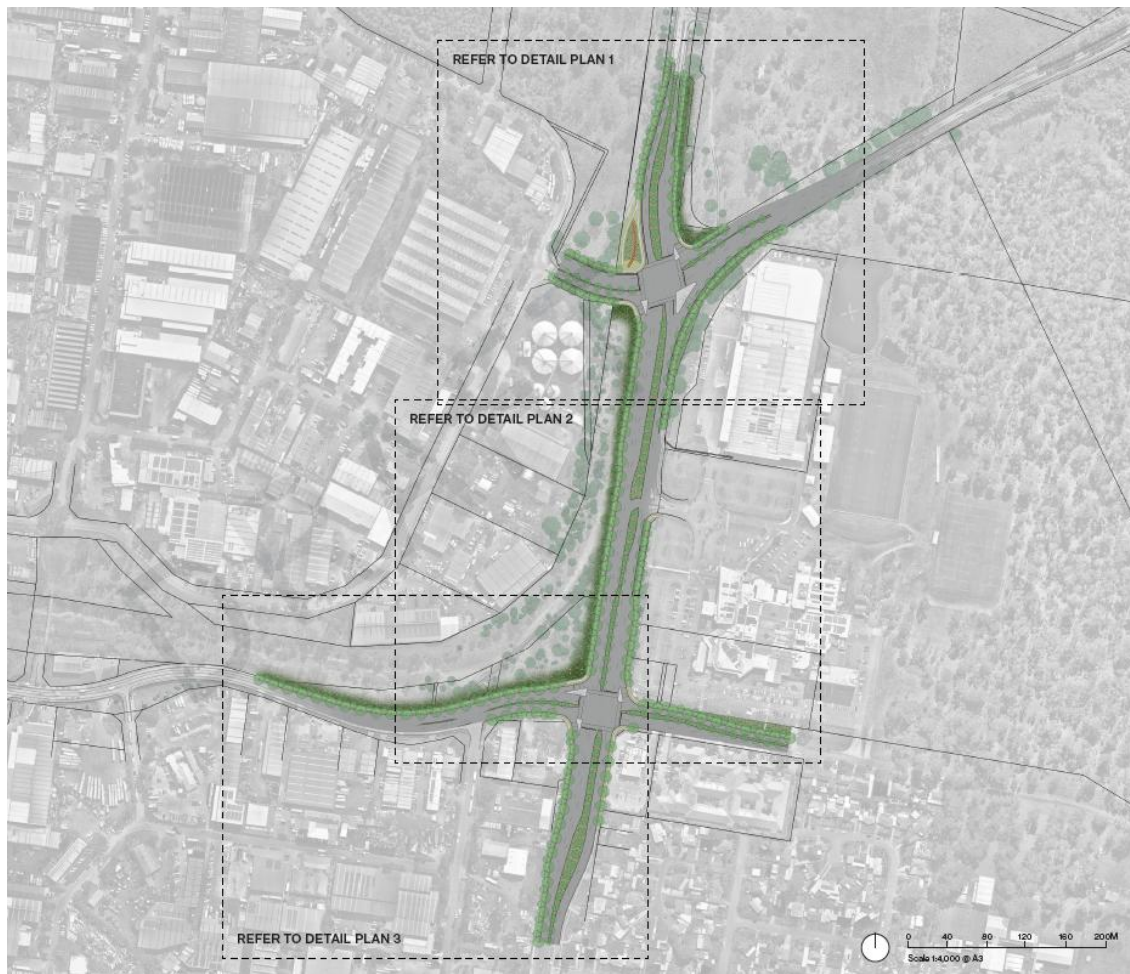


Table 21: Proposed Landscape Plan (Source: Architectus)

Legend

- Extent of Works
- Turf
- Concrete Pavement
- Planting
- Native Seed Mix - Infill Existing Trees
- Asphalt
- Proposed Tree
- Existing Tree
- Street Light



Figure 17: Proposed Landscape Plan (Source: Architectus)

Legend

- Extent of Works
- Turf
- Concrete Pavement
- Planting
- Native Seed Mix - Infill Existing Trees
- Asphalt
- Proposed Tree
- Existing Tree
- Street Light



Figure 18: Proposed Landscape Plan (Source: Architectus)

Legend

- Extent of Works
- Turf
- Concrete Pavement
- Planting
- Native Seed Mix - Infill Existing Trees
- Asphalt
- Proposed Tree
- Existing Tree
- Street Light



Figure 19: Proposed Landscape Plan (Source: Architectus)

8.10 Flood

Flood Study Report has been prepared by SMEC and is included at Appendix 8. The Study assesses the flooding impacts of the proposed development and proposes design solutions to ensure there are no adverse flooding impacts.

In preparation of Appendix 8, the following Council flood studies were reviewed:

- *South Creek Flood Study 2015*
- *Wianamatta-South Creek Catchment Flood Study 2022*

The Flood Study Report provided a detailed analysis of the flooding impacts as a result of the proposed development. An extract of the report's conclusions is provided below:

- *The flooding in the study area appears to be predominantly influenced by impoundment effects caused by restrictive flow through Ropes Creek at Ropes Creek Crossing Boulevard under existing conditions*
- *A section of Forrester Road from intersection to Bridge over Ropes Creek is overtopped with Hazards Category H4 in the existing condition. This is also persistent in the new road design. The road overtopping zone is narrowed*
- *Hazard Category for the existing and the new road design are essentially the same. The extent of hazard H4 on the road, which is unsafe for vehicles, is reduced in the new road design.*
- *The new road design has caused increased in flood level immediate upstream of the bridge (not affecting the bridge performance requirements)..*
- *...The new design has increase in flood level by 25mm in upstream area causing increase in the flood event; but the flood is contained within the riparian area of the Ropes Creek and there is no increase in the flood extend towards the residential communities...*
- *...Our study complies with Council's development control and suitable to be use for the purpose.*

In summary, the road upgrades will result in some increases in the flood extent. However, the flood is contained within the riparian area and there is no increased flood extent towards residential communities.

