Review of Environmental Factors

Shared Path: Woodburn to Evans Head Road

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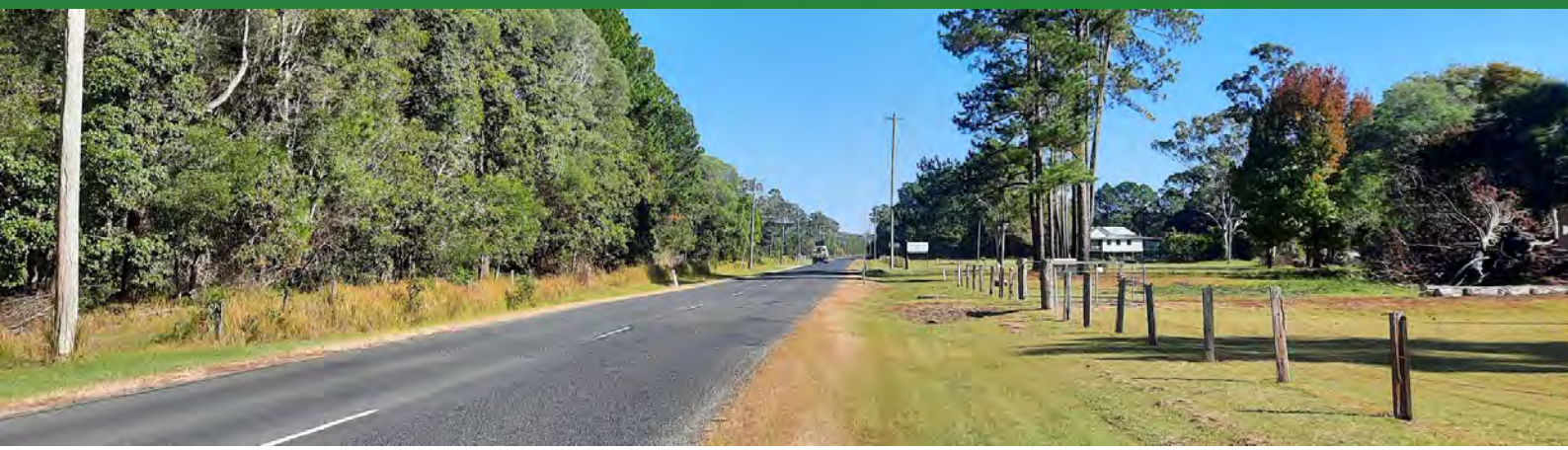

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Table of Contents

1. Introduction 1

1.1 Background and Activity Identification 1
1.2 Purpose of this Report 1
1.3 Activity Objectives 2

2. Description of the Activity 3

2.1 Site Location and Context 3
2.2 The Activity 5
2.3 Construction Activities 6

2.3.1 Plant and Equipment 6
2.3.2 Traffic Control 6
2.3.3 Working Hours and Construction Timeframe 6
2.3.4 Ancillary Facilities 6
2.3.5 Public Utility Adjustment 6
2.3.6 Property Acquisition 6

3. Statutory and Planning Framework 7

3.1 Environmental Planning and Assessment Act 1979 7
3.2 State Environmental Planning Policies 7

3.2.1 State Environmental Planning Policy (Transport and Infrastructure) 2021 7
3.2.2 State Environmental Planning Policy (Biodiversity & Conservation) 2021 7
3.2.3 State Environmental Planning Policy (Resilience and Hazards) 2021 8

3.3 Local Environmental Plans 11
3.4 NSW Legislation 12
3.5 Commonwealth Legislation (*Environment Protection and Biodiversity Conservation Act 1999*) 14
3.6 Native Title (Native Title Act 1993) 14
3.7 Confirmation of Statutory Position 14

4. Consultation 16

4.1 Community Consultation 16
4.2 State Environmental Planning Policy (Transport and Infrastructure) 2021 – Consultation 16
4.3 Aboriginal Community 16
4.4 Ongoing or Future Consultation 17

5. Environmental Assessment 18

5.1 Biodiversity 18

5.1.1 Existing Environment 18
5.1.2 Potential Impacts 31
5.1.3 Safeguards and Mitigation Measures 32

5.2 Traffic and Access 33

5.2.1 Existing Environment 33

5.2.2 Potential Impacts 33
5.2.3 Safeguards and Management Measures 33

5.3 Water Quality and Soils 34

5.3.1 Existing Environment 34
5.3.2 Potential Impacts 34
5.3.3 Safeguards and Management Measures 34

5.4 Non-Aboriginal Heritage 35

5.4.1 Existing Environment 35
5.4.2 Potential Impacts 35
5.4.3 Safeguards and Management Measures 36

5.5 Aboriginal Heritage 36

5.5.1 Existing Environment 36
5.5.2 Potential Impacts 36
5.5.3 Safeguards and Management Measures 36

5.6 Noise and Vibration 38

5.6.1 Existing Environment 38
5.6.2 Potential Impacts 38
5.6.3 Safeguards and Management Measures 39

5.7 Air Quality 39

5.7.1 Existing Environment 39
5.7.2 Potential Impacts 39
5.7.3 Safeguards and Management Measures 40

5.8 Visual Environment 40

5.8.1 Existing Environment 40
5.8.2 Potential Impacts 40
5.8.3 Safeguards and Management Measures 40

5.9 Socio-economic 41

5.9.1 Existing Environment 41
5.9.2 Potential Impacts 41
5.9.3 Safeguards and Management Measures 41

5.10 Waste 41

5.10.1 Potential Impacts 41
5.10.2 Safeguards and Management Measures 42

5.11 Cumulative Impacts 42
5.12 Climate Change 42

5.12.1 Existing Environment 42
5.12.2 Potential Impacts 43
5.12.3 Mitigation Measures 43

5.13 Ecologically Sustainable Development 43

5.13.1 Precautionary Principle 43
5.13.2 Inter-generational Equity 43

5.13.3 Conservation of Biological Diversity and Ecological Integrity 44
5.13.4 Improved Valuation, Pricing and Incentive Mechanisms 44

6. Environmental Management 45

6.1 Summary of Mitigation Measures 45
6.2 Licensing and Approvals 49

7. Summary of Consideration of Environmental Factors 50

7.1 Environmental Factors to be Considered 50
7.2 EPBC Act 1999 (Commonwealth Legislation) 52

8. Conclusion 54
9. Determining Authority Sign Off 55

Illustrations

Illustration 5.1 Vegetation and Biodiversity Constraints 22
Illustration 5.2 Aboriginal Sites 37

Tables

Table 3.1 RHSEPP Division 3 and Division 4 Assessment 9
Table 3.2 NSW Legislation 12
Table 5.1 Plant Community Types 20
Table 5.2 TECs Within the Site 30
Table 5.3 Threatened Fauna Assessed as Moderate Likelihood of Occurrence 31
Table 6.1 Summary of Mitigation Measures 45
Table 7.1 Environmental Factors for Consideration as per the Division 5.1 Guidelines 50
Table 7.2 EPBC Act Considerations 52

Plates

Plate 2.1 Woodburn-Evans Head Road at No. 245 3
Plate 2.2 Woodburn-Evans Head Road at Golf Link Road 3
Plate 2.3 Woodburn-Evans Head Road at Doonbah Sand Quarry 4
Plate 2.4 Eastern end of path alignment 4
Plate 5.1 View north-east of PCT 4046 that occurs at the site 20
Plate 5.2 View north of PCT 4004 that occurs at the site 20
Plate 5.3 View north of PCT 4045 that occurs at the site 21
Plate 5.4 View west of road side vegetation that occurs at the site 21
Plate 5.5 View of existing heritage mile marker 35

Figures

Figure 1.1 Site Locality 2
Figure 3.1 Land mapped as Coastal Use Area and Coastal Environment Area 8
Figure 6.1 Mapped Crown Land 49

Appendices

Appendix A Detailed Design Plans
Appendix B Contaminated Land and Cattle Dip Site Search
Appendix C AHIMS Search
Appendix D Biodiversity Database Searches
Appendix E Threatened Species Potential Occurrence Assessment
Appendix F Flora and Fauna Inventory
Appendix G Assessment of Significance

Executive Summary

Proponent and Determining Authority	Richmond Valley Council (RVC)
Background	Richmond Valley Council (RVC) propose to construct a shared pathway along Woodburn-Evans Head Road to connect with existing shared pathways within the RVC Local Government Area (LGA). The proposed path is in response to community consultation that identified a desire to further extend its shared pathway network. The path involves construction of a concrete shared pathway along Woodburn-Evans Head Rd between River Street in Woodburn and Riverside Village in Doonbah for use by pedestrians and cyclists running for a length of approximately 5.8 km with a nominal footpath width of 2.5 m.
Location	The location of the proposed Activity is along Woodburn-Evans Head Road. The shared path begins on the southern side of Alred Street traveling in the east direction for approx. 500 m, where it turns into Wagner Street and extending a further 500 m before it eventually turns into Woodburn-Evans Head Rd. The shared path continues along Woodburn-Evans Head Rd in the east direction, with four crossing points between the northern and southern sides of the road over the 5.8 km length, before finally terminating on the southern side at 570 Woodburn-Evans Head Road, Doonbah. The works occur within the Woodburn-Evans Head Road road reserve managed by RVC.
Site Features	The site comprises Woodburn-Evans Head Road, which travels through a predominantly rural residential context. The works are located adjacent to the disturbed road reserve. A portion of the site is adjacent to Key Fish Habitat mapped Oxleyan Pygmy Perch (OPP). This OPP habitat is situated within a drainage line on the southern side of Woodburn-Evans Head Road. The site is within the Broadwater National Park regional wildlife corridor and the Broadwater – Bungawalbin Climate Change Corridor, as mapped by NSW OEH. Vegetation within the site consists almost exclusively of regularly disturbed and heavily impacted common roadside grasses and exotic species, which are regularly mown. The areas immediately adjacent to the existing road corridor consists of a mosaic of vegetation communities common to the locality and well represented within the adjoining forested vegetation. Native vegetation within the site is described in **Section 5.1** and a full flora inventory of the site can be found in **Appendix F**. No threatened flora species occur at the site. While no threatened fauna species were observed at the site, threatened fauna species may have the potential to occur at the site, which are outlined in **Appendix E**.
Proposed Activity	The Activity comprises construction of a concrete shared path to accommodate both pedestrians and cyclists travelling between Woodburn and Evans Head (via Doonbah), including; ■ Preliminary works:

	- location of existing underground services (including water and sewer lines) – current dial before you dig (DBYD) plans to be kept on site; - installation of erosion and sediment controls; - pegging and set out of works; - installation of traffic controls; - mobilisation of plant and equipment to site; and - installation of any additional environmental controls. ■ Extension of stormwater drainage culverts. ■ Construction of new shared pathway, including minor excavation to box out the works. Note the path alignment will be constructed at the existing ground level to minimise the extent of the works footprint and to reduce the potential impact on services, drainage, and vegetation. ■ Auxiliary works including the installation of hold rails, signage, and pavement markings. ■ The clearing of 2.62 ha of vegetation (0.37 ha of native vegetation) within the extent of works area made up of: - 0.060 ha of PCT 4046. - 0.239 ha of PCT 4045. - 0.071 ha of PCT 4004 (this PCT is indicative of the TEC *Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*). - 2.251 ha of Miscellaneous Ecosystem (roadside vegetation – regarded as non-native vegetation). Concept design plans are provided at **Appendix A**.
Statutory and Planning Framework	All relevant statutory planning instruments have been examined in relation to the proposed shared pathway works. Development consent is not required for the proposal by virtue of section 2.109 of State Environmental Planning Policy (Transport and Infrastructure) 2021. However, the proposal becomes an 'Activity' for the purposes of Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and is subject to an environmental impact assessment (this REF).
Environment Assessment and Conclusion	A comprehensive environmental assessment of the proposed Activity has been undertaken. Some minor impacts would occur as a result of the Activity; however, no significant or long-term adverse impacts are expected. To help ensure that the extent of impacts is limited and that unavoidable impacts are managed and minimised, mitigation measures and safeguards have been recommended and would be implemented and monitored. The Activity is considered justified, taking into account the potential and residual environmental impacts, including the associated mitigation measures and safeguards. The Activity is in accordance with ecologically sustainable development (ESD) principles and consistent with the objectives of the EP&A Act. As the potential environmental impacts of the Activity are not likely to be significant, it is not necessary for an Environmental Impact Statement to be prepared under Division 5.1, Subdivision 3 of the EP&A Act or approval to be sought from the Minister for Planning and Homes under Division 5.2 of the EP&A Act. The Activity is unlikely to significantly affect threatened species or ecological communities or their habitats, within the meaning of the *Biodiversity Conservation Act 2016* or *Fisheries Management Act 1994* and therefore a Species Impact Statement (or BDAR if the Proponent elected) is not required. The Activity is also not expected to affect Commonwealth land or have a significant impact on any matters of national environmental significance. Accordingly, the proposed Activity does not require referral to the Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW).

1. Introduction

1.1 Background and Activity Identification

Richmond Valley Council (RVC) propose to construct two additional shared pathways; one along Woodburn-Evans Head Road and another along Broadwater-Evans Head Road to connect with existing shared pathways within the RVC Local Government Area (LGA). RVC has an extensive network of shared pathways for cyclists and pedestrians, and the proposed new paths are in response to community consultation that identified a desire to further extend its shared pathway network.

The proposed Woodburn-Evans Head path, the subject of this REF, involves the construction of a concrete shared pathway along Alfred Street, Wagner Street and Woodburn-Evans Head Road. This new pathway will commence at the intersection of Alfred Street and River Street in Woodburn, beginning on the southern alignment of Alfred Street which continues onto Wagner Street and then Woodburn-Evans Head Road. The path crosses over Woodburn-Evans Head Road at four locations over the length of the path (from south to north, north to south, south to north and north to south again), and will conclude at Riverside Village (570 Woodburn-Evans Head Road, Doonbah) where it joins an existing roadside shared pathway travelling south-east towards Evans Head. The pathway will be for use by pedestrians and cyclists. The overall length of the shared path is approximately 5.8 km with a nominal width of 2.5 m.

The location of the proposed path is shown in **Figure 1.1** and in the design drawings (refer to **Appendix A**). All construction and operational activities associated with the shared path works are referred to herein as 'the Activity'.

1.2 Purpose of this Report

This REF has been prepared by GeoLINK on behalf of RVC. For the purpose of these works, RVC is the proponent and the determining authority under Part 5, Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The description of the Activity and associated environmental impacts have been undertaken in the context of Section 171 of the Environmental Planning and Assessment (EP&A) Regulation 2021, having regard for the *Guidelines for Division 5.1 Assessments* (DPE 2022) approved under Section 170 of the EP&A Regulation, the *Biodiversity Conservation Act 2016* (BC Act), the *Fisheries Management Act 1994* (FM Act) and the Australian Government *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

In doing so, the REF helps to fulfil the requirements of Section 5.5 of the EP&A Act, which requires RVC to examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

The findings of the REF would be considered when assessing:

- Whether the proposed Activity is likely to have a significant impact on the environment and therefore the necessity for an environmental impact statement to be prepared under Division 5.1, Subdivision 3 of the EP&A Act or approval to be sought from the Minister for Planning under Division 5.2 of the EP&A Act.
- The significance of any impact on threatened species as defined by the *Biodiversity Conservation Act 2016* (BC Act) and/ or the *Fisheries Management Act 1994* (FM Act), in relation to Section 1.7 of the EP&A Act and therefore the requirement for a Species Impact Statement, or if the Proponent so elects - a Biodiversity Development Assessment Report (BDAR).

- The potential for the Activity to significantly impact a matter of national environmental significance or Commonwealth land and the need to make a referral to the Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW) for a decision by the Commonwealth Minister on whether assessment and approval is required under the EPBC Act.

1.3 Activity Objectives

The objective of the Activity is to construct a concrete shared path for use by pedestrians and cyclists from Woodburn to Doonbah, connecting to an existing network of shared paths which extends into Evans Head and the broader Richmond Valley Council area. The Activity will allow for a continuous pedestrian and cyclist connectivity from Woodburn to Evans Head. This has social, health and environmental benefits, as it will increase active and sustainable transport within the community and will encourage physical activity.

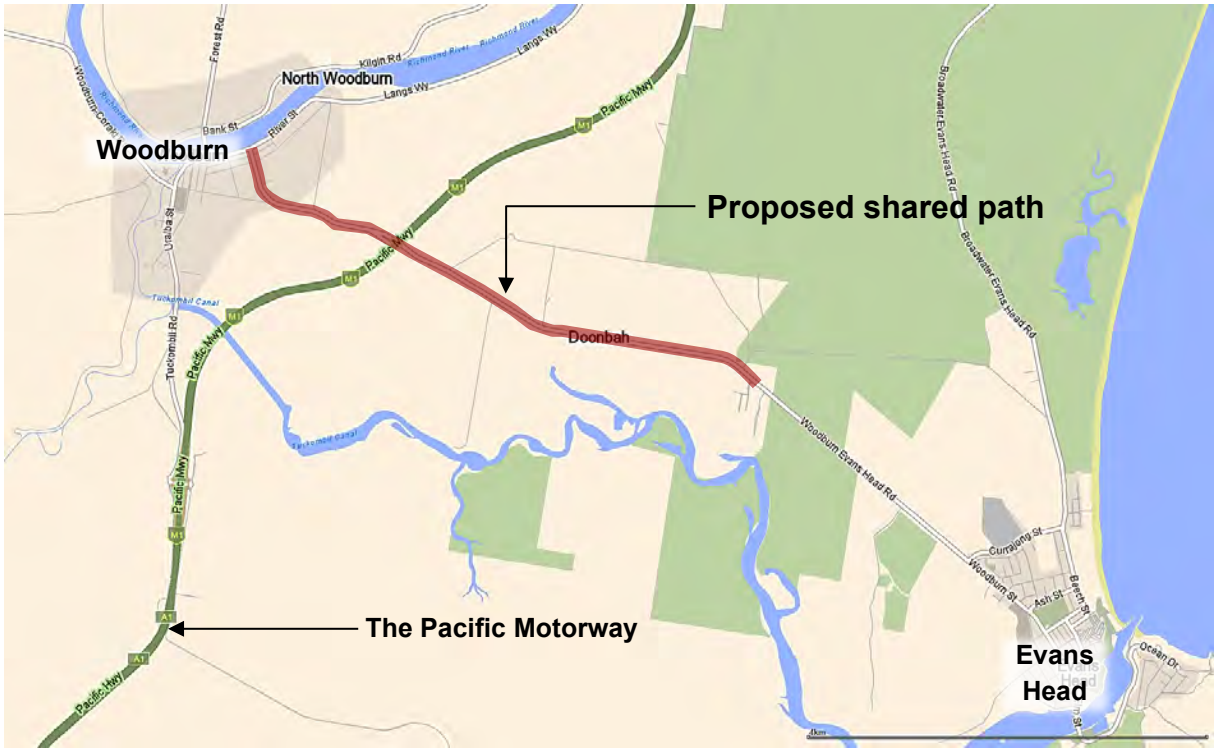


Figure 1.1 Site Locality
[Source: Whereis.com]

2. Description of the Activity

2.1 Site Location and Context

The location of the proposed Activity is along Alfred Street, Wagner Street and Woodburn-Evans Head Road between the intersection with River Street, Woodburn and Riverside Village, 570 Woodburn-Evans Head Road, Doonbah (refer to **Figure 1.1**). Design drawings are provided in **Appendix A** and site photographs are provided at **Plate 2.1** to **Plate 2.4**.

The works occur within the Woodburn-Evans Head Road road reserve managed by RVC.

Plate 2.1 Woodburn-Evans Head Road at No. 245

View looking west from the northern alignment of Woodburn-Evans Head Road at the intersection with the turn off to 245 Woodburn-Evan Head Rd (approx. 500 m east of Pacific Highway).

Plate 2.2 Woodburn-Evans Head Road at Golf Link Road

View looking west along Woodburn-Evans Head Rd from the northern alignment showing intersection with Golf Link Road to the left.

Plate 2.3 Woodburn-Evans Head Road at Doonbah Sand Quarry

View looking east from the northern alignment of Woodburn-Evans Head Road showing road access to Doonbah Sand Quarry to the left.

Plate 2.4 Eastern end of path alignment

View looking east on the southern alignment of Woodburn-Evans Head Road showing existing shared path travelling east towards Evans Head.

The proposed concrete shared path will commence from the existing concrete path on the southern side of Woodburn-Evans Head Road (known as Alfred Street), close to the intersection with River Street (formerly the Pacific Highway). The path will extend southeasterly on the southern side of the road, crossing Redwood Lane, Richmond Street and Wagner Street. Alfred Street becomes Wagner Street at this point (approximately Chainage 500) and continues for a further 500 m before becoming Woodburn-Evans Head Road at around Chainage 1,000.

The shared path continues on the southern side of the road, crossing a number of driveways and culverts before arriving at the existing bridge over the Pacific Highway (M1) at approximately Chainage 1,900. Here, the bike path ends on either side of the bridge, but ties into the existing concrete path over the bridge, and recommences on the southern side of the road for a further 360 m.

At approximately Chainage 2,300, the path ends on the southern side of the road and crosses and continues on the northern side, to avoid impacting existing vegetation and stormwater drainage infrastructure.

The path continues eastward on the northern side of Woodburn-Evans Head Road, crossing a number of driveways including the entrance road to the Doonbah Quarry, for a further 1.5 km, at which point the path crosses back to the southern side of the road at approximately chainage 3,810. It then continues for approximately 1.3 km on the southern side before crossing again to the northern side at approximate chainage 5,143. It then continues 550 m along the northern side to approximate chainage 5694 where it finally crosses back to the southern side of Woodburn-Evans Head Road.

It then continues for a little over 100 m to the end of the proposed works at the driveway entrance to the Riverside Lifestyle Community Village in Doonbah. An existing roadside shared path extends from the eastern side of the driveway travelling eastwards towards Evans Head.

The proposed path typically follows the alignment of the existing road, with some deviations to avoid power poles and other utility services, stormwater drainage infrastructure and vegetation. Towards the western end of the works, the path deviates more significantly on both approaches to the Wagner Street crossing to ensure the crossing point is just beyond the tangent points of the kerb return i.e. to avoid crossing the side street at the widest point.

2.2 The Activity

The Activity comprises construction of a concrete shared path to accommodate both pedestrians and cyclists travelling from Woodburn to Doonbah, to join with an existing shared path continuing into Evans Head. The overall length of the shared path is approximately 5.8 km, and the width is to be 2.5 m. Detailed design plans of the proposed shared path construction are provided at **Appendix A**.

All works will be within the RVC-controlled road reserve.

The proposed works are generally described as follows:

- Preliminary works:
    - location of existing underground services (including water and sewer lines) – current dial before you dig (DBYD) plans to be kept on site;
    - installation of erosion and sediment controls;
    - pegging and set out of works;
    - installation of traffic controls;
    - mobilisation of plant and equipment to site; and
    - installation of any additional environmental controls.
- Extension of stormwater drainage culverts.
- Construction of new shared pathway, including minor excavation to box out the works. Note the path alignment will be constructed at the existing ground level to minimise the extent of the works footprint and to reduce the potential impact on services, drainage, and vegetation.
- Auxiliary works including the installation of hold rails, signage, and pavement markings.
- The clearing of 2.62 ha of vegetation (0.37 ha of native vegetation) within the extent of works area made up of:
    - 0.060 ha of PCT 4046.
    - 0.239 ha of PCT 4045.
    - 0.071 ha of PCT 4004 (this PCT is indicative of the TEC *Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*).
    - 2.251 ha of Miscellaneous Ecosystem (roadside vegetation – regarded as non-native vegetation).

At this stage, the Activity requires no works on private property. A Section 143 notice under the Protection of the Environment Operations Act 1997 (POEO) would be required for any stockpiling on private land.

2.3 Construction Activities

2.3.1 Plant and Equipment

The main plant and equipment required for the works may include (but not limited to):

- Backhoe or small excavator.
- Roller/ compactor.
- Concrete trucks.
- Light vehicles/ trucks.
- Generators.
- Hand tools (angle grinder, electric saw, driller/ driver etc).
- Chainsaw
- Mulcher

2.3.2 Traffic Control

The works will be undertaken adjacent to live traffic therefore traffic controls are required. A Traffic Control Plan (TCP) is required to be implemented for the works in accordance with the requirements of the relevant edition of Transport for NSW Traffic Control at Worksites Manual and AS1742. Licensed traffic controllers will assist with traffic control during the project.

2.3.3 Working Hours and Construction Timeframe

Construction activities would be undertaken in accordance with standard construction work hours:

- Monday to Friday: 7:00 am to 6:00 pm.
- Saturday 8:00 am to 1:00 pm.
- No work on Sundays or public holidays.

Construction is estimated to commence in 2024 and is expected to take about 2-3 months, weather permitting.

2.3.4 Ancillary Facilities

Given the nature and limited scope of the Activity, ancillary facilities are not expected to be substantial, and would fall within the overall scope and environmental considerations undertaken as part of this assessment. The impact assessment and recommended mitigation measures in this REF would also be applicable to any ancillary facilities. Once determined, if the ancillary facilities were to affect a substantially different locality or notably departed from the scope of this assessment, a review of this component may be necessary.

2.3.5 Public Utility Adjustment

The Activity does not require any public utility adjustment.

2.3.6 Property Acquisition

Property acquisition would not be required as part of the Activity.

3. Statutory and Planning Framework

3.1 Environmental Planning and Assessment Act 1979

The Activity does not require development consent, however it requires environmental assessment and approval pursuant to Division 5.1 and Section 5.5 of the EP&A Act whereby determining authorities, when assessing activities under Part 5, Division 5.1, must examine and take into account, to the fullest extent possible, all matters affecting or likely to affect the environment by reason of that activity. To ensure the Activity adequately addresses the requirements of Section 5.5, an assessment of the Activity's consistency with relevant EPIs including State Environmental Planning Policies (SEPPs) and Local Environmental Plans (LEPs) has been completed.

3.2 State Environmental Planning Policies

3.2.1 State Environmental Planning Policy (Transport and Infrastructure) 2021

State Environmental Planning Policy (Transport and Infrastructure) 2021 aims to facilitate the effective delivery of infrastructure across the State and allows certain development by or on behalf of public authorities to be undertaken without consent.

Section 2.109 of the SEPP (Transport and Infrastructure) permits development on any land for the purpose of a road or road infrastructure facilities to be carried out by or on behalf of a public authority without consent. As the Activity is appropriately characterised as development for the purposes of a road or road infrastructure facilities and is to be carried out by or on behalf RVC (a public authority), it can be assessed under Division 5.1 of the EP&A Act. Development consent from council is not required.

The Activity is not located on land reserved under the *National Parks and Wildlife Act 1974* and does not affect land mapped as Coastal Wetland or Littoral Rainforest under the State Environmental Planning Policy (Resilience and Hazards) 2021. The Activity is not development identified as State or regional development under Chapter 2 of State Environmental Planning Policy (Planning Systems) 2021.

Part 2 of the SEPP (Transport and Infrastructure) contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development. Consultation as required by SEPP (Transport and Infrastructure) is discussed in **Section 4.2** of this REF.

3.2.2 State Environmental Planning Policy (Biodiversity & Conservation) 2021

State Environmental Planning Policy (Biodiversity and Conservation) 2021 came into force on 1 March 2022 and incorporated the repealed provisions of SEPP (Koala Habitat Protection) 2020, SEPP (Koala Habitat Protection) 2021, and the Vegetation in non-rural areas SEPP, amongst others.

Chapter 3 of State Environmental Planning Policy (Biodiversity & Conservation) 2021 applies to land zoned RU1 in 83 Local Government Areas (LGA) in NSW, including the Richmond Valley LGA.

The principles of the Koala Habitat Protection SEPP are to:

- Help reverse the decline of Koala populations by ensuring Koala habitat is properly considered during the development assessment process.
- Provide a process for councils to strategically manage Koala habitat through the development of Koala plans of management.

Chapter 3 of SEPP (Biodiversity & Conservation) 2021 only applies to Part 4 development applications under the EP&A Act. As the Activity is an Activity under Part 5 of the EP&A Act, the Policy does not technically apply. It is Council's responsibility however, to consider environmental issues relating to their works to the fullest extent possible, including impacts on Koalas. An assessment of the impacts of the Activity on biodiversity (including Koalas) is provided in **Section 5.1**.

3.2.3 State Environmental Planning Policy (Resilience and Hazards) 2021

The SEPP (Resilience and Hazards) 2021 provides an integrated and coordinated approach to coastal land use planning. It defines the four coastal management areas through detailed mapping and specifies assessment criteria that are tailored for each coastal management area. Councils and other consent authorities must apply these criteria when assessing Activities for development that fall within one or more of the mapped areas.

No Littoral Rainforest or Coastal Wetland is mapped in proximity to the activity area. However, part of the activity area at the commencement of the path on the southern side of Richmond River is mapped in the Coastal Environment Area and Coastal Use Area as shown in **Figure 3.1**.

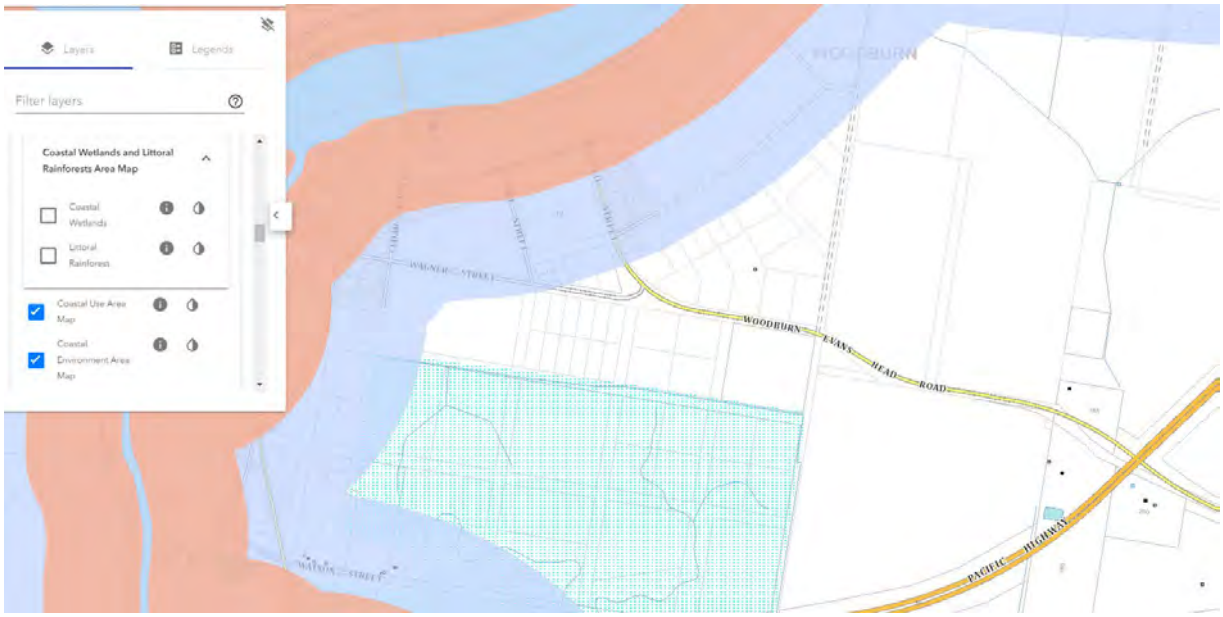


Figure 3.1 Land mapped as Coastal Use Area and Coastal Environment Area

Chapter 2 Division 3 and Division 4 set out matters for consideration prior to the granting of development consent on land within those mapped areas. As the Activity does not require development consent, Divisions 3 and 4 do not technically apply, however, the assessment of the Activity against those Divisions has been carried out to determine whether the Activity is consistent with the SEPP (refer to **Table 3.1**).

Table 3.1 RHSEPP Division 3 and Division 4 Assessment

Clause	*Comment*
Division 3 Coastal environment area	
Section 2.10 (1) Development consent must not be granted to development on land that is within the coastal environment area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following:	
(a) the integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment,	Approximately 500 m of the proposed path activity area falls within the Coastal Environment mapped area. Impacts from the Activity on surface and groundwater would be minor, and will be managed through the implementation of erosion and sediment controls throughout the construction period. Controls will remain in place until all soils that were disturbed are re-established.
(b) coastal environmental values and natural coastal processes,	The scope of works for the proposed path is minor and the Activity would not change/ affect coastal environmental values nor natural coastal processes.
(c) the water quality of the marine estate (within the meaning of the *Marine Estate Management Act 2014*), in particular, the cumulative impacts of the proposed development on any of the sensitive coastal lakes identified in Schedule 1,	Potential minor impacts to water quality would be managed through the implementation of safeguards and mitigation measures provided in **Section 5** of this report. The Activity would not impact on the Marine Estate and is not near any Sensitive Coastal Lakes identified in Schedule 1.
(d) marine vegetation, native vegetation and fauna and their habitats, undeveloped headland, and rock platforms,	The Activity would not significantly impact any marine or coastal vegetation. The Activity will not impact any fauna or its habitat. The Activity is not within an undeveloped headland or rock platform.
(e) existing public open space and safe access to and along the foreshore, beach, headland, or rock platform for members of the public, including persons with a disability,	The Activity area is located along the Woodburn-Evans Head Road alignment running south of the Richmond River. The works are not associated with existing public open space, foreshore, beach, headland, or rock platform areas.
(f) Aboriginal cultural heritage, practices, and places,	An assessment of the Activity on Aboriginal and non-Aboriginal heritage is in **Section 5.4** and **5.5** of this REF. No adverse impacts are expected.
(g) the use of the surf zone.	The Activity would not impact on the surf zone.
Section 2.10 (2) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that:	

Clause	Comment
(a) the development is designed, sited, and will be managed to avoid an adverse impact referred to in subclause (1), or (b) if that impact cannot be reasonably avoided – the development is designed, sited, and will be managed to minimise that impact, or (c) if that impact cannot be minimised – the development will be managed to mitigate that impact.	Only a small part of the proposed path falls within the Coastal Use mapped area. The Activity is contained within the road reserve, has been designed, and would be managed to avoid an adverse impact referred to in subclause (1).
Division 4 Coastal Use Area	
Section 2.11 Development on land within the coastal use area (1) Development consent must not be granted to development on land what is within the coastal use area unless the consent authority: (a) has considered whether the proposed development is likely to cause an adverse impact on the following: (i) existing, safe access to and along the foreshore, beach, headland, or rock platform for members of the public, including persons with a disability, (ii) overshadowing, wind funnelling and the loss of views from public places to foreshores, (iii) the visual amenity and scenic qualities of the coast including coastal headlands, (iv) Aboriginal cultural heritage, practices, and places, (v) Cultural and built environment heritage, and	Approximately 250 m of the proposed path Activity area falls within the Coastal Use mapped area, south of the Richmond River. The scope of works and expected impacts are minor. The Activity will not result in any of the adverse impacts described in Section 2.11(1)(a).
(b) is satisfied that: (i) the development is designed, sited, and will be managed to avoid an adverse impact referred to in paragraph (a), or (ii) if that impact cannot be reasonably avoided – the development is designed, sited, and will be managed to minimise that impact, or (iii) if that impact cannot be minimised – the development will be managed to mitigate that impact, and	Through this REF, a thorough environmental assessment of the Activity has been carried out. The Activity is considered to be suitable/ acceptable. Where a potential adverse impact is identified, measures are proposed to avoid, minimise, and mitigate that impact (refer to **Section 5**).
(c) has taken into account the surrounding coastal and built environment, and the bulk, scale and size of the proposed development.	The proposed path is contained within the road reserve and is not anticipated to have significant impact on the surrounding environment as the scope of works is relatively minor. The visual impact of the Activity is discussed in **Section 5.8** of this report.

On 1 March 2022, the provisions of State Environmental Planning Policy No. 55 – Remediation of Land were repealed and incorporated into SEPP (Resilience and Hazards) 2021. Chapter 4 of the Resilience and Hazards SEPP deals with Remediation of Land.

A search of the NSW Environmental Protection Authority (EPA) contaminated land database and cattle dip site locator was undertaken for the RVC area. No contaminated land records were found in proximity to the site however a cattle dip site was located within the Woodburn locality. Refer to **Appendix B** for contamination search results and exact location of dip site in relation to activity area.

The site is not declared to be 'significantly contaminated land' under part 3 of the *Contaminated Land Management Act 1997* and is not subject to a 'management order' within the meaning of the *Contaminated Land Management Act 1997.* The land is not the subject of an approved voluntary management Activity or an 'ongoing maintenance order'.

There is no proposed change of use and the site is unlikely to be contaminated from past activities. There is no known contamination to note, and the Activity is unlikely to disturb contaminated land.

Overall, the site is considered suitable for the Activity.

3.3 Local Environmental Plans

The Activity is located within the Richmond Valley Council LGA. Planning controls within this LGA are set out in the Richmond Valley Council Local Environment Plan (RVCLEP) 2012. The proposed shared pathway traverses through RU1 Primary Production Zone, RU5 Village and SP2 Classified Road.