8.11 Waste Generation

A waste management plan will be developed for the proposed works which would ensure that any materials reused on site or imported from another site will be subject to testing and waste classification exemption provisions in accordance with the NSW EPA's *Waste Classification Guidelines*.

Should the material be classified as a controlled or restricted waste, or found to contain contaminants of concern at elevated concentrations, it would not be classified for exemption and reuse. It would be stored in a contained separate location onsite before being transported offsite to a licenced facility.

Reusable topsoil and subsoil would be stored in designated and suitable locations. This would ensure the stockpiled material was located away from sensitive areas and flood prone land where feasible and reasonable. It would also provide the ability to install controls to manage any leaching, erosion, sediment dispersion and dust dispersion risks and impacts.

8.12 Applicable Local Strategic Planning Statements, Regional Strategic Plans or District Plans

The proposed activity is being undertaken in accordance with clause 17 and Appendix 2 of the Planning Agreement which identifies the local transport works (including the works proposed within this REF described within Section 3.1) committed to by Lendlease.

The proposed works would have the following benefits.

- accommodate future growth in the St Marys and North St Marys area.

- upgrade the existing road surface through pavement works.
- reduce future traffic congestion of the surrounding road environment and shorten travel times for road users by upgrading Forrester Road at Links Road/Ropes Crossing Boulevard and Christie Street/Boronia Road intersections which are currently under performing.

An assessment of the relevant strategic planning documents is provided below and concludes that the proposed works are consistent with the strategic aims and objectives of those plans.

8.12.1 Greater Sydney Region Plan

The *Greater Sydney Region Plan* (Region Plan) establishes a vision and strategy for managing growth and change in Greater Sydney, addressing social, economic, and environmental considerations that are to be implemented at a local level through District Plans.

The proposed works are consistent with the Regional Plan as it will improve the connectivity of the surrounding road network and enhance the quality of the existing road environment and intersections of Forrester Road at Links Road/Ropes Crossing Boulevard and Christie Street/Boronia Road intersections. This will support the local community through reducing travel times for road users.

The proposed works are consistent with several objectives of the Region Plan as detailed below.

Direction: A city supported by infrastructure

Objective 1: Infrastructure supports the three cities

- The proposed works aim to balance population growth with infrastructure investment by providing necessary infrastructure to accommodate future traffic demand in St Marys.

Objective 2: Infrastructure aligns with forecast growth – growth infrastructure compact

- The proposal enhances existing local road infrastructure to support the future growth of St Marys.
- The proposed works will provide infrastructure which has been co-designed and co-delivered by Council and the Joint Venture in accordance with the Planning Agreement.

Direction: A well-connected city

Objective 14. A Metropolis of Three Cities – integrated land use and transport creates walkable and 30-minute cities

- The proposed works will contribute to a 30-minute city as it will improve traffic flow and reduce congestion, improving travel times throughout the area

- The proposed works will enhance connectivity as it will facilitate better connections, making it easier to reach essential services within 30 minutes.

8.12.2 Western City District Plan

The *Western City District Plan* (District Plan) was prepared by the Greater Cities Commission in March 2018. It seeks to manage growth in the context of economic, social and environmental matters in the Western District. It provides the district level framework to implement the goals and directions outlines in the Region Plan for the Western City District.

The proposed works are consistent with several objectives of the District Plan as detailed below.

Planning Priority W1: Planning for a city supported by infrastructure

- The proposed road works will contribute to the improved functionality of the road network in the St Marys and North St Marys locality.
- The proposed works align investment in local road infrastructure with future traffic demand resulting from the growing population of the St Marys locality.

Planning Priority W2: Working through collaboration

- The proposed works involves the collaboration and consultation with Council as described in Section 5.
- The proposed works are subject to the Planning Agreement, established between the Joint Venture and Penrith City Council.

Planning Priority W7: Establishing the land use and transport structure to deliver a liveable, productive and sustainable Western Parkland City

- The proposed works assist in meeting current and future traffic demand and contribute to the development of a 30-minute city

Planning Priority W14: Protecting and enhancing bushland and biodiversity

- The proposed works will not result in any adverse bushland or biodiversity impacts

8.12.3 Penrith Local Strategic Planning Statement

The Penrith Local Strategic Planning Statement (LSPS), prepared by Council, aims to build a sustainable future for the city of Penrith and its community by addressing key issues the Council will face over the next 20 years.

The proposed works are consistent with several objectives of the LSPS, particularly:

- *Planning Priority 1: Align development, growth and infrastructure*
 - The proposed works will help create “better transport connections and networks” through upgrading roads to meet current and future traffic demand
- *Planning Priority 2 Work in partnership to unlock our opportunities*
 - The proposed works are subject to the Planning Agreement between Penrith City Council and Lendlease Communities which requires collaboration between all parties.

- *Planning Priority 10 Provide a safe, connected and efficient local network supported by frequent public transport options*
 - The proposed works will enhance the surrounding road network and enhance accessibility within the surrounding environment and beyond.
 - The enhanced local road network will help deliver and support frequent public transport options through improving traffic flows

8.13 Cumulative environmental effect with other existing or likely future activities

A review of the following online portals and Council documents confirms the proposed activity will not conflict within any future of proposed activities:

- Council's DA tracker
- DPHI Major Projects
- Penrith Local Strategic Planning Statement

9 Environmental management

9.1 Construction Environmental Management Plan (CEMP)

A CEMP will be prior to construction commencement of the proposal and will outline the measures that will be implemented to manage and mitigate environmental impacts during the construction phase of the proposal.

The CEMP will provide a summary of the construction methodology, staging, work hours, plant and equipment.

9.2 Erosion and Sediment Control Management

A Erosion and Sediment Control Management Strategy (ESCMS) will be prepared by the construction contractor to manage and mitigate environmental impacts during construction.

The Civil Engineering Design Report (Appendix 16) provides a conceptual ESCMS which the contractor will use as a basis when preparing the ESCMS.

9.3 Mitigation measures

A number of safeguards and mitigation measures have been identified in order to minimise adverse environmental impacts which could potentially arise as a result of the proposed activity. The environmental mitigation measures listed in the table below will be applied by the appointed Contractor during the period of the works.

Risk category	Potential impacts and risks	Mitigation measures
Noise and vibration	Works impact on the amenity of surrounding properties	Construction Noise and Vibration Management Plan - All potential significant noise and vibration generating activities associated with the activity - Feasible and reasonable mitigation measures to be implemented - A monitoring program to assess performance against relevant noise and vibration criteria, where necessary - Arrangements for consultation with affected neighbours and sensitive receivers, including notification and complaint handling procedures, particularly for OOH works - Contingency measures to be implemented in the event of non-compliance with noise and vibration criteria. Site Specific Controls - The noise levels of plant and equipment must have operating Sound Power or Sound Pressure Levels compliant with the criteria in Appendix H of CNVG (Construction Noise and Vibration Guideline).

Risk category	Potential impacts and risks	Mitigation measures
		• Limiting number of plant and use of alternative equipment and /or using a different, quieter method to carry out the work during night-time period. • Where feasible, limit simultaneous use of high noise plant and equipment. • Where feasible, limit use of high intensity plant / equipment to standard hours or should be scheduled to be carried out early in the evening or early morning period from 5am to 7am when ambient noise is likely to increase. • Consider implementation of temporary barriers around stationary sources or use of alternative quieter equipment. • Mobile plant and vehicles onsite should be switched off when not in use. • Use of non-tonal reversing alarms (“quackers”) on vehicles or using ‘spotters’ to oversee reversing movement for vehicles operating during OOHW. • Plant, tools and equipment should be operated to reduce the likelihood of generating maximum noise level events. • Loading and unloading will be carried out away from sensitive receivers, where practicable. • Ensure all deliveries occur during standard construction hours where reasonable and feasible • Potential noise screening benefits from compound buildings will be considered during design of the layout for ancillary sites. • Orientation of equipment and plant to shield noise impacts from sensitive receivers where possible. Standard Noise Mitigation Measures Implement community consultation or notification measures • Notification detailing work activities, dates and hours, impacts and mitigation measures, indication of work schedule over the night time period, any operational noise benefits from the works (where applicable) and contact telephone number. Notification should be a minimum of seven calendar days prior to the start of works. Site inductions • All employees, contractors and subcontractors are to receive an environmental induction. Behavioural practices • No swearing or unnecessary shouting or loud stereos/radios on site. • No dropping of materials from height, throwing of metal items and slamming of doors. Verification

Risk category	Potential impacts and risks	Mitigation measures
		- Where specified under Appendix C (of the CNVG) a noise verification program is to be carried out for the duration of the works in accordance with the Construction Noise and Vibration Management Plan and any approval and licence conditions. Update Construction Environmental Management Plans - The CEMP must be regularly updated to account for changes in noise and vibration management issues and strategies. Construction hours and scheduling - Where feasible and reasonable, construction should be carried out during the standard daytime working hours. Work generating high noise and/or vibration levels should be scheduled during less sensitive time periods. Construction respite period during normal and out-of-hours work - Please refer to Appendix C (of the CNVG) for more details on Respite offers (RO), Respite period 1 (R1), Respite period 2 (R2), Duration respite (DR) Equipment selection - Use quieter construction methods where feasible and reasonable. - Ensure plant including the silencer is well maintained. Plant noise levels - The noise levels of plant and equipment must have operating sound power levels (SWLs) or sound pressure levels (SPLs) compliant with the criteria in Appendix H (of the CNVG). - Implement a noise monitoring audit program to ensure equipment remains within the more stringent of the manufacturers specifications or Appendix H (of the CNVG). Rental plant and equipment - The noise levels of plant and equipment items are to be considered in rental decisions and cannot be used on site unless compliant with the noise level criteria. Use and siting of plant - The offset distance between noisy plant and adjacent sensitive receivers is to be maximised. Plant used intermittently to be throttled down or shut down. Noise-emitting plant to be directed away from sensitive receivers. Only have necessary equipment on site. Plan works site and activities to minimise noise - Locate compounds away from sensitive receivers and discourage access from local roads. - Plan traffic flow, parking and loading / unloading areas to minimise reversing movements within the site.

Risk category	Potential impacts and risks	Mitigation measures
		- Where additional activities or plant may only result in a marginal noise increase and speed up works, consider limiting duration of impact by concentrating noisy activities at one location and move to another as quickly as possible. <i>Reduced equipment power</i> - Use only the necessary size and power. <i>Non-tonal reversing alarms</i> - Non-tonal reversing beepers (or an equivalent mechanism) must be fitted and used on all construction vehicles and mobile plant regularly used on site and for any out of hours work. - Consider the use of ambient sensitive alarms that adjust output relative to the ambient noise level. <i>Minimise disturbance arising from delivery of goods to construction sites</i> - Loading and unloading of materials / deliveries is to occur as far as possible from sensitive receivers. - Select site access points and roads as far as possible away from sensitive receivers. - Dedicated loading / unloading areas to be shielded if close to sensitive receivers. - Delivery vehicles to be fitted with straps rather than chains for unloading, wherever possible. Avoid or minimise these out of hours movements where possible. <i>Engine compression brakes</i> - Limit the use of engine compression brakes at night and in residential areas. <i>Shield stationary noise sources such as pumps, compressors, fans etc.</i> - Stationary noise sources should be enclosed or shielded where feasible and reasonable whilst ensuring that the occupational health and safety of workers is maintained. <i>Shield sensitive receivers from noisy activities</i> - Use structures to shield residential receivers from noise such as site shed placement, earth bunds, fencing, erection of operational stage noise barriers (where practicable) and consideration of topography when situating plant. Additional Noise Mitigation Measures - As per Table 7.2 of Appendix 5 and Appendix 13. Vibration Management Measures <i>Controlling vibration levels from the source</i> - Choosing alternative, lower-impact equipment or methods wherever possible. - Scheduling the use of vibration-causing equipment at the least sensitive times of the day (wherever possible).