The objectives of RU1 Zone are:

- *To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.*
- *To encourage diversity in primary industry enterprises and systems appropriate for the area.*
- *To minimise the fragmentation and alienation of resource lands.*
- *To minimise conflict between land uses within this zone and land uses within adjoining zones.*
- *To ensure that development does not unreasonably increase the demand for public services or public facilities.*

The objectives of RU5 Village are:

- *To provide for a range of land uses, services and facilities that are associated with a rural village.*
- *To minimise conflict between land uses within the zone and land uses within adjoining zones.*

The objectives of SP2 Classified Road Zone are:

- *To provide for infrastructure and related uses.*
- *To prevent development that is not compatible with or that may detract from the provision of infrastructure.*

The Activity will provide a new shared path along Woodburn-Evans Head Road to connect to the existing shared path network within the broader council area. The proposed Activity is not directly consistent with the above zone objectives; however, the works are confined to the existing road reserve, and are precluded from requiring consent as it is permitted without consent pursuant to Sections 2.109 of the SEPP (Transport and Infrastructure) 2021.

3.4 NSW Legislation

Table 3.2 below lists other NSW legislation relevant to the assessment of the Activity and comments on their implications for the Activity.

Table 3.2 NSW Legislation

Legislation	Section(s)	Comment
Environmental Planning and Assessment Act 1979 (as amended)	Section 1.7	Section 1.7 of the EP&A Act relates to the application of Part 7 of the *Biodiversity Conservation Act 2016* (BC Act) and Part 7A of the *Fisheries Management Act 1994* (FM Act). Biodiversity has been assessed in **Section 5.1**. The Activity is unlikely to have a significant impact on biodiversity or threatened species or communities.
	Section 5.5	The determining authority in its consideration of an activity shall examine and consider, to the fullest extent possible, all matters affecting or likely to affect the environment by reason of that activity. This REF assessment provides Council with the information required in regard to the environment to assess the Activity.
Environmental Planning and Assessment Regulation 2021	Section 171	Environmental factors, as per the *Guidelines for Division 5.1 Assessments* issued under Section 170 (1), have been considered in **Section 7.1**. It is not expected that the Activity would result in a significant impact.
Fisheries Management Act 1994	Section 199	Local government authorities require a permit when carrying out dredging and reclamation work on water land. The proposed Activity is not on water land nor does it involve any dredging or reclamation. Therefore, a permit under Section 199 of the *Fisheries Management Act* is not required.
	Sections 219-220	A permit is required to block the movement of fish. While the proposed shared path traverses one small area mapped as key fish habitat, the proposed activity does not involve creating a barrier to fish movement. Therefore, Council does not need a permit under the *Fisheries Management Act*.
	Section 205	The Activity is not within a marine environment and no marine vegetation would be affected.
Protection of the Environment Operations Act 1997		No Protection of the Environment Policies (PEPs) are relevant to the Activity. No licenses would be required pursuant to the *Protection of the Environment Operations Act 1997*. Council and/ or contractors working on behalf of Council are required to notify EPA when a 'pollution incident' occurs that is likely to impact upon the environment.
	Section 115	It is an offence to negligently dispose of waste in a manner that harms the environment. Waste would be managed in accordance with the *Waste Avoidance and Resource Recovery Act 2001.* The Activity would aim to reduce the environmental impact of dumping waste and include mechanisms to recover resources and reduce the production of waste where possible.

Legislation	Section(s)	Comment
	Section 120	It is an offence to pollute any waters of the State. This REF includes safeguard and mitigation measures to minimise the risk of the Activity resulting in pollution of waters.
	Section 143	Any stockpiling of material within private property requires a section 143 notice under the POEO Act. It is not proposed to stockpile material on private property.
National Parks and Wildlife Act 1974	Sections 87(1), 90	The *National Parks and Wildlife Act 1974* (NPW Act) provides the basis for the legal protection and management of Aboriginal sites within NSW. An AHIMS search of the area identified a number of Aboriginal sites in the surrounding Woodburn area, with two being located in close proximity to the works area near the intersection with the Pacific Highway (refer to **Appendix C**). Given the works are located adjacent to the disturbed road reserve the provisions of the Act are unlikely to be triggered by the Activity. Works would cease if any potential artefact or place of significance is encountered during the Activity; and RVC and Jali Local Aboriginal Land Council (LALC) would be notified immediately. Any unexpected heritage finds would be managed in accordance with Council's Unexpected Heritage Find Procedure.
Biodiversity Conservation Act 2016	Schedules 1, 2 and 3	Threatened species and ecological communities have been assessed in accordance with the BC Act. No significant impact is expected. Refer to **Section 5.1**.
Biosecurity Act 2015		In NSW, the administration of noxious weed control is the responsibility of the Minister for Primary Industries under the *Biosecurity Act 2015*. The Act is implemented and enforced by the Local Control Authority for the area, usually local government, or NSW Agencies. Biosecurity risk weeds would be managed in accordance with the Act. The Department of Primary Industries (DPI) biosecurity risk weed declarations for the North Coast, including the Richmond Valley Council LGA, lists numerous weed species. Two declared weed species listed in the *Biosecurity Act 2015* occur within the work footprint of the Activity being Lantana and Fireweed. Lantana and Fireweed will be managed in accordance with the *General Biosecurity Duties* to prevent, eliminate or minimise any biosecurity risk they may pose as well as specific duties under the Act for these species in the region that includes 'Prohibition of dealings' and "Must not be imported into the State or sold".
Heritage Act 1977		Searches of the State Heritage Register, State Heritage Inventory and RVC LEP 2012 heritage listings were undertaken. The searches did not locate any heritage items within or proximate to the site. No adverse impacts to heritage are expected. Refer to **Section 5.4**.
Crown Land Management Act 2016		The proposed path crosses an area mapped as Crown Land at the western end of the proposed path. Council should consult with Crown lands to determine if a licence is required, and if so, obtain this prior to works.

Legislation	Section(s)	Comment
Roads Act 1993	Section 138	Section 138 of the *Roads Act 1993* requires approval from the relevant roads authority for the erection of a structure, or the carrying out of work in, on or over a public road, or the digging up or disturbance of the surface of a road. As Council is both the proponent and determining authority there is no requirement for approval from the relevant road's authority under the Roads Act 1993.
Water Management Act 2000	Section 91 (2) & 91 (E). Section 41 of the Water Management (General) Regulation 2018.	Works within water lands or those comprising of extraction or management of water may be subject to approval if they constitute a 'controlled activity'. However, public authorities are exempt from a controlled activity approval. Extraction of water is not proposed. If it were, an access licence may be required under s56.

3.5 Commonwealth Legislation (*Environment Protection and Biodiversity Conservation Act 1999*)

Under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), any action that has, or is likely to have, a significant impact on matters of national environmental significance or other aspects of the environment, such as on commonwealth land, may progress only with approval of the Commonwealth Minister for the Department of Climate Change, Energy, the Environment and Water (DCCEEW) under Part 9 of the EPBC Act. There are no matters of national environmental significance or Commonwealth land that would be significantly affected by the proposed Activity and therefore no Commonwealth referral or approval is necessary for the Activity (refer to **Section 7.2**).

3.6 Native Title (Native Title Act 1993)

The *Native Title Act 1993* recognises and protects Native Title. The Act covers actions affecting native title and the processes for determining whether native title exists and compensation for actions affecting native title. It establishes the Native Title Registrar, the National Native Title Tribunal, the Register of Native Title Claims and the Register of Indigenous Land Use Agreements.

A search of the Native Title Register (19/10/2023) was undertaken with one Native Title holder/ claimant identified in close proximity to the Activity area. A part of the determination area of Bandjalang People #2 (Tribunal File No NCD2013/002) is located on the southern side of Woodburn-Evans Head Road between the intersections with Wagner Street and Norman Street. However, the activity area falls wholly within the road reserve where the Native Title does not apply. Council would abide by any relevant native title requirements as necessary under the *Native Title Act 1993*.

3.7 Confirmation of Statutory Position

An assessment of the relevant statutory provisions and planning instruments has concluded that the proposed Activity can be carried out as development without consent under Section 2.109 of the State Environmental Planning Policy (Transport and Infrastructure) 2021 and can be assessed and determined under Part 5, Division 5.1 of the EP&A Act.

A comprehensive environmental assessment of all matters affecting or likely to affect the environment by reason of that Activity has been undertaken pursuant to Section 5.5 of the EP&A Act, including the

factors outlined in the Division 5.1 Guidelines approved under Section 170, and as required by Section 171(1), of the EP&A Regulation 2021 (refer **Section 7.1**).

The Activity described will not affect declared areas of outstanding biodiversity value or Wilderness Areas. This REF has determined that the Activity is unlikely to significantly affect threatened species or ecological communities or their habitats, within the meaning of the *Biodiversity Conservation Act 2016* or *Fisheries Management Act 1994* and therefore a Species Impact Statement (or Biodiversity Development Assessment Report (BDAR) if the Proponent elected) is not required. The Activity is also unlikely to affect Commonwealth land or have a significant impact on any matters of national environmental significance in relation to the EPBC Act and therefore does not require referral to or approval of the Australian Government.

Given the impacts of the Activity are not likely to be significant, an Environmental Impact Statement (EIS) is not required under Section 5.7 of the EP&A Act, nor is approval required from the Minister for Planning under Division 5.2 of the EP&A Act.

4. Consultation

4.1 Community Consultation

The proposed shared path is in response to community consultation that identified a desire to further extend its shared pathway network. No further community consultation has been undertaken to date. Notice of proposed works and road changes would be given to adjoining/ affected properties and road users, including emergency services and bus operators (as applicable), prior to works commencing. Roadworks and changed access conditions would be detailed on Council's website, via road signage, and on social media.

The shared path will be constructed adjacent to existing road infrastructure, as well as being near to and traversing a number of private properties. Given the nature of the Activity, subject to this REF and the localised potential impacts, targeted consultation with affected land holders has/ would occur. On-going consultation with affected private land holders and standard notification/ management measures during the works would continue. Local road users would also be advised of the proposed works in sections where traffic would be affected.

4.2 State Environmental Planning Policy (Transport and Infrastructure) 2021 – Consultation

SEPP (Transport and Infrastructure) aims to facilitate the effective delivery of infrastructure across the State. Part 2 of the SEPP (Transport and Infrastructure) contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development.

Consultation with Councils is generally required in accordance with Sections 2.10 – 2.12 and 2.14 of SEPP (Transport and Infrastructure) as applicable to Activities. As RVC is the Proponent and determining authority, Council is aware of the Activity. Any relevant consultation would have and would continue to occur internally throughout the process.

Section 2.13 contains provisions requiring consultation with the State Emergency Service (SES) for development with impacts on flood liable land, including development without consent under Division 17 (roads and traffic). As the land is not mapped as flood liable land under the Probable Maximum Flood RVC 2012, notice is not required.

No consultation with other public authorities is triggered under Section 2.15 of the TISEPP.

While sections of the proposed path will be on land mapped as bushfire prone land, *Section 2.16 Consideration of Planning for Bush Fire Protection* of the SEPP (Transport and Infrastructure) is not applicable to the Activity as the development is not for the purpose of a health service facility, correctional centre or residential accommodation.

No consultation is required with other agencies or public authorities under Part 2 Division 1 of SEPP (Transport and Infrastructure).

4.3 Aboriginal Community

The proposed Activity is to take place within an area which has been disturbed and modified. No significant risk or impact to Aboriginal heritage is expected. Consultation with the Aboriginal community is not required under point 5 of the document *Due Diligence Code of practice for the protection of Aboriginal Objects 2010* (refer to **Section 5.5** for further details).

4.4 Ongoing or Future Consultation

All works will be within the RVC-controlled road reserve, and at this stage the Activity requires no works on private property. If this were to change, RVC would notify any affected landholders and would ensure written agreements with any affected landowners are provided prior to accessing the sites and undertaking the activity.

5. Environmental Assessment

5.1 Biodiversity

5.1.1 Existing Environment

5.1.1.1 Desktop Review

BC Act BioNet Atlas Search

A search of the NSW Office of Environment and Heritage (OEH) BioNet Atlas database was undertaken on 22 May 2023 to identify threatened species recorded within a 10 km x 10 km search area from the centre of the site. Results indicate17 flora species, 60 threatened fauna species, and 12 threatened ecological communities have been recorded within the search area (refer to **Appendix D**). Relevant species are included in the potential occurrence assessments in **Appendix E**.

EPBC Protected Matters Report

The Protected Matters Search Tool (PMST) was accessed on 24 May 2023. The PMST search identified 31 flora species, 63 fauna species, threatened species and four threatened ecological communities listed under the EPBC Act as likely to occur or may occur within 10 km of the site, or have habitat that is likely to occur within the search area (refer to **Appendix D** and **Appendix E**).

60 migratory species listed under the EPBC Act were identified within the search area by the PMST. The site does not comprise important habitat for these species as defined in the *Matters of National Environmental Significance, Significant impact guidelines 1.1, EPBC Act 1999* (Australian Government – Department of the Environment, 2013). EPBC Act listed migratory species are thus not considered a constraint for the Activity.

Areas of Outstanding Biodiversity Value

No Areas of Outstanding Biodiversity Value have been declared in the Richmond Valley LGA.

Wildlife Corridors

The site is within the Broadwater National Park regional wildlife corridor (focal species Northern Long-eared Bat, Black Flying-fox, and Yellow-bellied Glider), and the Broadwater – Bungawalbin Climate Change Corridor (focal species Koala and Emu), as mapped by NSW OEH.

Key Fish Habitat

NSW Department of Primary Industries (DPI) Fisheries Spatial Data Portal was reviewed, and a portion of the site is adjacent mapped Oxleyan Pygmy Perch (OPP) habitat in the locality. This OPP habitat is situated within a drainage line on the southern side of Woodburn-Evans Head Road (refer to **Illustration 5.1**).

5.1.1.2 Flora

Vegetation within the site consists almost exclusively of regularly disturbed and heavily impacted common roadside grasses and exotic species, which are regularly mown. The areas immediately adjacent to the existing road corridor consists of a mosaic of vegetation communities common to the locality and well represented within the adjoining forested vegetation.

Native vegetation within the site is described in **Table 5.1** and aligned with plant community types (PCTs) in the BioNet Vegetation Classification system. Vegetation mapping can be found in **Illustration 5.1**. A full flora inventory of the site can be found in **Appendix F**.

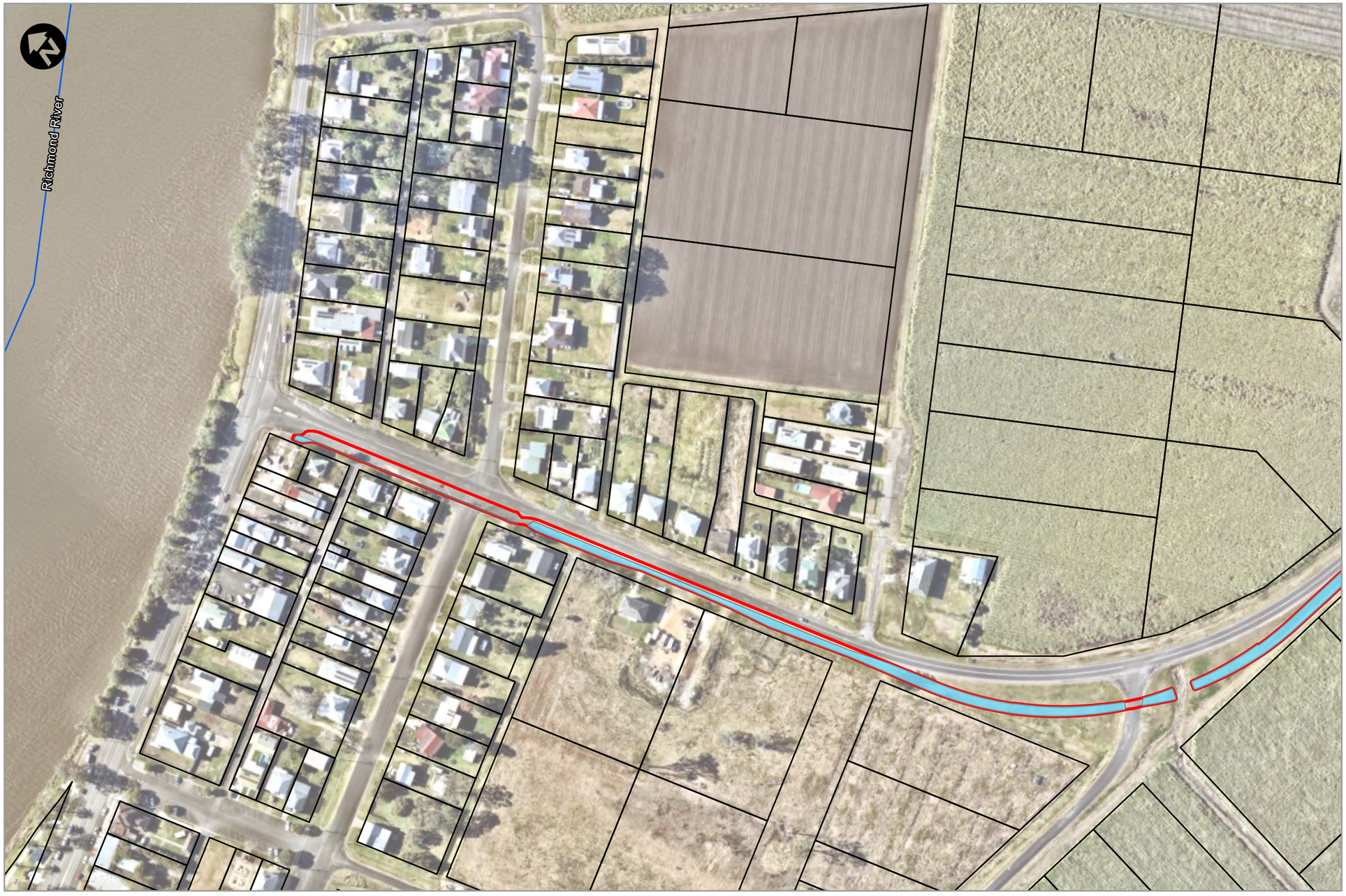
.