Risk category	Potential impacts and risks	Mitigation measures
		• <i>Locating high vibration sources as far away from sensitive receiver areas as possible.</i> • <i>Sequencing operations so that vibration-causing activities do not occur simultaneously.</i> • <i>Keeping equipment well maintained.</i> • <i>Do not conduct vibration intensive works within the safe working distances outlined in Table 5.1.</i> • <i>Where possible, avoid the use of vibration intensive plant within the nominated human comfort distances.</i> Management • <i>Undertake vibration monitoring in the early stages of the project to determine the potential for inducing vibration at locations within potentially affected buildings.</i> • <i>Complete dilapidation surveys before and after the work for structures located within the safe working distances outlined in Table 5.1.</i> • <i>Complete vibration monitoring during vibration intensive activities undertaken within the safe operating distances outlined in Table 5.1</i> Consultation • <i>Informing nearby receivers about the nature of construction stages and the vibration generating activities.</i> Construction Traffic • <i>Restricting travel routes to and from the proposal to main roads (e.g. arterial roads) and avoid using local roads or roads where residential receivers are potentially impacted</i> • <i>As far as practicable, restrict construction vehicle movements during the night-time along local roads to light vehicles only, subject to further investigation of potential night-time maximum noise events when more detailed project information is available</i> • <i>Prohibiting the use of engine / compression brakes in or near residential areas</i> • <i>Promoting driving behaviour that reduces potential noise impacts</i> • <i>Prohibiting idling of plant and equipment engines near residential receivers when not in use</i> • <i>Strategic positioning of site accesses to minimise the chance of trucks passing by residential receivers, especially at night.</i> Additional Mitigation Measures from Addendum Noise Impact Assessment • <i>Due to the known impacts and sleep disturbance predicted, it is strongly recommended that all proposed mitigation strategies are implemented and community engagement for mitigation strategies, including respite periods is conducted. It should be</i>

Risk category	Potential impacts and risks	Mitigation measures
		<i>noted that the additional mitigation measures recommended include:</i> • <i>Neighbour notification.</i> • <i>Verification (a noise monitoring process followed by routinely and in response to complaints.</i> • <i>Alternative accommodation.</i> • <i>Respite periods (various types of respite periods are available and should be agree to with the affected community).</i> • <i>Individual briefings.</i> • <i>And, specific notifications (different to general notifications as more detailed information is provided to receivers and is used for unscheduled works for example).</i>
Contamination	Environmental risks	• <i>Prior to upgrade works commencing, asbestos impacts and general rubbish/flytipping should be removed from the road verge surfaces. This should include shallow soil surface scrape to remove the asbestos impact identified at location HA01 (0-0.1 m bgs). Following the removal works, an asbestos clearance inspection and an associated asbestos clearance letter will need to be provided by a competent person or licensed asbestos assessor to confirm asbestos has been removed and the site is cleared for works to proceed;</i> • <i>Material management requirements including characterisation of materials in accordance with NSW EPA resource recovery exemptions and orders, and/or for reuse or offsite disposal as necessary, should be incorporated into the project Construction Environmental Management Plan (CEMP); and</i> • <i>An unexpected finds protocol should be developed and implemented during the works.</i>
Heritage	Location of Aboriginal objects or remains	• <i>The construction should avoid any impacts to the nearby registered AHIMS site ADI-EP POD02(AHIMS 45-5-3379). Although this site is located outside the study area within a neighbouring allotment, construction works should provide adequate easement and the site should be fenced off during construction works to ensure that no harm occurs.</i> • <i>If, during the process of works, Aboriginal object(s) or historical archaeological remains are suspected or identified within the study area, the following unexpected finds protocol should be enacted:</i> ○ <i>Stop work order -all works should cease immediately in the area surrounding the suspected Aboriginal objects(s) or historical archaeological remains. Any identified Aboriginal object(s) or historical remains should be left in situ and not disturbed in accordance with the</i>

Risk category	Potential impacts and risks	Mitigation measures
		<i>requirements of Section 89A of the NPW Act and Section 139 of the Heritage Act.</i> ○ Specifically, if any archaeological relics are uncovered during the course of the work, no further work shall be undertaken until further directed by Penrith City Council or NSW Heritage Office. The applicant is advised that depending on the possible significance of the relics, an archaeological assessment and an excavation permit under the <i>Heritage Act 1977</i> may be required before any further work can be recommenced in that area of the site. ○ <i>For suspected Aboriginal objects, Heritage NSW should be notified immediately and:</i> - <i>If the suspected objects(s) are not aboriginal in origin or manufacture (as defined under the NPW Act), they should be recorded and the location noted. Works may continue subject to confirmation that the remains are not of historical archaeological significance.</i> - <i>If the object(s) are confirmed to be of Aboriginal origin, the site should be registered on the AHIMS database administered by Heritage NSW.</i> - <i>Where impact to the Aboriginal object(s) cannot be avoided, an Aboriginal Heritage Impact Permit under Section 90 of the NPW Act would be required before works could continue in the area of the identified objects. The extent of any works exclusion zone would need to be determined through discussion with Heritage NSW and Aboriginal community representatives.</i> ○ <i>For suspected historical archaeological remains, works should cease in the affected area and Heritage NSW notified in accordance with Section 146 of the Heritage Act. Further archaeological assessment and approvals under the Heritage Act may be required.</i> ○ <i>In the unlikely event that human remains were to be discovered at any time during the works, all activities must cease immediately in the area surrounding the find. The findings would need to be reported immediately to the New South Wales Coroner's Office and/or the New South Wales Police.</i>
Biodiversity	Ecological impacts	• <i>Due to the nature of the proposed activity, all vegetation within the Project Area will be impacted. Owing to the need to facilitate road upgrades for the changing needs of the locality no alternate locations were possible for the proposed works.</i>

Risk category	Potential impacts and risks	Mitigation measures
		• <i>Prior to the implementation of the activity, the proponent should commission the services of a qualified and experienced Ecologist with a minimum tertiary degree in Science, Conservation, Biology, Ecology, Natural Resource Management, Environmental Science or Environmental Management. The Ecologist must be licensed with a current Department of Primary Industries Animal Research Authority permit and New South Wales Scientific License issued under the BC Act.</i> • <i>The Ecologist will be commissioned to:</i> ○ <i>Undertake any required targeted searches for threatened flora prior to vegetation clearing;</i> ○ <i>Undertake an extensive pre-clearing survey which includes targeted searches for threatened fauna threatened flora and Priority Weeds, and delineating habitat-bearing trees and shrubs;</i> ○ <i>Undertake an additional targeted surveys for the threatened Cumberland Land Snail;</i> ○ <i>Undertake an extensive pre-clearing survey which includes targeted searches for threatened fauna (including potential threatened Microbats within stormwater drains and culverts prior to removal);</i> ○ <i>Supervise the clearing/modification of any aquatic habitat including creeks or dams in order to capture, treat and/or relocate any displaced fauna.</i> • <i>Australian Standard 4970 (2009) Protection of Trees on Development Sites (AS-4970) outlines that a Tree Protection Zone (TPZ) is the principal means of protecting trees on construction sites. It is an area isolated from construction disturbance so that the tree remains viable. Ideally, works should be avoided within the TPZ. A Minor Encroachment is less than 10% of the TPZ and is outside the structural root zone (SRZ). A Minor Encroachment is considered acceptable by AS-4970 when it is compensated for elsewhere and contiguous within the TPZ. A Major Encroachment is greater than 10% of the TPZ or inside the SRZ. Major Encroachments require root investigations undertaken by non-destructive methods or the use of tree sensitive construction methods. Tree protection fencing is to be installed around all trees proposed for retention in the immediate vicinity of the proposed works.</i> • <i>Temporary barriers (e.g., flagging tape) should be erected around retained native vegetation that may incur indirect impacts on biodiversity values due to the construction works.</i> • <i>Appropriate erosion and sediment control must be erected and always maintained during construction to</i>

Risk category	Potential impacts and risks	Mitigation measures
		<i>avoid the potential of incurring indirect impacts on biodiversity values. An Erosion and Sediment Control Plan should be developed to the Soils and Construction Managing Urban Stormwater Standards (Landcom 2004).</i> • <i>Any roadside revegetation/landscape works should utilise tree species representative of the adjacent matching Threatened ecological communities to ensure habitat for this community continues in the locality.</i> • <i>The following six (6) Priority Weeds were identified within the Project Area:</i> ○ <i>Lantana camara (Lantana);</i> ○ <i>Lycium ferocissimum (African Boxthorn);</i> ○ <i>Olea europaea subsp. cuspidata (African Olive);</i> ○ <i>Opuntia stricta (Common Prickly Pear);</i> ○ <i>Rubus fruticosus species aggregata (Blackberry);</i> - and ○ <i>Senecio madagascariensis (Fireweed).</i> • <i>All priority weeds should be removed in accordance with the Biosecurity Act 2015 and NSW WeedWise (DPI 2023). Environmental weeds should be managed with best practice techniques to improve the condition of the native vegetation within the Project Area.</i> • <i>Allocate all storage, stockpile, and laydown sites away from any native vegetation that is planned to be retained. Avoid importing any soil from outside the site as this can introduce weeds and pathogens to the site to avoid the potential of incurring indirect impacts on biodiversity values.</i> Mitigation Control – Biodiversity and Arboricultural • <i>To ensure that biodiversity and arboricultural matters are appropriately considered and addressed prior to construction commencing, the following actions must be completed as part of, or prior to, the 85% Design phase. These requirements must be completed to the satisfaction of Council before any proceeding beyond the 85% design phase of the project:</i> ○ <i>Subject to the detailed design and layout of the site compound, additional ecological and arboricultural surveys shall only be required where the detailed design identifies areas not previously assessed within the existing ecological and arboricultural investigations. Any additional surveys shall be limited to those unassessed areas.</i> ○ <i>Should the additional surveys and information identify that threatened flora, fauna, ecological communities, or their habitats may be impacted</i>