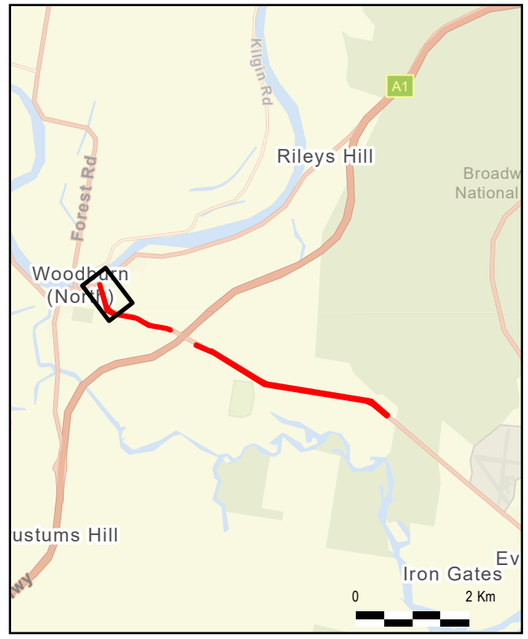
Table 5.1 Plant Community Types

Plant Community Type	Comments	Photo
Vegetation edge of road reserves		
PCT 4046: Northern Lowland Swamp Turpentine-Red Gum Forest Canopy is dominated by Blackwood (*Acacia melanoxylon*) with occasional Broad-leaved Paperbark (*Melaleuca quinquenervia*) and Swamp Oak (*Casuarina glauca*) with scattered Swamp Box (*Lophostemon suaveolens*). Midstorey features occasional Cheese Tree (*Glochidion ferdinandi*), Lantana (*Lantana camara**) and Coffee Bush (*Breynia oblongifolia*). Ground cover was dominated by Broad-leaved Paspalum (*Paspalum mandiocanum**), South African Pigeon Grass (*Setaria sphacelata**) with scattered patches of Blady Grass (*Imperata cylindrica*).	Poor Condition Features extensive weed incursions from exotic grasses and is generally made up of regrowth tree species along the road reserved (better quality PCT exists offsite).	 **Plate 5.1 View north-east of PCT 4046 that occurs at the site**
PCT 4004: Northern Melaleuca quinquenervia Swamp Forest Canopy is dominated by Broad-leaved Paperbark (*M. quinquenervia*) with occasional Swamp Oak (*C. glauca*). Midstorey features Monkey Rope Vine (*Parsonsia straminea*). Ground cover consisted of Broad-leaved Paspalum (*P. mandiocanum**), South African Pigeon Grass (S. *sphacelata**) close to the road with Tall Saw Sedge (*Gahnia clarkei*) emerging within areas of greater canopy cover.	Poor Condition Features extensive weed incursions from exotic grasses and is generally made up of regrowth tree species along the road reserved (better quality PCT exists offsite).	 **Plate 5.2 View north of PCT 4004 that occurs at the site**

Plant Community Type	Comments	Photo
PCT 4045: Northern Lowland Swamp Turpentine-Paperbark Forest Canopy is dominated by Broad-leaved Paperbark (*M. quinquenervia*) with occasional Swamp Mahogany (*Eucalyptus robusta*) and scattered Forest Red Gum (*Eucalyptus tereticornis*) and Turpentine (*Syncarpia glomulifera*) also occur. Midstorey features Cheese tree (*G. ferdinandi*). Ground cover consists of Wiry Panic (*Entolasia stricta*), Blady Grass (*I. cylindrica*) and Broad-leaved Paspalum (*P. mandiocanum**).	Poor Condition Features extensive weed incursions from exotic grasses and is generally made up of regrowth tree species along the road reserved (better quality PCT exists offsite).	 **Plate 5.3 View north of PCT 4045 that occurs at the site**
Vegetation within works extent/ road reverse		
Miscellaneous ecosystem (does not align with a PCT) This area is dominated by exotic ground cover and planted shrubs. It is dominated by Bahia Grass (*Paspalum notatum**), Kikuyu (*Cenchrus clandestinus**), Common Couch (*Cynodon dactylon*), Broad-leaved Paspalum (*P. mandiocanum**), and South African Pigeon Grass (S. *sphacelata**). Planted shrubs/ hedgerows include Weeping Lilly Pilly (*Waterhousea floribunda*), Sweet Virburnum (*Viburnum odoratissimum**), Lilly Pilly (*Acmena smithii*) and Brushy Cherry (*Syzygium australe*).	Poor condition. Nearly exclusively exotic ground cover species within the area. Both sides of Woodburn-Evans Head Road within the site are regularly mown.	 **Plate 5.4 View west of road side vegetation that occurs at the site**

* Denotes exotic species





Map index

LEGEND

Extent of works
Cadastre

Plant Community Type

Northern Lowland Swamp Turpentine-Paperbark Forest
Northern Lowland Swamp Turpentine-Red Gum Forest
Northern Melaleuca quinquenervia Swamp Forest
Miscellaneous ecosystem (roadside vegetation)

TEC

Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions

Watercourse

0 50 Metres

Vegetation and Biodiversity Constraints
Illustration 5.1- Sheet 1 of 8

Information shown is for illustrative purposes only
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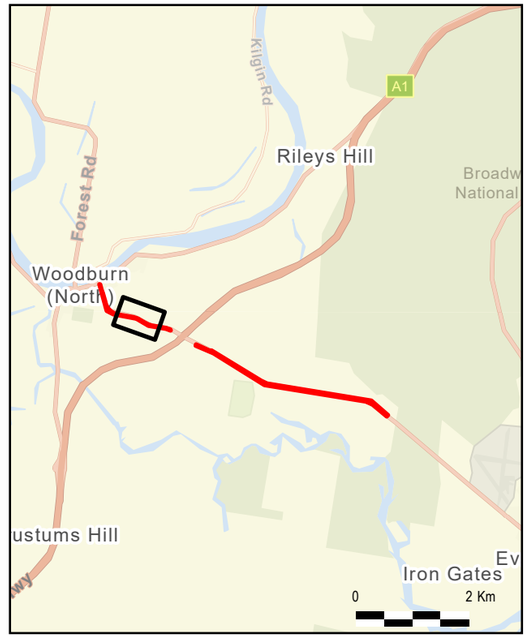
Source of base data: Nearmap 07/07/2023
Date: 21/11/2023



Map index

LEGEND

- Extent of works
- Cadastre

Plant Community Type

- Northern Lowland Swamp Turpentine-Paperbark Forest
- Northern Lowland Swamp Turpentine-Red Gum Forest
- Northern Melaleuca quinquenervia Swamp Forest
- Miscellaneous ecosystem (roadside vegetation)

TEC

- Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions

- Watercourse

0 50 Metres

Vegetation and Biodiversity Constraints
Illustration 5.1- Sheet 2 of 8

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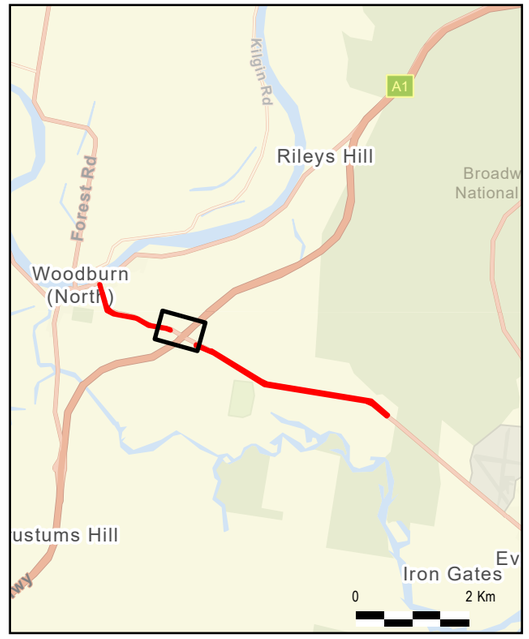

Map index

LEGEND

Extent of works
Cadastre

Plant Community Type

Northern Lowland Swamp Turpentine-Paperbark Forest
Northern Lowland Swamp Turpentine-Red Gum Forest
Northern Melaleuca quinquenervia Swamp Forest
Miscellaneous ecosystem (roadside vegetation)

TEC

Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions

Watercourse

0 50 Metres

Vegetation and Biodiversity Constraints
Illustration 5.1- Sheet 3 of 8

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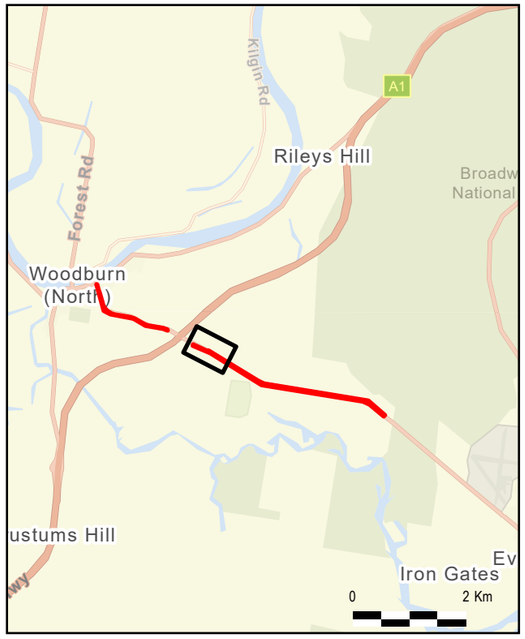

Map index

LEGEND

Extent of works
Cadastre

Plant Community Type

Northern Lowland Swamp Turpentine-Paperbark Forest
Northern Lowland Swamp Turpentine-Red Gum Forest
Northern Melaleuca quinquenervia Swamp Forest
Miscellaneous ecosystem (roadside vegetation)

TEC

Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions

Tree Inventory

Acacia
Broad-leaved paperbark
Brush Box
Cheese Tree
Pine Tree
Swamp Box
Swamp Oak

Watercourse

0 50 Metres

Vegetation and Biodiversity Constraints
Illustration 5.1- Sheet 4 of 8

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Date: 21/11/2023

Map index

LEGEND

Extent of works
Cadastre

Plant Community Type

Northern Lowland Swamp Turpentine-Paperbark Forest
Northern Lowland Swamp Turpentine-Red Gum Forest
Northern Melaleuca quinquenervia Swamp Forest
Miscellaneous ecosystem (roadside vegetation)

TEC

Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions

Tree Inventory

Callistemon sp.
Paperbark
Tuckeroo
Wallum Banksia

0 50 Metres

Vegetation and Biodiversity Constraints
Illustration 5.1- Sheet 5 of 8

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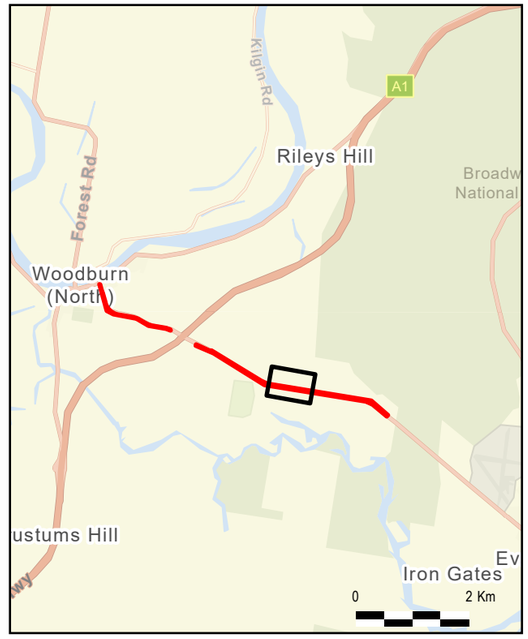

Map index

LEGEND

- Extent of works
- Cadastre

Plant Community Type

- Northern Lowland Swamp Turpentine-Paperbark Forest
- Northern Lowland Swamp Turpentine-Red Gum Forest
- Northern Melaleuca quinquenervia Swamp Forest
- Miscellaneous ecosystem (roadside vegetation)

TEC

- Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions

- Watercourse

0 50 Metres

Vegetation and Biodiversity Constraints
Illustration 5.1- Sheet 6 of 8

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Map index

LEGEND

Extent of works
Cadastre

Plant Community Type

Northern Lowland Swamp Turpentine-Paperbark Forest
Northern Lowland Swamp Turpentine-Red Gum Forest
Northern Melaleuca quinquenervia Swamp Forest
Miscellaneous ecosystem (roadside vegetation)

TEC

Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions

0 50 Metres

Vegetation and Biodiversity Constraints
Illustration 5.1- Sheet 7 of 8

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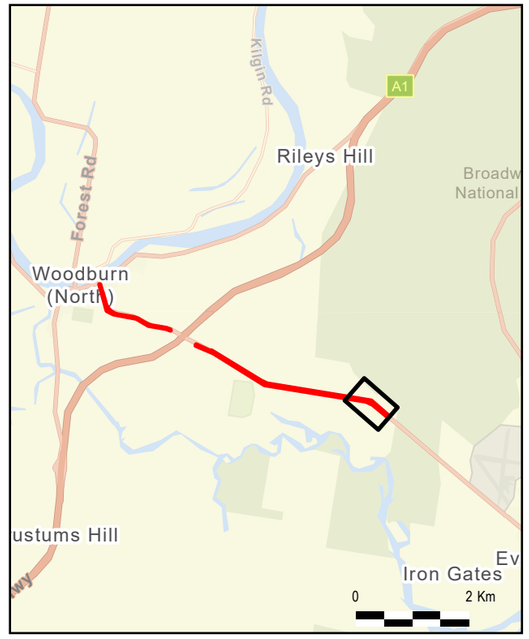

Map index

LEGEND

Extent of works
Cadastre

Plant Community Type
- Northern Lowland Swamp Turpentine-Paperbark Forest
- Northern Lowland Swamp Turpentine-Red Gum Forest
- Northern Melaleuca quinquenervia Swamp Forest
- Miscellaneous ecosystem (roadside vegetation)

TEC
- Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions

Tree Inventory
- Acacia
- Acronychia Imperforata
- Broad-leaved paperbark
- Callitris Pine
- Red Ash
- Swamp Mahogany
- Tuckeroo

Potential OPP Habitat
Watercourse

0 50 Metres

Vegetation and Biodiversity Constraints
Illustration 5.1- Sheet 8 of 8

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Source of base data: Nearmap 07/07/2023
Date: 21/11/2023

5.1.1.3 Threatened Flora

No threatened flora species were recorded within the site.

5.1.1.4 Threatened Ecological Communities

One BC Act listed Threatened Ecological Community (TEC) occurs at the site and are described in **Table 5.2** and mapped in **Illustration 5.1**.

Table 5.2 TECs Within the Site

TEC Name	Associated PCT	Comments
Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	*PCT 4004: Northern Melaleuca quinquenervia Swamp Forest*	■ Is within the coastal floodplain of NSW North Coast. ■ Sandy Loam soils occur at the site. ■ The site has been subject to waterlogging and historic flooding. ■ PCT floristics align with this TEC.

Five-part tests of significance were prepared in accordance with Section 7.3 of the BC Act were prepared for this TEC (refer **Appendix G**).

5.1.1.5 Priority Weeds

Lantana (*Lantana camara**) and Fireweed (*Senecio madagascariensis**) are the only *Biosecurity Act 2015* listed species at the site. In addition to *General Biosecurity Duties* to prevent, eliminate or minimise any biosecurity risk they may pose; specific duties under the Act for these species in the region are: 'Prohibition on certain dealings' and "*Must not be imported into the state, sold, bartered, exchanged or offered for sale".*

*Denotes exotic species.

5.1.1.6 Threatened Fauna

No threatened fauna species listed under the BC Act and/ or EPBC Act were recorded at the site.

A SAT survey undertaken during the site inspection detected no Koala scats.

No hollow-bearing trees occur at the site.

Based on the desktop analysis and habitat present, five-part tests of significance were prepared in accordance with Section 7.3 of the BC Act for those species assessed as having a moderate likelihood of occurrence within the site (refer to **Table 5.3**, **Appendix E** and **Appendix G**).

An Assessment of Significance (Seven-Part Test) has been completed for the endangered Oxleyan Pygmy Perch (*Nannoperca oxleyana)* in accordance with the *Fisheries Management Act 1994* (FM Act) (refer to **Appendix G**).

For threatened species listed under the EPBC Act, significance assessments have been completed in accordance with the EPBC Act Policy Statement 1.1 Significant Impact Guidelines (Department of Environment, 2013) (refer to **Appendix G**).

Several other threatened fauna species may use parts of the site for foraging, or on an opportunistic or seasonal basis. However, these species would complete much of their life cycle off-site and be sufficiently mobile to avoid any short-term construction impacts.

Table 5.3 Threatened Fauna Assessed as Moderate Likelihood of Occurrence

Scientific Name	Common Name	BC Act	EPBC Act	Likelihood of Occurrence
Amphibians				
Crinia tinnula	Wallum Froglet	V	-	**Moderate –** Potential foraging habitat occurs at the site. Local BioNet records.
Litoria olongburensis	Olongburra Frog	V	V	
Blossom Nomads				
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	**Moderate –** Potential foraging habitat occurs at the site. Local BioNet records.
Syconycteris australis	Common Blossom-bat	V	-	
Birds				
Calyptorhynchus lathami	Glossy Black-Cockatoo	V	V	**Moderate –** Potential foraging habitat across the site. Local BioNet records.
Pezoporus wallicus wallicus	Eastern Ground Parrot	V	-	
Pomatostomus temporalis temporalis	Grey-crowned Babbler	V	-	
Fish				
Nannoperca oxleyana	Oxleyan Pygmy Perch	E (FM Act)	E	**Moderate –** Potential mapped habitat occurs at the site.
Mammals				
Phascolarctos cinereus	Koala	E	E	**Known –** Previously recorded at the site. Foraging habitat occurs at the site (feed trees). Numerous BioNet records.

V = Vulnerable; E = Endangered

5.1.2 Potential Impacts

The impacts from the Activity include:

- The clearing of 2.62 ha of vegetation (0.37 ha of native vegetation) within the extent of works area made up of:
  - 0.060 ha of PCT 4046.
  - 0.239 ha of PCT 4045.
  - 0.071 ha of PCT 4004 (this PCT is the TEC *Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*).
  - 2.251 ha of Miscellaneous Ecosystem (roadside vegetation – regarded as non-native vegetation).
- Direct mortality or injury to fauna during vegetation clearing.
- Potential disturbance and removal of other fauna features, such as fallen timber and leaf litter.

- Potential habitat degradation of adjacent habitats due to erosion, sediment and/ or chemical spills. In particular to the OPP habitat (refer to **Illustration 5.1**).
- Potential impacts to acid frog species due to the introduction of chytrid fungus.
- Minor short-term disturbance to fauna during all parts of the construction phase (noise, vibration, and dust).