Risk category	Potential impacts and risks	Mitigation measures
		by the proposed development, the significance of those impacts must be appropriately assessed and documented to the satisfaction of Council. Where impacts are identified, suitable avoidance, mitigation, management, and/or offset measures must be developed and implemented to the satisfaction of Council prior to the commencement of works. Additionally, any required approvals, permits, or assessments under applicable environmental legislation must be obtained before construction activities proceed.
Vegetation	Environmental impacts	Protection of Retained Trees Tree Protection Zones (TPZs): It is essential to establish and maintain robust TPZs around each of the 179 retained trees to shield them from construction impacts. Under the guidance of an AQF Level 5 Arborist, TPZs should be clearly marked with durable fencing, strategically installed to prevent unauthorised personnel, vehicles, and equipment from entering these sensitive areas. This fencing should be coupled with clear signage indicating that these areas are protected, with access strictly limited to authorised personnel only. The presence of an AQF Level 5 Arborist is crucial to ensuring that TPZs are set up according to best practices and adjusted as necessary to adapt to construction phases. Enforcing TPZs throughout the project is critical to preserving the root zones and overall health of these trees. Limited Access and Trunk Protection: Additional protective measures are recommended around the trunks of retained trees to prevent accidental damage, particularly in high-traffic areas. Under the oversight of an AQF Level 5 Arborist, protective barriers such as padding or temporary trunk guards should be installed around the base of each tree. These barriers are designed to absorb accidental impacts from construction equipment and act as a buffer against inadvertent contact that could damage the bark or underlying tissues, which are essential for tree health. The arborist's involvement will ensure that these protective barriers are correctly installed and inspected regularly, offering robust protection for the trunks and root zones of each tree throughout construction. Precautionary Excavation Practices Restricted Excavation Near Retained Trees: Excavation near retained trees should be approached with caution to minimise disturbance to root systems. It is advised to use non-invasive excavation

Risk category	Potential impacts and risks	Mitigation measures
		<i>techniques, such as hand-digging or vacuum excavation, in areas where roots may be encountered. This work should be conducted under the supervision of an AQF Level 5 Arborist to ensure that roots are preserved and that any necessary cuts are clean and precise. This approach reduces stress on the trees and minimises the potential for root damage, which is crucial for their long-term health and stability.</i> • <i>Avoidance of Soil Compaction: To protect the health of retained trees, it is recommended to restrict heavy machinery and vehicles from operating within TPZs. Soil compaction poses a significant risk to tree health, as it can impede root growth, reduce water infiltration, and limit oxygen availability within the root zone. Designated paths for machinery should be established outside of TPZs, and if access is unavoidable, protective measures such as temporary ground mats or mulch layering should be implemented to reduce compaction.</i> Offset Planting and Landscape Restoration • <i>Replacement Planting Strategy: To help offset the ecological impact of tree removal, an offset planting strategy is recommended. This plan should focus on using native species that are well-adapted to the local environment, supporting the re-establishment of natural habitats and promoting biodiversity within the area. Replacement trees should be prioritised for planting in nearby council-approved green spaces, allowing for ecosystem connectivity and improved landscape quality. Selecting species that thrive locally will enhance the long-term resilience and sustainability of the new plantings.</i> • <i>Long-Term Maintenance of Replacement Trees: For the replacement trees to become established successfully, a long-term maintenance plan is crucial. This should include regular watering schedules, mulching to retain soil moisture, and monitoring for pests or diseases. Maintenance activities should ideally continue for a minimum of two years post-planting, with adjustments made as needed to support healthy growth. Ensuring these trees are well-cared for will maximise their survival rate and enhance their contribution to the surrounding landscape.</i> Environmental Impact Mitigation • <i>Wildlife and Habitat Management: Although not within the scope of arboricultural recommendations, it is noted that environmental mitigation measures may include pre-removal assessments conducted by</i>

Risk category	Potential impacts and risks	Mitigation measures
		<i>qualified fauna specialists. These assessments can help ensure that wildlife is safely relocated, and that habitat loss is minimised.</i> Post-Construction Tree Health Check <i>Final Arborist Assessment: Upon the completion of construction activities, it is recommended to conduct a thorough post-construction assessment of all 179 retained trees. This assessment, performed by a qualified arborist, will identify any signs of stress or damage that may have occurred during construction. Should any issues be observed, appropriate remedial actions, such as pruning or soil treatments, can be implemented to support tree recovery. This final check is crucial to ensure the long-term viability of the retained trees and to address any care needs as the project concludes.</i> Casuarina and Privet Vegetation Stands <i>Selective retention outside excavation influence zones where feasible</i> <i>Controlled removal within swale</i> <i>Root-sensitive excavation methods (e.g. hydro-vac or hand excavation) of retained trees</i> <i>Arborist supervision during all works within TPZ/NRZ areas of retained trees</i> <i>Post-construction monitoring of any retained edge vegetation</i> General requirements <i>AQF Level 5 arborist supervision required for all work located in and around any nominated TPZ</i> <i>mechanical excavation within root zones to be avoided</i> <i>exposed roots to be protected and reinstated</i> <i>monitoring up to 2 years post-construction</i> Non-invasive excavation inside nominated TPZs <i>hand digging or air-spade excavation</i> <i>avoidance of mechanical excavation</i> <i>minimal root severance</i> <i>root protection and reinstatement</i> Tree protection implementation <i>TPZ aligned with NRZ where practicable</i> <i>fencing compliant with AS 4687 and AS 1319</i> <i>no encroachment into SRZ</i> <i>supervised works within TPZ</i> <i>pruning to AS 4373-2007</i> Construction stage controls

Risk category	Potential impacts and risks	Mitigation measures
		• <i>trunk protection to 2 m height where required</i> • <i>exclusion of machinery and materials from TPZ</i> • <i>no soil level changes within TPZ</i> • <i>services via directional drilling or hand excavation</i> • <i>ground protection or mulching as required</i> Environmental Protection Area Buffer • <i>A 5 m buffer shall be maintained around all Environmental Protection Areas identified in the Narla Flora and Fauna Assessment Report (June 2026) and shown on the Tree Location Plans (Attachment 2). No construction activities, stockpiling, or vegetation disturbance are permitted within these areas.</i> Refer to the proposed mitigation measure titled "<i>Proposed Mitigation Control/Condition – Biodiversity and Arboricultural</i>" in the biodiversity row above for additional arboricultural mitigation measures.
Traffic and Transport		Construction <i>Existing poor level of service at intersection of Forrester Road-Christie Street-Boronia Road:</i> • <i>Remove any temporary traffic control measures from the road network, to maximise capacity at the intersections and their approaches.</i> • <i>Stage the workers' end of shift times to spread the release of traffic generated by the site and therefore minimise impact to the road network.</i> • <i>Road Occupancy Licence (ROL) to be sought from the relevant road authority and comply with the relevant conditions.</i> <i>Temporary lane closures or temporary road closures:</i> • <i>Road Occupancy Licence (ROL) to be sought for all temporary lane closures and its conditions complied with. Any long-term temporary lane/road closures are to be assessed and approval sought from the relevant road authority. Any short-term temporary lane closures are to be undertaken outside of the peak periods to minimise impact to the road network. Access to affected properties are to be maintained, or if adversely impacted, provide a suitable alternative.</i> <i>Heavy vehicles using road network</i> • <i>Vehicle Movement Plan (VMP) to be prepared to indicate the proposed heavy vehicle route which will be implemented during construction. The VMP will guide drivers of heavy vehicles in accessing the site and is to consider activities of abutting land uses and safety of the public. It is recommended that heavy vehicle movements are minimised during the peak periods and minimise access on roads with school zones when the 40 km/h School Zone speed limit</i>

Risk category	Potential impacts and risks	Mitigation measures
		applies (e.g. on Werrington Road, at Penrith Valley School and Kurrambee School). On-street parking management - As discussed in section 4.4.2, on-street parking spaces are not likely to be impacted during construction. It is envisaged that all parking for staff and visitors to the construction site will be provided off-street. Workers to the site will also be encouraged to take public transport as the Project site is serviced by bus routes and is approximately 2 km walk from St Marys train station. Public transport services - The existing bus stops within the Project site will be maintained, or if impacted, a suitable alternative to be arranged. - Bus routes through the project site will not be affected, however buses may experience longer travel time due to the increase in construction traffic movements generated by the site. Property access - The construction contractor will ensure that the proposed works will not have any major impacts to the access of abutting properties. Access to the bulky goods site, St Marys Leagues Club and developments located off Boronia Road will be maintained, or if impacted, a suitable alternative will be arranged. - Relevant property owners and Penrith City Council will be consulted accordingly throughout the design development process and during construction. Active transport (pedestrians and cyclists) infrastructure impact - The Construction Traffic Management Plan (CTMP) is to manage any localised impact to the pedestrian network through the development of Pedestrian Management Plan (PMP), which would safely manage pedestrians either around the proposed work site or through the proposed work site. Cumulative impacts - Construction activities within the St Marys Development Site may still be ongoing during the construction activities of Forrester Road upgrade. The Construction Contractor of the Forrester Road upgrade project is to liaise and coordinate directly with the St Marys Development Site contractors, to manage any overlap in construction traffic activities that would adversely impacts the road network. Operational Poor level of service with existing intersection layout - The project aims to upgrade the intersections of Forrester Road-Ropes Crossing Boulevard-Links

Risk category	Potential impacts and risks	Mitigation measures
		<i>Road and Forrester Road-Christie Street-Boronia Road to address the impact of additional traffic demand on the road network due to developments in St Marys Development site. As discussed in section 4.4.1, the intersections will not operate adequately without any upgrade to the road network. Adverse performance of the intersections will cause undesirable long queues and extensive travel delay to motorists.</i> <i>The upgrade will convert the dual-lane roundabout controlled intersections to signalised intersections. With the traffic volumes expected to use the intersections, signalising the intersection is considered most appropriate to achieve adequate operational capacity and manage safety at intersection while keeping the size of the intersection to a manageable size to minimise adverse impact to its surrounds.</i> <i>Property accesses</i> <i>At the time of writing, the concept design is still being developed. It is envisaged that the proposed intersection upgrade will not have any major impacts to the access of abutting properties. Access to the bulky goods site, St Marys Leagues Club and developments located off Boronia Road will be maintained.</i> <i>The proposed intersection upgrade at Forrester Road-Christie Street-Boronia Road may alter access arrangement for the petrol station site located south-west of this intersection. This site currently has a combined ingress/egress on Christie Street and separated ingress/egress driveways on Forrester Road. The property owner and Penrith City Council will be consulted accordingly throughout the design development process.</i> <i>Active transport (pedestrians and cyclists) infrastructure impact</i> <i>Existing pedestrian paths currently available on both sides of Forrester Road (between Links Road and Christie Street), Boronia Road and shared path on Ropes Crossing Boulevard will be maintained in the Project. Existing footpath on the southern side of Christie Street will also be maintained.</i> <i>Off-road bicycle facility, in the form of a shared path is proposed on the western side of Forrester Road to connect to the existing shared path on Ropes Crossing Boulevard.</i> <i>Cumulative Impacts</i> <i>In terms of operation cumulative impact; at the time of writing, the St Marys Intermodal project had concluded EIS exhibition, with responses to</i>