5.1.3 Safeguards and Mitigation Measures

The following safeguards and mitigation measures will be implemented in order to prevent adverse ecological impacts:

1. A suitably qualified ecologist will be in attendance during the works to inspect any trees prior to clearing for any fauna.
2. If a Koala or threatened fauna is found to be occupying a tree at the site, a flagged exclusion zone will be established (minimum 50 m) in which works will not proceed until the individual has moved from the site.
3. All proposed works within or affecting drainage lines would be undertaken during periods of low flow with regular consultation of weather forecasts and flood warnings to occur.
4. No plant or equipment will enter or be placed into wetland areas, or on embankments adjacent to aquatic or wetland habitats.
5. Erosion and sediment control measures must be implemented (in accordance with *Managing Urban Stormwater; Soils and Construction Guidelines* [the Blue Book]) and maintained to prevent sediment moving off-site and sediment laden water entering any water course during the construction process.
6. Fuels and oils would be stored more than 40 m away from waterways or wetland habitats.
7. Refuelling of plant and maintenance of machinery would be undertaken at least 40 m away from waterways or wetland habitats.
8. A spill containment kit, including equipment to address both terrestrial and aquatic spills, will be kept on-site at all times during the proposed works. Staff will also be trained in the effective deployment of the spill containment kit.
9. Vegetation clearing would be minimised to the immediate Activity footprint only.
10. Ground disturbance outside of that required to undertake the proposed works will be minimised.
11. Damage to trees outside of those that require clearing will be avoided at all times.
12. Stockpiling will not occur under the crown of existing native trees (i.e. the crown comprises the full width of the branches).
13. Stockpiling will not occur near drainage lines or on overland flow paths, and where necessary will be bunded or covered to reduce sediment runoff.
14. Trees will be felled in a way that minimises disturbance to adjacent retained native vegetation.
15. Works will be completed sensitively to ensure minimal disturbance occurs.
16. All vegetation removed will be chipped and removed from the site; no vegetation waste will be burnt.
17. Any materials to be removed from the site will be taken to a licensed waste facility for disposal or recycling.
18. Ensure all plant, equipment and personnel will be free of soil and potential weed propagules prior to being brought to the site.
19. Ensure all plant, equipment and personnel working near acid frog habitat areas follow amphibian hygiene guidelines as out lined the ‘Hygiene guidelines Protocols to protect priority biodiversity areas in NSW from *Phytophthora cinnamomi*, myrtle rust, amphibian chytrid fungus and invasive plants’ (DPIE, 2020).

20. Should injured fauna be found on the site, local wildlife care groups and/ or local veterinarians will be contacted immediately, and arrangements made for the immediate welfare of the animal. The phone number of the local WIRES group (Ph: 02 6628 1898) would be known to the project foremen.
21. Environmental safeguards will be communicated to all construction personnel as part of an Environmental Site Induction, and repeated where appropriate at toolbox sessions prior to commencement of relevant work components.

5.2 Traffic and Access

5.2.1 Existing Environment

The works area will generally occur along the alignment of Woodburn-Evans Head Road. The path commences at the intersection with River Street in Woodburn and travels east towards Doonbah and Evans Head. It intersects with a number of other roads, including; Richmond St, Grafton St, Wagner St, Norman St and Gold Links Rd, and travels over the Pacific Highway. There are various routes available to access the activity area.

5.2.2 Potential Impacts

The shared path is to be constructed adjacent to the existing road (Alfred Street, Wagner Street and Woodburn-Evans Head Road), behind the back of kerb (where applicable) or edge of bitumen. Works impacting the road are limited, including the proposed refuge island at the eastern end of the alignment. As such, no significant impacts to traffic are envisioned. Where the route intersects private property access (i.e. driveway crossings), unencumbered access would be maintained (unless otherwise agreed in advance with the landowner) throughout the works.

The works would not require excessive vehicle movements and use of heavy vehicles is likely to be minimal. Construction activities would occur primarily during the day within standard working hours. All works would be undertaken under an approved Traffic Control Plan (TCP). Traffic would be generated by the Activity during construction through:

- Construction employees entering and leaving the site.
- Truck deliveries to the site for construction purposes.
- Equipment and plant being delivered to the site for construction purposes.
- Periodic deliveries to the site for construction materials.

The existing volume and frequency of traffic to and from the site and on the nearby road network would render any additional traffic movements associated with the construction of the Activity as low. Additional traffic movements would be generated during a temporary construction period. The impact of additional traffic movements associated with the proposed construction activities would represent a small and temporary increase compared to existing traffic movements. Post construction, traffic movements would be consistent with existing levels. Given the location of the works, current accessibility and the temporary nature of the construction period, no significant traffic impacts would result.

5.2.3 Safeguards and Management Measures

The following mitigation measures will be implemented in order to prevent adverse impacts relating to traffic and access:

22. Unencumbered access will be maintained to private properties along the route (unless otherwise agreed in advance with the landowner) throughout the works.
23. In the unlikely event of a requirement to alter existing access to a site or close a road, sufficient and appropriate notification will be provided to the affected traffic users.
24. Regard to public safety will be maintained at all times.

5.3 Water Quality and Soils

5.3.1 Existing Environment

Whilst the local topography along the route is flat to gently undulating there are points along the path that intersect with watercourses (existing drains) located adjacent to the works area. The proposed works therefore present a (manageable) risk to these watercourses from erosion and sedimentation.

The Activity area is mapped as Class 3 Acid Sulfate Soil (ASS) under Richmond Valley LEP 2012.

Online contamination searches were undertaken for the site in September 2023 including the EPA Contaminated Land and DPI Dip Site registers. The searches identified a registered cattle dip site (Evans Head Road), located on the southern alignment of Woodburn-Evans Head Road in close proximity to the proposed works footprint (refer to **Appendix B**).

5.3.2 Potential Impacts

The Activity will require minor excavation of soil that is classified as Class 3 ASS. In accordance with Richmond Valley LEP 2012, consent is required for any works which will result in the disturbance of Class 3 ASS soil more than 1 m below the natural ground surface. As soil disturbance will not be greater than 1 m, and the works will not be lowering the watertable 1 m below the natural ground surface, development consent is not required. It's unlikely the activity will present risk to ASS , therefore, preparation of an Acid Sulfate Soils Management Plan in accordance with the Acid Sulfate Soils Manual is not necessary.

The proposed works present a (manageable) risk to nearby watercourses from erosion and sedimentation as a result of ground disturbance.

There is no apparent risk associated with contaminated land. While the Evans Head Road Cattle dip sites is located in relatively close proximity to the works area, as the shared path is being constructed in extremely modified road reserve, there is no anticipated impacts from the old cattle dip site. Construction will be managed to minimise any influence of the old site, and any material excavated as part of the construction should probably remain on site as fill. Safeguards will be in place should unexpected contamination be encountered during the works.

5.3.3 Safeguards and Management Measures

The following mitigation measures will be implemented in order to prevent adverse impacts relating to soil, erosion and sedimentation:

25. Works will be carefully managed in accordance with an Acid Sulfate Soils Management Plan, to manage risks and treatment associated with exposure of actual and/ or potential acid sulfate material, especially in proximity to waterways.
26. A Construction Environmental Management Plan (CEMP) would be prepared to guide the implementation of environmental impact mitigation measures, identify key roles and responsibilities for environmental monitoring and methods of reporting incidents.

27. Erosion and sediment controls would be implemented in accordance with the Landcom/ Department of Housing Managing Urban Stormwater, Soils and Construction Guidelines (the Blue Book).
28. Works would only commence once all erosion and sediment controls have been established. The controls would be maintained in place until the works are complete and all exposed erodible materials are stabilised.
29. All sediment control measures would be checked and repaired or re-installed (if required) if heavy rainfall was forecast.
30. Progressive, site-specific erosion and sediment control plan will be developed and approved prior to commencement of the works.
31. If unexpected contaminated land is encountered during the works, works will stop immediately and relevant procedures outlined in a CEMP will be followed. The EPA will be notified immediately in response to incidents causing or threatening actual or potential harm to the environment in accordance with section 148 of the POEO Act (via EPA Environment Line on 131 555).
32. Only clean equipment and vehicles will be used, with equipment being cleaned down before being brought to the site.

5.4 Non-Aboriginal Heritage

5.4.1 Existing Environment

Searches of the State Heritage Register and State Heritage Inventory – s170 Register and Richmond Valley LEP 2012 were undertaken as part of the assessment. No items were listed is proximity to the Activity area. The design drawings note there is an existing heritage mile marker on the northern side of Woodburn-Evans Head Road at approximate chainage 3181. **Plate 5.5** below shows the mile marker adjacent to the entry for 315 Woodburn-Evans Head Road.

Plate 5.5 View of existing heritage mile marker

5.4.2 Potential Impacts

The Activity is considered to present low risk to Non-Aboriginal heritage; the Activity would not represent a risk to any known heritage sites. The proposal includes relocation of the existing heritage mile marker away from the drainage structure.

5.4.3 Safeguards and Management Measures

The following mitigation measures will be implemented in order to prevent adverse impacts to any items of non-Aboriginal heritage:

33. If any suspected archaeological items are uncovered during the Activity, all works will cease in the vicinity of the material/ find. Contact with NSW OEH Heritage Branch will be made immediately.

5.5 Aboriginal Heritage

5.5.1 Existing Environment

Searches of the Aboriginal Heritage Information Management System (AHIMS) were undertaken on 12 October 2023 (refer to **Appendix C**). An initial 'basic search' covering the area of proposed works for the shared paths indicated a number of Aboriginal sites are known in or near the search area. Two of these sites are located close to the intersection of Woodburn-Evans Head Road and the Pacific Highway; 'Woodburn Stone Axe Unexpected Find 01' and 'Woodburn Stone Axe Unexpected Find 01 Reburial Site'. An 'extensive search' was subsequently undertaken which indicated that no known Aboriginal sites or places of cultural significance have been registered within the proposed works footprint. The aforementioned sites are located south-west of the proposed path as shown in **Illustration 5.2**.

5.5.2 Potential Impacts

The Activity is considered to present low risk to Aboriginal heritage, given that the works are located within the disturbed road reserve and while a known Aboriginal site is located in close proximity to the works area, there are unlikely to be objects of Aboriginal cultural heritage found within the works footprint.

5.5.3 Safeguards and Management Measures

The following mitigation measures will be implemented in order to prevent adverse impacts to any items of Aboriginal heritage:

34. If Aboriginal cultural material is identified on-site, a Stop Work Procedure will be followed, which includes:
    - Works will cease immediately.
    - A temporary exclusion zone established.
    - Land Aboriginal Land Council contacted immediately.
    - OEH contacted immediately.

35. Should skeletal material be exposed during ground disturbance, work will cease immediately, and contact made with NSW Police, National Parks and Wildlife and the Local Aboriginal Land Council as per OEH requirements.
36. Notifying OEH – it is a legislative requirement that cultural heritage materials uncovered as a result of the Activity are registered as Aboriginal sites with OEH on the AHIMS database within the required timeframe.

LEGEND

- Extent of works
- Woodburn Stone Axe Unexpected Find 01
- Woodburn Stone Axe Unexpected Find 01 Reburial Site

0 600 Metres

Aboriginal Sites - Illustration 5.2

GeoLINK environment | engineering | planning | design

Review of Environmental Factors – Shared Path: Woodburn-Evans Head Road
4484-1005

Information shown is for illustrative purposes only
Drawn by: AB Checked by: ECF Reviewed by: MVE
Source of base data: ESRI World Imagery
Date: 22/11/2023

5.6 Noise and Vibration

5.6.1 Existing Environment

Only a short (350 m) section of the proposed alignment passes directly in front of urban residential dwellings where the works will be within 25 m of the dwellings. This occurs at the western end of the works in Woodburn. The remainder of the route passes through rural properties where there are far fewer dwellings located close to the road reserve.

The existing background noise is typical for a rural area and includes local vehicle traffic noise and agricultural noises associated with farm machinery and livestock. There are a number of sensitive receivers located along the length of Woodburn-Evans Head Road that are within 100 m of the works footprint.

5.6.2 Potential Impacts

Noise from the Activity would be typical of that associated with construction work and would be generated by machinery and equipment, vehicles and tree removal/ trimming. This would result in noise and possible vibration emissions within the immediate area and has potential to affect nearby residences, particularly those located within approximately 200 m of the proposed route. However, because the Activity is linear, residents would tend to only experience construction noise over short periods as work progresses along the route. The works would be temporary and are not considered to be of a significant scale or constitute major construction work.

Construction traffic would use the existing local road network, with traffic numbers likely to be small enough to be absorbed into general traffic numbers without an audible change in noise level.

Under the EPA's Interim Construction Noise Guidelines:

- the noise management level for works during the recommended standard hours is background + 10 dB(A). Above this noise level, the proponent needs to implement all feasible and reasonable work practices, as defined in the Guideline, to minimise noise impacts;
- for works outside the recommended standard hours, the noise management level is background + 5 dB(A); and
- the highly noise-affected level of LAeq 75 dB(A) represents the point above which there may be strong community reaction to noise and indicates a need to consider other feasible and reasonable ways to reduce noise, such as restricting the times of very noisy works to provide respite to affected residences.

The NSW EPA website suggests that a review of predicted noise levels for some recent major construction projects indicated that a level of 75 dB(A) would not likely be triggered on many projects. Given the scale, location and methodology of the proposed works, it is unlikely that the Activity would result in a highly noise-affected level of LAeq 75 dB(A) at any local sensitive receiver locations.

Overall, no significant short-term or long-term adverse noise and vibration impacts are expected to result from the Activity and reasonable safeguard and management measures can be implemented to ensure no adverse impacts.

5.6.3 Safeguards and Management Measures

The following mitigation measures will be implemented in order to address adverse impacts relating to noise and vibration:

37. Construction activities will be undertaken in accordance with EPA recommended standard construction hours:
    - Monday to Friday 7.00 am to 6.00 pm.
    - Saturday 8.00 am to 1.00 pm.
    - No work on Sundays or public holidays.
38. Best practice mitigation and management measures would be used to minimise construction noise impacts at sensitive residential receivers; guided by the EPA's Interim Construction Noise Guidelines as required.
39. All employees, contractors and subcontractors are to receive an environmental induction. This will include, but not be limited to, all relevant project specific and standard noise and vibration measures; permissible hours of work; location of nearest sensitive receiver(s); any limitation on high noise generating activities; construction parking; loading and unloading areas; and compound site practices.
40. Prior to commencement of works in the vicinity of the potentially impacted sensitive receivers (i.e. residences within 200 m of the route), the landholder(s) will be notified and consulted regarding the upcoming works.
41. Any noise complaints will be recorded and include suitable identification/ description of the noise source (e.g. continual/ impulsive) and general location of the complaint. Any noise complaints will be investigated and actioned as required.
42. The CEMP will include controls relevant to management of noise and vibration specific to the proposed works.
43. All machinery, vehicles, and equipment not in use will be turned off and not left to unnecessarily run idle.
44. All plant will be fitted with appropriate exhaust systems to ensure compliance with pollution and noise emission standards.

5.7 Air Quality

5.7.1 Existing Environment

The Activity is located in a predominantly rural context. Potential airborne particles within the locality are largely restricted to agricultural activities, vehicle emissions and minor dust generated by vehicle movements in the broader landscape.

5.7.2 Potential Impacts

The Activity may temporarily affect air quality through exhaust emissions from machinery and associated transportation. There may also be minor dust generated during earthworks and the removal of trees. There is potential that emissions and dust generated from the works may result in air quality impacts to adjacent sensitive receivers. However, given the temporary duration of the works and nature of the Activity, the level of potential impact is not considered significant and can be managed or minimised through implementation of safeguards and management measures.

The Activity would contribute to greenhouse gas emissions to a minor extent via the emissions from construction equipment and traffic, as well as the consumption of materials requiring carbon emissions

and the removal of vegetation that may otherwise act as a carbon sink. Given the scale of the works however, the influence on greenhouse gas emissions would be negligible. However, it is appropriate to implement measures that can reduce or minimise such effects.

5.7.3 Safeguards and Management Measures

The following mitigation measures will be implemented in order to prevent adverse impacts relating to air quality:

45. Vegetation or other materials will not to be burnt on-site.
46. Vehicles transporting waste or other materials that may produce odours or dust will be covered during transportation.
47. Construction works will not be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates are likely.
48. Vehicles, machinery and equipment will be maintained in accordance with manufacturer's specifications in order to meet the requirements of the *Protection of the Environment Operations Act 1997* and associated regulation.

5.8 Visual Environment

5.8.1 Existing Environment

The existing visual environment within the vicinity of the proposed path is predominantly of a rural landscape except for the township of Woodburn at the western end of the Activity area. The quality of the visual environment associated with the development area is good, however it is not considered to be significant, with value being confined to the road reserve and consistent with the road network.

5.8.2 Potential Impacts

The Activity would be limited to the road reserve. During construction there may be minor visual impacts associated with views of construction plant equipment and construction site activities. There would be some visual impact associated with the removal and trimming of 2.62 ha of vegetation along the route.

Upon completion of the works there would be minimal adverse impact on the landscape character or visual amenity values of the area. The new shared pathway would be consistent with the presence of road infrastructure in the area, and it would not be a highly visible feature in the broader landscape. Site clean-up and stabilisation of disturbed areas would restore the local visual qualities to a comparable pre-works level.

5.8.3 Safeguards and Management Measures

The following measures will be implemented in order to prevent and/ or minimise adverse impacts relating to visual amenity:

49. Vegetation will only be cleared to the minimum extent necessary to undertake the proposed works.
50. Soil disturbance would be minimised where possible.
51. Upon completion of the works, any works areas will be restored to an acceptable visual state.
52. All sites will be maintained, kept free of rubbish and cleaned up at the end of each work day.

5.9 Socio-economic

5.9.1 Existing Environment

The proposed path would be located within the road reserve and traverses predominantly agricultural and rural areas; the western extent of the route begins within a rural residential area associated with the township of Woodburn and will terminate adjacent to the Riverside Lifestyle (over 50s lifestyle community) in Doonbah, where it connects to the existing shared path towards Evans Head.

5.9.2 Potential Impacts

The Activity is unlikely to cause any negative socio-economic impacts. There is unlikely to be any significant disruption to businesses, traffic, or access during construction. Traffic access along Woodburn-Evans Head Road would be maintained during construction of the Activity. Some visual amenity and noise and vibration impacts are expected during the works, as discussed previously. The works are not expected to directly affect private land.

The Activity would result in positive socio-economic outcomes, as it will increase active transport within the community and will encourage physical activity. The Activity will allow for a continuous pedestrian/ cycleway from Woodburn township to Doonbah and to Evans Head beyond, increasing connectivity to the existing shared path network having social and health benefits related to the provision of active and sustainable transport options.

Given the nature of the Activity, the site context and temporary construction period, no adverse long-term socio-economic impacts are anticipated.

5.9.3 Safeguards and Management Measures

The following mitigation measures will be implemented in order to prevent adverse socio-economic impacts:

53. Contractors/ workers will be mindful of the needs of the local community.
54. Any potentially impacted parties or landholders will be notified/ consulted prior to construction with a goal of minimising or eliminating any adverse impacts.
55. Any changes to public or private roads (including private driveways) as a result of the works will be reinstated to an acceptable standard upon completion of the works.
56. In accordance with the Work Health and Safety Act 2011, workers would be provided with appropriate safety clothing and equipment. Supervisory staff and any visitors to the work area would also be required to wear protective clothing. Works personnel would be provided with or expected to have protective equipment and appropriate training.

5.10 Waste

5.10.1 Potential Impacts

The Activity would be undertaken to ensure minimal impacts are generated from waste produced on-site by ensuring that all waste is managed appropriately. Waste generated from the Activity may include, but is not limited to:

- Packaging materials.
- General site rubbish.
- Oils and grease from machinery.

- Scrap metal.
- Soil spoils.
- General building materials waste.

Any excess cleared vegetation and soil not utilised on-site would be deposited at a licensed waste facility or reused as a resource (e.g. mulched) at a later date on Council projects wherever possible and as deemed fit/ suitable.

Waste has the potential to disperse into the surrounding environment and cause visual impacts and potential harm to terrestrial and aquatic flora and fauna. Waste products may also transport contaminants that may degrade local water quality (e.g. fuels, lead-based paint and oils). This risk can be reduced and managed through the implementation of safeguards.

5.10.2 Safeguards and Management Measures

A safeguard previously listed under Section 5.8 regarding the Visual Environment is consistent with management measures relating to waste, as follows;

- Working areas will be maintained, kept free of rubbish and cleaned up at the end of each day.

Additional measures to prevent adverse impacts in relation to generated waste will include:

57. Waste material will not be left on-site once the works have been completed.
58. Ensure the responsible environmental management of wastes that cannot be avoided and promote opportunities for the re-use of waste products where appropriate.
59. Waste will be disposed of at a licensed waste or recycling facility as appropriate.

5.11 Cumulative Impacts

Under Section 171 of the EP&A Regulation 2021, any cumulative environmental effect with other existing or likely future activities must be taken into account when assessing the impact of an activity for the purposes of Part 5 of the EP&A Act.

The Activity is expected to add to a number of cumulative impacts including resource consumption, vegetation clearing and generation of greenhouse gas emissions (e.g. through operation of vehicles and equipment, use of resources). However, the relevant mitigation measures stated throughout **Section 5** and the methodology for completion of the Activity aim to minimise the extent to which it contributes to cumulative adverse environmental impacts. There are no other known significant developments or works that would coincide with the proposed Activity and have the potential to result in adverse cumulative amenity and environmental impacts. No significant cumulative impacts are expected.

5.12 Climate Change

5.12.1 Existing Environment

Anthropogenic climate change associated with global warming is the result of human activities creating greenhouse gas emissions which in turn affects the environment. Anthropogenic climate change and the need to reduce emissions is a key issue of global, national and local importance.

5.12.2 Potential Impacts

The Activity would contribute to carbon emissions and anthropogenic climate change to a minor extent via the production of greenhouse gas emissions by construction equipment and traffic as well as the consumption of materials requiring carbon emissions and the removal of vegetation that may otherwise act as a carbon sink. Given the scale of the works however, the influence on emissions and climate change would be negligible. However, it is appropriate to implement measures that can reduce or minimise cumulative emissions and related effects.

5.12.3 Mitigation Measures

Safeguards previously listed under **Section 5.1** Biodiversity, **Section 5.6** Noise and Vibration and **Section 5.10** Waste already address aims to minimise impacts in relation to climate change, including:

- Vehicles and equipment will be switched off when not required for direct construction activities.
- Waste will be minimised and is otherwise to be recycled or disposed of appropriately.
- Vegetation removal would be minimised as far as practical.

5.13 Ecologically Sustainable Development

The objectives of the EP&A Act require that the principles of Ecologically Sustainable Development (ESD) are considered and evaluated in the environmental assessment process and in the determination of a development application. Whilst a development application is not required for this project, consideration of these principles is useful.

5.13.1 Precautionary Principle

The EP&A Regulations 2021 defines the precautionary principle as the following:

> *If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.*

To satisfy the precautionary principle, this REF has conducted a thorough analysis of potential environmental, economic, and social concerns. This assessment has identified and examined potential impacts and developed appropriate mitigation measures and safeguards to help avoid and/ or minimise impacts and safeguard the environment. Considering this assessment's findings, the Activity is unlikely to impose significant and/ or long-term adverse impacts on the environment, economy, or community. The mitigation measures and safeguards outlined in this REF would be implemented to ensure sound environmental outcomes in all aspects of the Activity.

5.13.2 Inter-generational Equity

The EP&A Regulations 2021 defines the inter-generational equity as the following:

> *That the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.*

The Activity would not significantly affect the viability of threatened species, or any TECs or other environmental resources including water, soil and air. Therefore, local environmental values would not be substantially adversely affected by the Activity and would be maintained for future generations. The Activity would have positive socio-economic effects in relation to maintenance of access and existing road infrastructure.

5.13.3 Conservation of Biological Diversity and Ecological Integrity

The EP&A Regulations 2021 defines the conservation of biological diversity and ecological integrity as the following:

> *That conservation of biological diversity and ecological integrity should be a fundamental consideration.*

The impacts to ecological integrity and conservation of biological diversity at the site have been assessed as part of this REF. No threatened species, endangered populations or TECs are likely to be significantly affected by the Activity. No populations of native species are likely to be made locally rare or unviable as a result of the Activity. Consequently, the ecological integrity and biological diversity would be maintained locally.

5.13.4 Improved Valuation, Pricing and Incentive Mechanisms

The EP&A Regulations 2021 defines improved valuation, pricing, and incentive mechanisms as the following:

> *That environmental factors should be included in the valuation of assets and services.*

It is difficult, however, to assign a monetary value to the environment of a locality or to environmental resources not considered for commercial use. The proponent has taken an approach to manage the potential environmental impacts of the Activity by identifying appropriate measures and safeguards to avoid or mitigate adverse environmental effects. This would ensure that the integrity of the environment is not degraded, is managed and where possible enhanced.

6. Environmental Management

6.1 Summary of Mitigation Measures

The following table provides a summary of the mitigation measures detailed in this report that would be implemented for the Activity.

The identified measures would be incorporated by the Contractor into a detailed Construction Environmental Management Plan (CEMP) prior to commencement of works, which also outlines how risks would be minimised and the construction processes would be undertaken and managed. The objective of the CEMP is to outline parameters for site management practices during construction. All construction staff and site personnel would be inducted and made aware of their obligations working on the project, their environmental responsibilities, and the safeguard measures to avoid and minimise potential impacts. Induction and toolbox talks would commence early in the program and continue as new personnel/ contractors are engaged.

Table 6.1 Summary of Mitigation Measures

Environmental Attribute	Mitigation Measures/ Safeguards
Biodiversity	1. A suitably qualified ecologist will be in attendance during the to inspect the any trees prior to clearing for any fauna. 2. If a Koala or threatened fauna is found to be occupying a tree at the site, a flagged exclusion zone will be established (minimum 50 m) in which works will not proceed until the individual has moved from the site. 3. All proposed works within or affecting drainage lines would be undertaken during periods of low flow with regular consultation of weather forecasts and flood warnings to occur. 4. No plant or equipment will enter or be placed into wetland areas, or on embankments adjacent to aquatic or wetland habitats. 5. Erosion and sediment control measures must be implemented (in accordance with *Managing Urban Stormwater; Soils and Construction Guidelines* [the Blue Book]) and maintained to prevent sediment moving off-site and sediment laden water entering any water course during the construction process. 6. Fuels and oils would be stored more than 40 m away from waterways or wetland habitats. 7. Refuelling of plant and maintenance of machinery would be undertaken at least 40 m away from waterways or wetland habitats. 8. A spill containment kit, including equipment to address both terrestrial and aquatic spills, will be kept on-site at all times during the proposed works. Staff will also be trained in the effective deployment of the spill containment kit. 9. Vegetation clearing would be minimised to the immediate Activity footprint only. 10. Ground disturbance outside of that required to undertake the proposed works will be minimised. 11. Damage to trees outside of those that require clearing will be avoided at all times. 12. Stockpiling will not occur under the crown of existing native trees (i.e. the crown comprises the full width of the branches).

Environmental Attribute	Mitigation Measures/ Safeguards
	13. Stockpiling will not occur near drainage lines or on overland flow paths, and where necessary will be bunded or covered to reduce sediment runoff. 14. Trees will be felled in a way that minimises disturbance to adjacent retained native vegetation. 15. Works will be completed sensitively to ensure minimal disturbance occurs. 16. All vegetation removed will be chipped and removed from the site; no vegetation waste will be burnt. 17. Any materials to be removed from the site will be taken to a licensed waste facility for disposal or recycling. 18. Ensure all plant, equipment and personnel will be free of soil and potential weed propagules prior to being brought to the site. 19. Ensure all plant, equipment and personnel working near acid frog habitat areas follow amphibian hygiene guidelines as out lined the 'Hygiene guidelines Protocols to protect priority biodiversity areas in NSW from *Phytophthora cinnamomi*, myrtle rust, amphibian chytrid fungus and invasive plants' (DPIE, 2020). 20. Should injured fauna be found on the site, local wildlife care groups and/ or local veterinarians will be contacted immediately, and arrangements made for the immediate welfare of the animal. The phone number of the local WIRES group (Ph: 02 6628 1898) would be known to the project foremen. 21. Environmental safeguards will be communicated to all construction personnel as part of an Environmental Site Induction, and repeated where appropriate at toolbox sessions prior to commencement of relevant work components.
Traffic and Access	22. Unencumbered access will be maintained to private properties along the route (unless otherwise agreed in advance with the landowner) throughout the works. 23. In the unlikely event of a requirement to alter existing access to a site or close a road, sufficient and appropriate notification will be provided to the affected traffic users. 24. Regard to public safety will be maintained at all times.
Water Quality and Soils	25. Works will be carefully managed in accordance with an Acid Sulfate Soils Management Plan, to manage risks and treatment associated with exposure of actual and/or potential acid sulfate material, especially in proximity to waterways. 26. A Construction Environmental Management Plan (CEMP) would be prepared to guide the implementation of environmental impact mitigation measures, identify key roles and responsibilities for environmental monitoring and methods of reporting incidents. 27. Erosion and sediment controls would be implemented in accordance with the Landcom/ Department of Housing Managing Urban Stormwater, Soils and Construction Guidelines (the Blue Book). 28. Works would only commence once all erosion and sediment controls have been established. The controls would be maintained in place until the works are complete and all exposed erodible materials are stabilised. 29. All sediment control measures would be checked and repaired or re-installed (if required) if heavy rainfall was forecast.

Environmental Attribute	Mitigation Measures/ Safeguards
	30. Progressive, site-specific erosion and sediment control plan will be developed and approved prior to commencement of the works. 31. If unexpected contaminated land is encountered during the works, works will stop immediately and relevant procedures outlined in a CEMP will be followed. The EPA will be notified immediately in response to incidents causing or threatening actual or potential harm to the environment in accordance with section 148 of the POEO Act (via EPA Environment Line on 131 555). 32. Only clean equipment and vehicles will be used, with equipment being cleaned down before being brought to the site.
Non-Aboriginal Heritage	33. If any suspected archaeological items are uncovered during the Activity, all works will cease in the vicinity of the material/ find. Contact with NSW OEH Heritage Branch will be made immediately.
Aboriginal Heritage	34. If Aboriginal cultural material is identified on-site, a Stop Work Procedure will be followed, which includes: ▪ Works will cease immediately. ▪ A temporary exclusion zone established. ▪ Land Aboriginal Land Council contacted immediately. ▪ OEH contacted immediately. 35. Should skeletal material be exposed during ground disturbance, work will cease immediately and contact made with NSW Police, National Parks and Wildlife and the Local Aboriginal Land Council as per OEH requirements. 36. Notifying OEH – it is a legislative requirement that cultural heritage materials uncovered as a result of the Activity are registered as Aboriginal sites with OEH on the AHIMS database within the required timeframe.
Noise and Vibration	37. Construction activities will be undertaken in accordance with EPA recommended standard construction hours: ▪ Monday to Friday 7.00 am to 6.00 pm; ▪ Saturday 8.00 am to 1.00 pm; ▪ No work on Sundays or public holidays. 38. Best practice mitigation and management measures would be used to minimise construction noise impacts at sensitive residential receivers; guided by the EPA's Interim Construction Noise Guidelines as required. 39. All employees, contractors and subcontractors are to receive an environmental induction. This will include, but not be limited to, all relevant project specific and standard noise and vibration measures; permissible hours of work; location of nearest sensitive receiver(s); any limitation on high noise generating activities; construction parking; loading and unloading areas; and compound site practices. 40. Prior to commencement of works in the vicinity of the potentially impacted sensitive receivers (i.e. residences within 200 m of the route), the landholder(s) will be notified and consulted regarding the upcoming works. 41. Any noise complaints will be recorded and include suitable identification/ description of the noise source (e.g. continual/ impulsive) and general

Environmental Attribute	Mitigation Measures/ Safeguards
	location of the complaint. Any noise complaints will be investigated and actioned as required. 42. The CEMP will include controls relevant to management of noise and vibration specific to the proposed works. 43. All machinery, vehicles and equipment not in use will be turned off and not left to unnecessarily run idle. 44. All plant will be fitted with appropriate exhaust systems to ensure compliance with pollution and noise emission standards.
Air Quality	45. Vegetation or other materials will not to be burnt on-site. 46. Vehicles transporting waste or other materials that may produce odours or dust will be covered during transportation. 47. Construction works will not be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates are likely. 48. Vehicles, machinery and equipment will be maintained in accordance with manufacturer's specifications in order to meet the requirements of the *Protection of the Environment Operations Act 1997* and associated regulation.
Visual	49. Vegetation will only be cleared to the minimum extent necessary to undertake the proposed works. 50. Soil disturbance would be minimised where possible. 51. Upon completion of the works, any works areas will be restored to an acceptable visual state. 52. All sites will be maintained, kept free of rubbish and cleaned up at the end of each workday.
Socio-economic	53. Contractors/ workers will be mindful of the needs of the local community. 54. Any potentially impacted parties or landholders will be notified/ consulted prior to construction with a goal of minimising or eliminating any adverse impacts. 55. Any changes to public or private roads (including private driveways) as a result of the works will be reinstated to an acceptable standard upon completion of the works. 56. In accordance with the Work Health and Safety Act 2011, workers would be provided with appropriate safety clothing and equipment. Supervisory staff and any visitors to the work area would also be required to wear protective clothing. Works personnel would be provided with or expected to have protective equipment and appropriate training.
Waste	57. Waste material will not be left on-site once the works have been completed. 58. Ensure the responsible environmental management of wastes that cannot be avoided and promote opportunities for the re-use of waste products where appropriate. 59. Waste will be disposed of at a licensed waste or recycling facility as appropriate.
Climate Change	▪ Vehicles and equipment will be switched off when not required for direct construction activities.

Environmental Attribute	Mitigation Measures/ Safeguards
	■ Waste will be minimised and is otherwise to be recycled or disposed of appropriately. ■ Vegetation removal would be minimised as far as practical.

6.2 Licensing and Approvals

The proposed path crosses an area identified as Crown Land (see **Figure 6.1** below). Council should consult with Crown lands to determine if a licence is required, and if so, obtain this prior to works.

Figure 6.1 Mapped Crown Land

7. Summary of Consideration of Environmental Factors

7.1 Environmental Factors to be Considered

As part of its obligation under Section 5.5 of the EP&A Act, the determining authority is required to take into account, to the fullest extent possible, all matters likely to affect the environment. This REF has considered the relevant assessment considerations in the Division 5.1 Guidelines approved under Section 170, and as per Section 171(1), of the EP&A Regulation, as provided below. **Table 7.1** provides a summary of the key issues relevant to each factor and a summarised assessment.

Table 7.1 Environmental Factors for Consideration as per the Division 5.1 Guidelines

	Factor	Impact
a	**Any Environmental Impact on a Community**	
	The community would not be affected by declines in the local environment as a result of the Activity. Mitigation measures have been designed to reduce environmental impacts on the community to negligible levels.	Minor
b	**Any Transformation of a Locality**	
	The Activity will result in a minor transformation of the locality with the addition of a new shared path within the road reserve. Minor vegetation removal or tree trimming would result in some visual change, however visual impacts of the Activity are not expected to be significant.	Minor
c	**Any Environmental Impact on the Ecosystems of the Locality**	
	No vegetation of significance will be removed to allow for the Activity. The impact of that vegetation removal is discussed in this REF. Extensive mitigation measures have been designed to reduce environmental impacts.	Minor
d	**Any Reduction of the Aesthetic, Recreational, Scientific or Other Environmental Quality or Value of a Locality**	
	It is expected that the reduction in aesthetic quality of the locality will be minor. No reduction in the quality of the environment will occur due to the mitigation measures detailed in this REF. No significant changes to the locality will occur.	Nil
e	**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**	
	The Activity will not impact existing land uses. There will be no significant impacts to heritage, visual amenity or social significance and as such impacts are therefore considered to be negligible.	Nil
f	**Any Impact on the Habitat of Protected Fauna (Within the Meaning of the *Biodiversity Conservation Act 2016*)**	
	With effective implementation of the mitigation measures provided in this REF, the Activity is not considered likely to have a significant negative impact on the habitat of any other protected fauna.	Nil

	Factor	Impact
g	**Any Endangering of any Species of Animal, Plant or Other Form of Life Whether Living on Land, in Water or in the Air**	
	With effective implementation of the mitigation measures provided in this REF, the Activity is not considered likely to significantly endanger any species of animal, plant or other form of life.	Nil
h	**Any Long-Term Effects on the Environment**	
	No negative long-term impacts will occur in the locality given the implementation of the proposed mitigation measures in this REF.	Nil
i	**Any Degradation of the Quality of the Environment**	
	Degradation of the quality of the environment is not expected. With the mitigation measures in this REF, any impacts are unlikely to be substantial.	Nil
j	**Any Risk to the Safety of the Environment**	
	No negative long-term impacts will occur in the locality given the implementation of the mitigation measures in this REF.	Nil
k	**Any Reduction in the Range of Beneficial Uses of the Environment**	
	The Activity will not result in any reduction in the range of beneficial uses of the environment. While there may be some short term traffic impacts during construction, the proposed shared path will provide an improved recreational value and enhance the use of the environment.	Nil
l	**Any Pollution of the Environment**	
	The Activity has minor potential to affect water quality during the works. The mitigation measures will minimise the duration and impact. Given the proposed mitigation measures detailed in this REF and all waste being disposed within an appropriate/ approved waste disposal facility, pollution to the environment will be minimised.	Minor
m	**Any Environmental Problems Associated with the Disposal of Waste**	
	Any wastes would be disposed of in a manner which would not damage or disturb any native flora or fauna or the physical environment. The disposal of such waste would be within a waste management facility in accordance with EPA approved methods of waste disposal. Mitigation measures detailed in this REF would protect the environment from problems associated with waste disposal.	Nil
n	**Any Increased Demands on Resources (Natural or Otherwise) that are likely to Become, in Short Supply**	
	The Activity does not create any demand for resources that are in short supply nor is it likely to result in an increased demand on any natural resources that are likely to become in short supply.	Nil
o	**Any Cumulative Environmental Effect with Other Existing or Likely Future Activities**	
	The Activity would have minor cumulative impacts (e.g., resource consumption; greenhouse gas emissions; vegetation loss) but is unlikely to significantly contribute to any cumulative impacts.	Nil
p	**Any impact on coastal processes and coastal hazards, including those under projected climate change conditions**	
	The Activity could contribute to cumulative impacts to a negligible extent (e.g., greenhouse gas emissions, consumption of resources) contributing to climate change and associated impacts, however there would be no direct impact on coastal process or hazards.	Minor

	Factor	Impact
q	**Any Applicable local strategic planning statement, regional strategic plan or district strategic plan made under Division 3.1 of the Act**	
	Not applicable	Nil
r	**Any Other relevant environmental factors**	
	Nil	Nil

7.2 EPBC Act 1999 (Commonwealth Legislation)

The EPBC Act protects/ regulates matters of national environmental significance (MNES), including:

- World Heritage.
- National heritage places.
- Wetlands of international importance.
- Nationally threatened species and ecological communities.
- Migratory species.
- Commonwealth marine areas.
- The Great Barrier Reef Marine Park.
- Nuclear actions (including uranium mining).
- A water resource, in relation to coal seam gas development and large coal mining development.