Risk category	Potential impacts and risks	Mitigation measures
		submissions being prepared. It is not an approved project. The St Marys Intermodal project proposes to construct and operate an Inland Container Terminal with a 300,000 Twenty-foot Equivalent Unit (TEU) annual throughput operating capacity and associated container handling operations from the eastern side. The site is located east of South Creek off Lee Holm Road and Christie Street. According to its Traffic and Transport Assessment, a maximum of 30 truck movements per hour is expected to be generated from the site. The report concluded that this would not significantly worsen capacity or road safety conditions across the network.
Geotechnical	Geotechnical matters	Earthworks - Fill / topsoil (inherently unsuitable material) should be stripped and stockpiled for reuse as landscaping (non-engineered) material where appropriate. Additional unsuitable material, potentially not identified during the geotechnical investigation, may include man made waste, perishable materials, other organics and any materials with a California Bearing Ratio (CBR) value less than 1% (CBR < 1). Such materials should be excavated, further stockpiled and /or disposed off-site in general accordance with NSW EPA Waste Classification Guidelines. - Excavation of the fill / topsoil, alluvial and residual soils across the site should be practicable using conventional earthmoving plant such as a 14-tonne (or greater) tracked excavator. At greater depths, where weathered rock is encountered and material strength increases, larger excavators fitted with rock teeth or ripping may be required. - Site won material reused as earth fill should be placed, compacted and tested in general accordance with the RMS Specification "R44" for road formations or other site-specific earthwork specification, where appropriate. Pavements - Foundation preparation or treatments for embankments and cuttings should be in accordance with RMS Specification R44. - Future slope batters and retaining wall systems should consider the soil/rock profile at specific locations, geotechnical parameters detailed in Table 5.1, local groundwater conditions and relevant Australian Standards and design loads. - Cut excavation should be inspected by a suitably qualified geotechnical engineer during construction to confirm design assumptions. Slope batter management should include diversion of surface

Risk category	Potential impacts and risks	Mitigation measures
		water run-off, as concentrated surface water flows on the slopes may cause localised softening, leading to erosion and instability of the slope face materials. Additionally, slope batters should be vegetated to protect from surface erosion. - Excavations or trenches over 1.2 m in depth may require shoring or benching and should be inspected by a suitably qualified geotechnical engineer during construction to confirm stability prior to work commencement. Excavated spoil and other surcharge loads should be kept away from the crest of excavations during construction and the base of excavations should be dewatered using sumps and pumps, if groundwater is encountered. - In addition to these recommendations, the contractor should comply with all NSW statutory requirements for excavation support. Retaining walls - Retaining structures may be founded on shallow foundations on natural subgrade of stiff consistency or better, subject to design loadings and foundation type assessment, which should be considered during subsequent design phases. For shallow foundations, maximum allowable bearing capacity for acceptable founding soils are presented in Table 5.6, which assumes a minimum embedment depth of 0.5m. Foundation settlement at serviceability loads should be assessed using the elastic modulus values, also given in Table 5.6. - bearing capacities are dependent on the foundation subgrade being inspected by a suitably qualified geotechnical engineer to verify that ground conditions are consistent with design assumptions, founding surfaces are clean from spoil and other soft and loose materials, and free from water to allow concrete placement. - Proof rolling of the subgrade should be conducted and if visible deformation is observed or unsuitable material be encountered at foundation level, the affected material/area should be over excavated and replaced with suitable material. Any engineered fill used as replacement material should be placed, compacted and tested under level 1 supervision in general accordance with AS3798: 2007 (Guidelines for earthworks for commercial and residential developments). Culvert Structures - culvert construction may require preparation of a stable working platform (i.e. bridging layer) of fill or a binding layer of mass concrete, which should be considered during subsequent design stages.

Risk category	Potential impacts and risks	Mitigation measures
		Excavations for culvert construction should be undertaken in general accordance with Section 5.4. Groundwater control should be expected to be required at all culvert locations during construction and adequate control measures should be implemented.
Hydrology	Flooding impacts	- Afflux and increased flood retention at the east: Consider proposing transverse drainage beneath the elevated road surface can be an option for creating the flood path without overtopping the road in the next design stage. Alternatively, upgrading road drainage at the intersection, especially encouraging the west-east flow can be considered. - St Marys Rugby League Club flood expansion: Consider incorporating the road drainage and the property drainage to understand the flood behaviour. Road drainage may form a flow path under the new road to relieve the retained flood at the east. - Upgraded culverts: It is recommended to run an overland flow flooding simulation separately from the mainstream model to assess the proposed open drain and extension of the existing culverts to the west of Forrester Road since the result from the mainstream flooding study showed that the area became dry in the Development case. - Forrester Road overtopping: It is recommended to consider proposing culverts underneath the sag location of the road to maintain flood path. Meanwhile, the road pavement is to be elevated to reduce the overtopping depth and improve the road accessibility in flood events. - To ensure that all flooding and overland matters are considered and addressed prior to construction works, the following is required to be undertaken prior to or part of the 85% Design. These elements must be undertaken and finalised to the satisfaction of Council prior to any works commencing: - Climate Change Flood Assessment - Flood modelling results for 0.2% AEP and PMF - Validation for 10%, 5%, 0.5% AEP (and PMF) - The full suite of results (levels, depth, velocity, hazard) for all design events is required to understand the full range of flood impact. - Afflux mapping and comparisons for all events are to be provided. - Further modelling results and data to address non-compliant afflux and local increases near No. 243 Forrester Road.

Table 22: Environmental mitigation measures

10 Justification and conclusion

This REF has been prepared by Keylan Consulting on behalf of Lendlease (St Marys Land Limited) to assess the potential environmental impacts that could arise from the proposed roadworks described in Section 4.

This REF 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. As discussed in detail in this report, the proposal will not result in any significant or long-term impact. The potential impacts identified can be reasonably mitigated and, where necessary, managed through the adoption of suitable site practices and adherence to accepted industry standards.

As outlined in this REF, the proposed activity can be justified as it:

- completes items 1, 2 and 7 outlined within Annexure 2A of the Planning Agreement between Council and Lendlease (St Marys Land Limited)
- significantly improves local road infrastructure through upgrade roads and poorly performing intersections
- is consistent with all relevant legislation, plans and policies
- has no significant environmental impacts
- proposes adequate mitigation measures to address impacts

The environmental impacts of the proposed works are not likely to be significant. On this basis, it is recommended that Council determine the amended proposed activity in accordance with Part 5 of the EP&A Act and subject to the adoption and implementation of mitigation measures identified within this report.