Under the EPBC Act, a referral is required to the Australian Government for proposed 'actions that have the potential to significantly impact on matters of national environmental significance or the environment of Commonwealth land'. A database search was completed on 22/09/2023 encompassing a 10 km radius search area from the centre of the proposed Activity (refer to **Appendix D).** Search results following the site assessment are considered in **Table 7.2**.

Table 7.2 EPBC Act Considerations

Matter	Impact
Any impact on a World Heritage property?	
No World Heritage properties occur at or proximal to the site.	Nil
Any impact on a National Heritage place?	
No World Heritage properties occur at or proximal to the site.	Nil
Any impact on a wetland of international importance?	
No wetlands of international importance (Ramsar Sites) occur at or near the site.	Nil
Any impact on nationally threatened species and ecological communities?	
Habitat for four TECs, 94 threatened species and 60 migratory species were listed within the 10 km search area. No Commonwealth listed threatened flora, fauna or TECs are likely to be significantly affected by the Activity (refer to biodiversity assessment at **Section 5.1** and **Appendix G**) and mitigation measures have been provided to minimise any potential impacts. No marine habitat would be impacted.	Minor
Any impact on a Nationally Important Wetland?	
No nationally important wetlands occur at or near the site. Nationally Important Wetlands are not likely to be affected by the Activity.	Nil
Any impact on Migratory species?	
Based on the minor nature of the works, no listed migratory species are likely to be significantly affected by the Activity (refer to **Section 5.1**).	Nil to negligible

Matter	Impact
Any impact on a Commonwealth marine area?	
No Commonwealth marine areas occur at or near the site.	Nil
Any impact on the Great Barrier Reef Marine Park?	
The Great Barrier Reef Marine Park is distant from the site.	Nil
Does the Activity involve a nuclear action (including uranium mining)?	
The Activity does not involve a nuclear action.	Nil
Any impact on a water resource, in relation to coal seam gas development and large coal mining development?	
The Activity does not involve any impact on a water resource, in relation to coal seam gas development and large mining development.	Nil
Additionally, any impact (direct or indirect) on Commonwealth land?	
The Activity is not expected to impact upon such land.	Nil

The assessment of the impact of the Activity on MNES and the environment of Commonwealth land has found that there is unlikely to be significant impact on relevant MNES. Accordingly, the Activity does not require referral to the Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW).

8. Conclusion

The Activity is the construction of a new shared path along Woodburn-Evans Head Road between Woodburn and Doonbah.

The Activity is permitted without development consent and subject to assessment under Part 5, Division 5.1 of the EP&A Act. 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. The Activity would result in some impacts; however, these are not likely to be significant and can be effectively managed/ ameliorated through the implementation of the safeguards and mitigation measures recommended in this REF.

The Activity described will not affect areas of outstanding biodiversity value or Wilderness Areas. The Activity is unlikely to significantly affect threatened species or ecological communities or their habitats, within the meaning of the *Biodiversity Conservation Act 2016* or *Fisheries Management Act 1994* and therefore a Species Impact Statement (or Biodiversity Development Assessment Report (BDAR) if the Proponent elected) is not required. The Activity is also unlikely to affect Commonwealth land or have a significant impact on any matters of national environmental significance in relation to the EPBC Act.

I certify to the best of my knowledge that:

- This REF provides a true and fair review of the Activity in relation to its potential effects on the environment, and
- The assessment satisfies the requirements of Sections 5.5 to 5.7 of the EP&A Act, the EP&A Regulation 2021, including Section 171 and the *Guidelines for Division 5.1 Assessments* approved under clause 170 of the EP&A Regulation, and other relevant legislation and guidelines, and
- The assessment has been adequately completed, and
- Subject to the inclusion of the safeguards/measures included in this REF, it is reasonable to conclude that the project will not likely have a significant impact on the environment during both the construction and operation phases, and
- Given the impacts of the Activity are not likely to be significant, an Environmental Impact Statement is not required under Section 5.7 of the EP&A Act, and
- A Species Impact Statement or BDAR is not required, and
- The Activity does not warrant/require referral to the Australian Department of Climate Change, Energy, the Environment and Water under the EPBC Act, and
- The Activity is not State Significant Infrastructure and does not require approval under Division 5.2 of the EP&A Act.

REF Prepared by	
Signature:	
Name:	Edwina Flower
Position:	Environmental Planner
REF Reviewed by	
Signature:	
Name:	Simon Waterworth
Position:	Senior Environmental Planner

9. Determining Authority Sign Off

Determining Officer (Public Authority) who Approves this REF

☐ I certify that I have reviewed and endorsed the contents of this REF document, and, to the best of my knowledge, it is in accordance with the EP&A Act, the EP&A Regulation and the Guidelines approved under section 170 of the EP&A Regulation, and the information it contains is neither false nor misleading. Based on the completed REF and my knowledge of the project, the assessment has been adequately completed, the project has predictable impacts which would not be significant, the conclusion as to the likely environmental impact of the project is reasonable, and the project can proceed subject to the relevant measures and conditions in this REF, any approval, license or permit.

☐ The project requires additional environmental assessment.

Reasons:

Enter Reasons.

☐ The project should not proceed in its current form.

Reasons:

NOTE: A site visit may be required depending on the level of confidence and risk to the environment.

Reviewed by:			
Signature		**Date:**	
Name			
Position			
Determining Authority Name			
Determined By:			

References

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Topographic information presented on the drawings is suitable only for the purpose of the document as stated above. No reliance should be placed upon topographic information contained in this report for any purpose other than that stated above.

Appendix A

Detailed Design Plans

bk. | bridge knowledge.
ENGINEERING CONSULTING SERVICES

GEOLINK

RICHMOND VALLEY COUNCIL

SHARED BICYCLE/PEDESTRIAN PATH
WOODBURN TO EVANS HEAD ROAD SECTION

CIVIL DESIGN
ISSUE FOR CONSTRUCTION

LOCALITY PLAN

Map Data ©2023 WhereiS

PART INDEX

PART NUMBER	CODE	NAME
PART 1	GN	GENERAL (11 SHEETS)
	RW	SHARED PATH ALIGNMENT AND DETAIL (48 SHEETS)
	SM	DRAINAGE DETAIL (8 SHEETS)

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0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

PREPARED BY
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TITLE SENIOR CIVIL DESIGNER
DATE 16/01/2024

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TITLE SENIOR CIVIL DESIGNER
DATE 16/01/2024

VERIFIED
SIGNED .....
NAME CRAIG RILEY
TITLE SENIOR ENGINEER
DATE 16/01/2024

PLOT DATE / TIME 19/01/2024-4:29 PM
PLOT BY GM

GEOLINK PROJECT MANAGER
NAME MICHELLE ERWIN
TITLE SENIOR CIVIL ENGINEER

VALIDATION AND ACCEPTANCE OF THESE DRAWINGS AND THE DESIGN SHOWN THEREON IS TO BE CARRIED OUT UNDER SEPARATE PROCESS

CLIENT
GeoLINK
environment | engineering | planning | design

PREPARED FOR
GEOLINK

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
COVER

A3

BK PROJECT No. BKCD119A
GEOLINK PROJECT No.
PART 1
ISSUE STATUS IFC
SHEET No. GN-001
ISSUE A

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GEOLINK RVC SHARED PATHS - WOODBURN-EVANS HEAD		
SHEET GROUP	SHEET NUMBER	SHEET DESCRIPTION
GN	1	COVER SHEET
GN	2	INDEX
GN	3	NOTES
GN	4	MISCELLANEOUS DETAILS
GN	5	DRIVEWAY SCHEDULE
GN	6	LINEMARKING DETAILS
GN	7	SIGNS & LINEMARKING PLANS
GN	8	SIGNS & LINEMARKING PLANS
GN	9	SIGN SCHEDULES 1
GN	10	SIGN SCHEDULES 2
GN	11	PUBLIC UTILITIES
RW	1	TYPICAL SECTIONS
RW	2	KEY PLAN
RW	3	PLAN
RW	4	PLAN
RW	5	PLAN
RW	6	PLAN
RW	7	PLAN
RW	8	PLAN
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RW	16	PLAN
RW	17	PLAN
RW	18	PLAN
RW	19	PLAN
RW	20	PLAN
RW	21	PLAN
RW	22	PLAN
RW	23	LONGITUDINAL SECTION

GEOLINK RVC SHARED PATHS - WOODBURN-EVANS HEAD		
SHEET GROUP	SHEET NUMBER	SHEET DESCRIPTION
RW	24	LONGITUDINAL SECTION
RW	25	LONGITUDINAL SECTION
RW	26	LONGITUDINAL SECTION
RW	27	LONGITUDINAL SECTION
RW	28	LONGITUDINAL SECTION
RW	29	LONGITUDINAL SECTION
RW	30	LONGITUDINAL SECTION
RW	31	LONGITUDINAL SECTION
RW	32	LONGITUDINAL SECTION
RW	33	CROSS SECTIONS
RW	34	CROSS SECTIONS
RW	35	CROSS SECTIONS
RW	36	CROSS SECTIONS
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RW	45	CROSS SECTIONS
RW	46	CROSS SECTIONS
RW	47	CROSS SECTIONS
RW	48	CROSS SECTIONS
SM	1	DRAINAGE DETAILS
SM	2	DRAINAGE DETAILS
SM	3	DRAINAGE DETAILS
SM	4	DRAINAGE DETAILS
SM	5	DRAINAGE DETAILS
SM	6	DRAINAGE DETAILS
SM	7	DRAINAGE DETAILS
SM	8	DRAINAGE DETAILS

SUPPLEMENTARY DRAWING INDEX	
DRAWING NUMBER	SHEET DESCRIPTION
Northern Rivers Local Government Standard Drawing R-03C	Kerbs and Gutters
Northern Rivers Local Government Standard Drawing R-04C	Kerb Ramps
Northern Rivers Local Government Standard Drawing R-05D	Residential Driveway Layouts & Layback Vehicular Crossings for Kerbed Roads
Northern Rivers Local Government Standard Drawing R-06D	Concrete Residential Driveway Longitudinal Grading Details
Northern Rivers Local Government Standard Drawing R-07B	Concrete footpath detail
Northern Rivers Local Government Standard Drawing R-14C	Driveways & Vehicular Crossings for Non Kerbed Roads
Northern Rivers Local Government Standard Drawing R-16B	Driveways & Vehicular Crossings for Non Kerbed Roads - Sloped Headwalls
Northern Rivers Local Government Standard Drawing SW-06A	Pipe Installation Conditions

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50mm ON A3 SIZE ORIGINAL
0 5 10 15 20 25 30 35 40 45

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: NOT APPLICABLE

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

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PLOT DATE / TIME: 19/01/2024-4:29 PM PLOT BY: GM

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DESIGN		G. MULCAHY	16.1.24
DESIGN CHECK		J. ARMSTRONG	16.1.24
DESIGN MNGR		C. RILEY	16.1.24
PROJECT MNGR		M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
INDEX

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BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: GN-002 OF 67 | ISSUE: A

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GENERAL NOTES

1. THESE NOTES SHOULD BE READ IN CONJUNCTION WITH OTHER ENGINEERING DRAWINGS, SPECIFICATIONS AND WRITTEN INSTRUCTIONS. ALWAYS REFER TO TECHNICAL SPECIFICATIONS FOR CLARIFICATION AND DETAILS
2. ALL CONSTRUCTION MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT SPECIFICATION FOR THE WORKS TOGETHER WITH THE REQUIREMENTS OF ALL RELEVANT CODES OF PRACTICE REFERRED TO THEREIN AND THE REQUIREMENTS OF ALL STATUTORY AUTHORITIES.
3. LEVELS AND CONTOURS ARE IN METERS (m) AND DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS NOTED OTHERWISE
4. SCALES AND SCALEBARS ARE FOR PRINTED IS0 A3 SIZE DRAWINGS
5. ALL LEVELS ARE TO AHD DATUM
6. ALL COORDINATES ARE AS PER COORDINATE SYSTEM STATED IN TITLEBLOCK
7. ALL STATIONS AND RADII ARE NOTED IN METRES (m)
8. ALL LOCATIONS, ORIENTATION AND LEVELS SHALL BE VERIFIED ON SITE BEFORE COMMENCING ANY WORK. REFER ANY DISCOVERED DISCREPANCIES TO THE PRINCIPAL AND DO NOT OBTAIN DIMENSIONS VIA MEASURING AND SCALING FROM A PRINTED DRAWING.
9. THE CONTRACTOR SHALL ENSURE ACCESS IS AVAILABLE TO PROPERTIES AT ALL TIMES DURING CONSTRUCTION
10. THESE DRAWINGS ARE BASED ON GROUND FEATURES SUPPLIED BY BYRON BAY SURVEY

STORMWATER DRAINAGE

1. THE DOCUMENTED DRAINAGE SYSTEM IS DETAILED ONLY FOR NORMAL AUSTROADS TRAFFIC LOADING. CONSTRUCTION VEHICLE REQUIREMENTS SHALL BE THE CONSTRUCTION CONTRACTOR'S RESPONSIBILITY
2. UNSUITABLE FOUNDING MATERIAL FOR PIPES AND STRUCTURES, IF REQUIRED IN PROJECT, SHALL BE REMOVED OR IMPROVED IN ACCORDANCE WITH THE RELEVANT SPECIFICATIONS AND TO THE PRINCIPAL'S SATISFACTION
3. REINFORCEMENT EXPOSED IN MODIFICATION OF PRECAST COMPONENTS, IF REQUIRED IN PROJECT, SHALL BE PROTECTED WITH THE APPROVED METHOD OF COVER REPLACEMENT TO THE PRINCIPAL'S SATISFACTION
4. EXISTING DRAINAGE CULVERTS DEPICTED AS REMAINING, IF REQUIRED IN PROJECT, MUST BE CHECKED BY THE CONTRACTOR FOR CONDITION AND REPORTED WHERE NECESSARY BEFORE, DURING AND AFTER CONSTRUCTION ROUTINES HAS BEEN COMPLETED

SIGNPOSTING, ROAD FURNITURE AND LINEMARKING & TACTILE GROUND SURFACE INDICATORS (TGSI)

1. SIGN POSTS PLACED WITHIN A DEFINED CLEARZONE OF THE VEHICLE TRAVEL LANES SHALL BE FRANGIBLE
2. FOR DETAILS OF PAVEMENT MARKINGS, SIGN POSTS AND SIGN SUPPORT STRUCTURES REFER TO THE GOVERNING GUIDELINES, MODEL DRAWINGS OR RELEVANT AUSTRALIAN SPECIFICATION AND/OR MANUFACTURERS DETAILS
3. ALL PERMANENT PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH RMS/TfNSW SPECIFICATION R145 OR OTHER NOTED SPECIFICATION
4. REFER TO RMS STANDARD DRAWINGS FOR SAFETY BARRIER DETAILS, UNLESS SPECIFIED OTHERWISE
5. FOR DETAILS OF SAFETY BARRIER DELINEATORS REFER TO THE RELEVANT RMS/TfNSW OR MANUFACTURERS STANDARD DETAILS
6. GUIDE POST DELINEATOR SPACING IS AS PER RELEVANT DESIGN SPEED, UNLESS NOTED OTHERWISE - 75m SPACING ON STRAIGHTS FOR FOGGY AREAS
7. BARRIER TO BE INSTALLED AS PER RMS/TfNSW AND MANUFACTURERS MODEL DRAWINGS AND SPECIFICATIONS
8. ANY CHANGES TO PRODUCTS LISTED IN THE BARRIER SCHEDULES ARE TO BE MADE IN CONSULTATION WITH THE DESIGNER
9. EXISTING PAVEMENT MARKINGS TO BE REMOVED SHALL BY THE METHOD OF WATER BLASTING AS PER TfNSW SPECIFICATION R103.
9. TGSI'S SHALL BE INSTALLED ON OR ADJACENT TO DESIGNATED CROSSING POINTS TO WARN PEDESTRIANS WITH VISION IMPAIRMENT OF IMPENDING HAZARD (TRAFFIC) AND DIRECTIONAL TGSI SHALL BE INSTALLED IN THE ABSENCE OF DETECTABLE CUES. TACTILE GROUND SURFACE INDICATORS (TGSI) TO BE INSTALLED IN ACCORDANCE WITH AS/NZS 1428.4.1:2009

UTILITIES

1. THE UTILITY INFORMATION SHOWN IN THE DRAWINGS IS SCHEMATIC ONLY, AND IS INTENDED TO ACCENTUATE THE PRESENCE OF PUBLIC UTILITY SERVICES ALONG THE PROJECT LENGTH AND WITHIN THE IMMEDIATE VICINITY OF THE WORKS. ACTUAL LOCATIONS SHOULD BE VERIFIED PRIOR TO CONSTRUCTION
2. IN ORDER TO AVOID DAMAGE TO THE SERVICES THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORKS ADJACENT TO ANY SERVICE WITH THE RELEVANT UTILITY AUTHORITY IN ACCORDANCE WITH THE AUTHORITIES REQUIREMENTS
3. THE CONTRACTOR SHALL COORDINATE WITH THE RELEVANT UTILITY AUTHORITIES AND THE PRINCIPAL WITH RESPECT TO ANY TEMPORARY DIVERSIONS NECESSARY FOR CONSTRUCTION STAGING WORKS. IT IS EXPECTED THAT THE CONTRACTOR WILL COMPLETE A SERVICE UTILITY CHECK WITH BEFORE YOU DIG AUSTRALIA.

LANDSCAPING

1. ALL DISTURBED AREAS TO BE STABILISED AND DRESSED WITH A NOMINAL 100 mm THICK TOPSOIL LAYER AND HAND SEEDED WITH APPROPRIATE FLORA AS REQUIRED AND APPROVED BY RICHMOND VALLEY COUNCIL

SURVEY

PERMANENT AND STATE SURVEY CONTROL MARKS ARE NOT TO BE DISTURBED UNLESS APPROVED UNDER THE PROVISIONS OF THE SURVEYOR-GENERAL'S DIRECTIONS NO.11 PRESERVATION OF SURVEY INFRASTRUCTURE - FINES APPLY

ACCEPTED FOR CONSTRUCTION

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED
0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: NOT APPLICABLE

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:29 PM PLOT BY: GM

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DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
NOTES

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: GN-003 OF 67 | ISSUE: A

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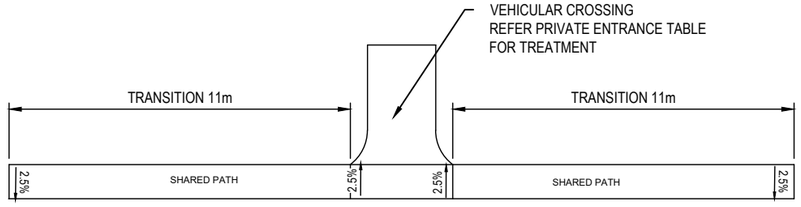
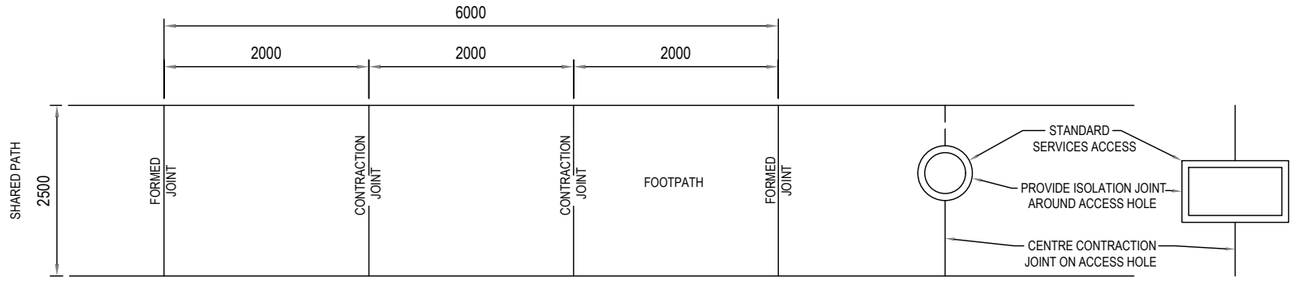
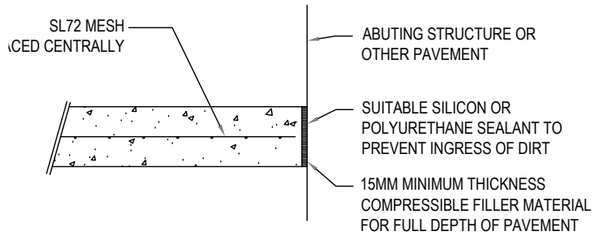


PATH CROSSFALL TRANSITION

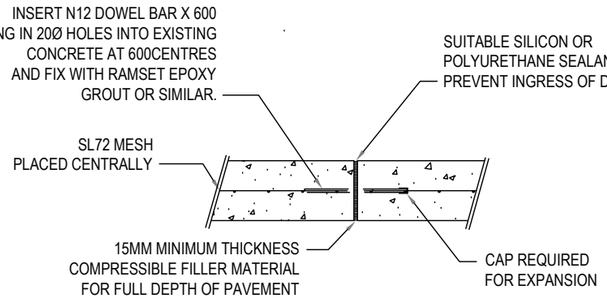


TYPICAL CONCRETE JOINT CONSTRUCTIONS

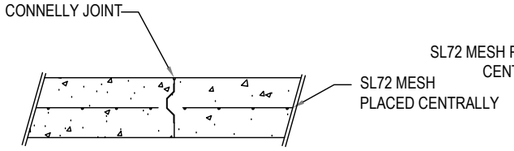
NOTE: CONSTRUCT A DOWELLED EXPANSION JOINT EVERY 12.0M
EXPANSION JOINTS TO BE 15MM THICK APPROVED
COMPRESSIBLE JOINT FILLER



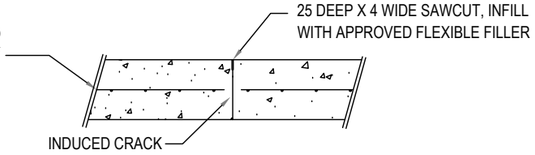
ISOLATION JOINT



EXPANSION JOINT

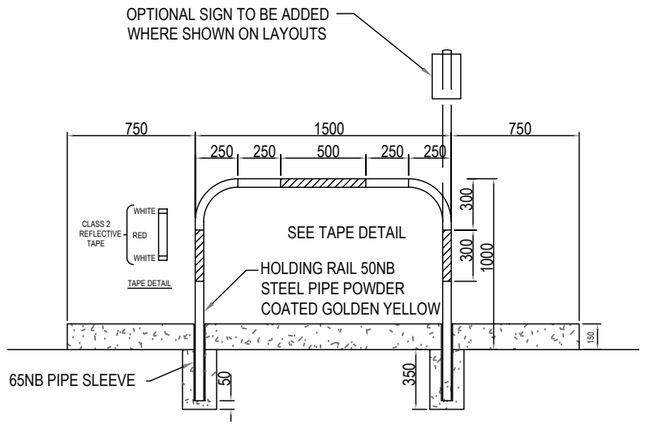


CONTROL JOINT - KEY

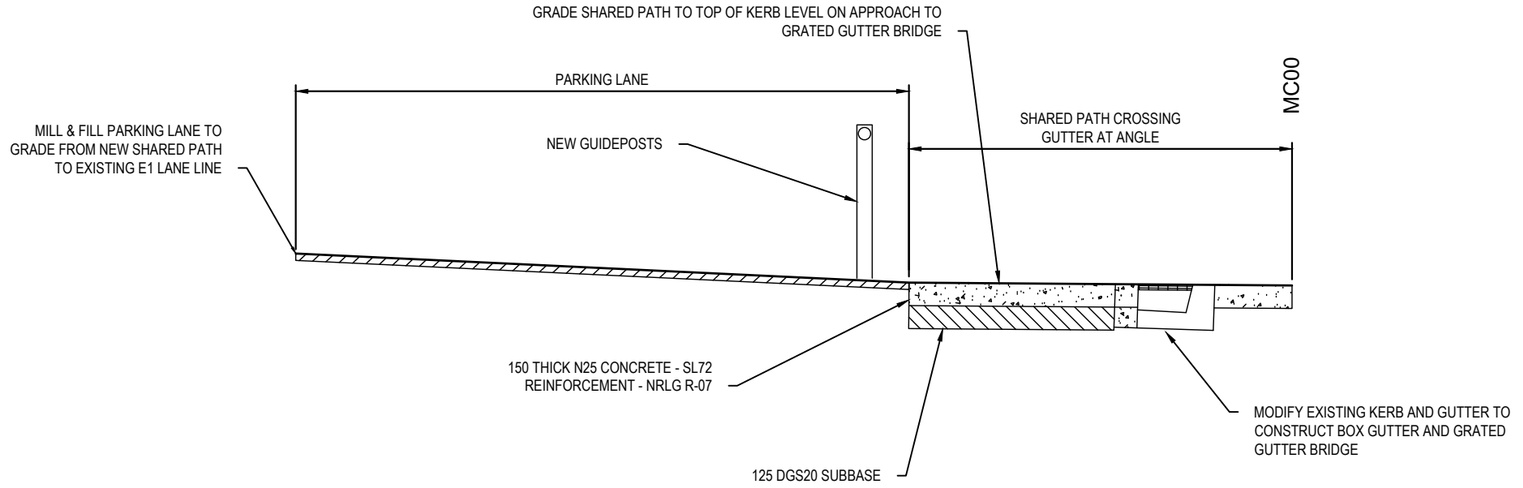


CONTROL JOINT - SAW CUT

TYPICAL CONCRETE JOINT DETAILS



1500 HOLDING RAIL SECTION VIEW



TYPICAL GUTTER CROSSING DETAIL

ACCEPTED FOR CONSTRUCTION

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DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

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DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK (environment | engineering | planning | design)

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
MISCELLANEOUS DETAILS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: GN-004 OF 67 | ISSUE: A

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DRIVEWAY DETAILS

DRIVEWAY LOCATION AND DETAILS					TREATMENT			CULVERT DETAILS	
Private Entrance ID	Chainage	Control line	LHS/ RHS	Type	Footpath treatment at access	Driveway treatment	Drainage works	Size	Length
PE3A	30	MC00	RHS	Layback crossing - single dwelling					
PE3B	58	MC00	RHS	layback crossing - single dwelling					
PE3C	63.5	MC00	RHS	Layback crossing - single dwelling					
PE3D	71.5	MC00	RHS	Layback crossing - single dwelling					
PE3E	80	MC00	RHS	Layback crossing - single dwelling					
PE3F	133	MC00	RHS	Layback crossing - single dwelling					
PE3G	219	MC00	RHS	vehicular crossing - non-kerbed					
PE3H	244	MC00	RHS	vehicular crossing - non-kerbed	200mm thick concrete footpath at crossing as per STD drg R-07	Reinstate existing			
PE3J	275	MC00	RHS	vehicular crossing - non-kerbed	200mm thick concrete footpath at crossing as per STD drg R-07	Reinstate existing			
PE5A	818	MC00	RHS	vehicular crossing - non-kerbed	200mm thick concrete footpath at crossing as per STD drg R-07	Reinstate existing			
PE7A	1327	MC00	RHS	vehicular crossing - non-kerbed	200mm thick concrete footpath at crossing as per STD drg R-07 - 15m long	Reinstate existing			
PE8A	1640	MC00	RHS	vehicular crossing - non-kerbed					
PE8B	1718	MC00	RHS	vehicular crossing - non-kerbed					
PE10A	2233.5	MC00	RHS	vehicular crossing - non-kerbed					
PE10B	2421	MC00	LHS	vehicular crossing - non-kerbed		Reinstate as per STD drg NRLG R-14 piped crossing	new pipe and realign table drain	450 RCP (class 2)	12.20
PE11A	2473.5	MC00	LHS	vehicular crossing - non-kerbed		Reinstate as per STD drg NRLG R-14 piped crossing	new pipe and realign table drain	450 RCP (class 2)	9.76
PE12A	2972	MC00	LHS	vehicular crossing - non-kerbed	Path crossfall transition at driveway refer detail	Reinstate as per STD drg NRLG R-14 piped crossing	new pipe and realign table drain	450 RCP (class 2)	4.88
PE13A	3037	MC00	LHS	vehicular crossing - non-kerbed		Reinstate as per STD drg NRLG R-14 piped crossing	new pipe and realign table drain	375 RCP (class 2)	7.32
PE13B	3181.5	MC00	LHS	vehicular crossing - non-kerbed		Reinstate as per STD drg NRLG R-14 piped crossing	new pipe and realign table drain	375 RCP (class 2)	7.32
PE14A	3467	MC00	LHS	vehicular crossing - non-kerbed		Reinstate as per STD drg NRLG R-14 piped crossing	new pipe and realign table drain	375 RCP (class 2)	7.32
PE14B	3581	MC00	LHS	vehicular crossing - non-kerbed	Path crossfall transition at driveway refer detail	Reinstate as per STD drg NRLG R-14 piped crossing	new pipe and realign table drain	450 RCP (class 2)	7.32
PE14C	3651	MC00	LHS	vehicular crossing - non-kerbed		Reinstate as per STD drg NRLG R-14 piped crossing	new pipe and realign table drain	600 RCP (class 2)	7.32
PE15A	3723.5	MC00	LHS	vehicular crossing - non-kerbed	Path crossfall transition at driveway refer detail	Reinstate as per STD drg NRLG R-14 piped crossing	new pipe and realign table drain	375 RCP (class 2)	4.88
PE15B	3798	MC00	LHS	vehicular crossing - non-kerbed	Path crossfall transition at driveway refer detail	Reinstate existing			
PE15C	3822	MC00	RHS	vehicular crossing - non-kerbed		Reinstate as per STD drg NRLG R-14 dished crossing			
PE15D	3902	MC00	RHS	vehicular crossing - non-kerbed		Reinstate as per STD drg NRLG R-14 piped crossing	new pipe and realign table drain	375 RCP (class 2)	4.88
PE15E	3952	MC00	RHS	vehicular crossing - non-kerbed	Path crossfall transition at driveway refer detail	Reinstate as per STD drg NRLG R-14 piped crossing	new pipe and realign table drain	375 RCP (class 2)	4.88
PE16A	3968	MC00	RHS	vehicular crossing - non-kerbed	Path crossfall transition at driveway refer detail	Reinstate as per STD drg NRLG R-14 piped crossing	new pipe and realign table drain	375 RCP (class 2)	9.76
PE16B	4016	MC00	RHS	vehicular crossing - non-kerbed	Path crossfall transition at driveway refer detail	Reinstate as per STD drg NRLG R-14 piped crossing	new pipe and realign table drain	450 RCP (class 2)	4.88
PE16C	4062.5	MC00	RHS	vehicular crossing - non-kerbed	Path crossfall transition at driveway refer detail	Reinstate as per STD drg NRLG R-14 piped crossing	new pipe and realign table drain	300 RCP (class 2)	9.76
PE16D	4214	MC00	RHS	vehicular crossing - non-kerbed	Path crossfall transition at driveway refer detail	Reinstate as per STD drg NRLG R-14 piped crossing	new pipe and realign table drain	375 RCP (class 2)	7.32
PE17A	4276.5	MC00	RHS	vehicular crossing - non-kerbed	Path crossfall transition at driveway refer detail	Reinstate as per STD drg NRLG R-14 piped crossing	new pipe and realign table drain	375 RCP (class 2)	4.88
PE17B	4353	MC00	RHS	vehicular crossing - non-kerbed	Path crossfall transition at driveway refer detail	Reinstate as per STD drg NRLG R-14 piped crossing	new pipe and realign table drain	375 RCP (class 2)	4.88
PE18A	4858	MC00	RHS	vehicular crossing - non-kerbed		Reinstate existing			
PE19A	4994	MC00	RHS	vehicular crossing - non-kerbed		Reinstate existing			
PE19B	5129	MC00	RHS	vehicular crossing - non-kerbed		Reinstate existing			
PE19C	5155	MC00	LHS	vehicular crossing - non-kerbed		Reinstate existing			
PE20A	5185.5	MC00	LHS	vehicular crossing - non-kerbed		Reinstate existing			
PE21A	5480	MC00	LHS	vehicular crossing - non-kerbed		Reinstate existing			
PE21B	5645	MC00	LHS	vehicular crossing - non-kerbed		Reinstate existing			
PE21C	5731	MC00	RHS	vehicular crossing - non-kerbed		Reinstate existing			
PE22A	5800.524	MC00	RHS	vehicular crossing - non-kerbed					

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PROJECT MNGR		M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
DRIVEWAY SCHEDULE

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: GN-005 OF 67 | ISSUE: A

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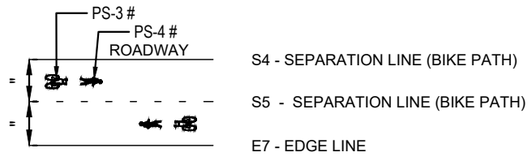
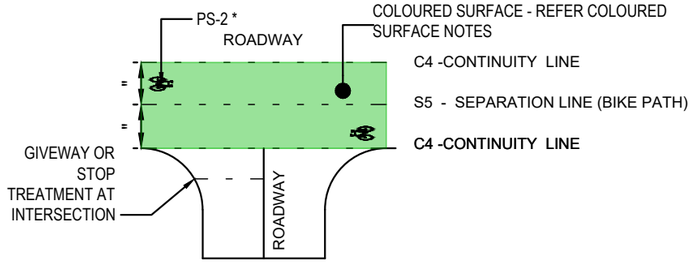


SHARED PATH - PAVEMENT & LINE MARKING TREATMENT 1

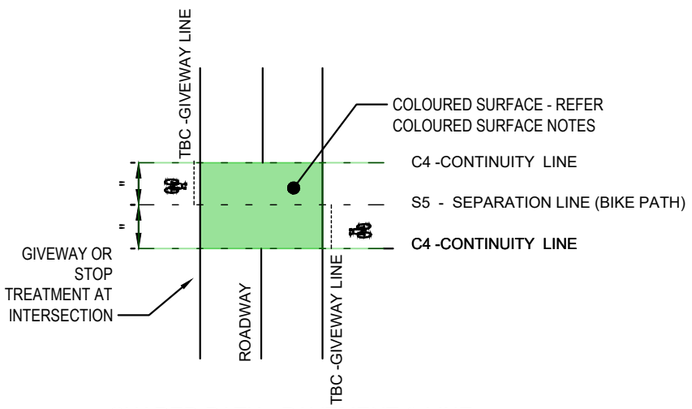
PS-3 AND PS-4 SHALL BE PLACED AT START AND FINISH OF SHARED PATH. THIS INCLUDES ROAD CROSSING LOCATION AND TERMINATION OF SHARED PATH TO FOOTPATH

* PS-2 PAVEMENT MARKING SHALL BE PLACED AT START AND END OF ROAD CROSSING

SHARED PATH - PAVEMENT & LINE MARKING TREATMENT 2



SHARED PATH - PAVEMENT & LINE MARKING TREATMENT 3 - AT INTERSECTIONS



SHARED PATH - PAVEMENT & LINE MARKING TREATMENT 4 MID BLOCK ROAD CROSSINGS

SIGNAGE & LINEMARKING

LINEMARKING AND SIGNPOSTING TO BE IN ACCORDANCE WITH THE DESIGN DRAWINGS, NRLG SPECIFICATIONS, THE RELEVANT TfNSW GUIDES AND AUSTRALIAN STANDARDS.

LINE MARKINGS TO BE APPLIED IN ACCORDANCE WITH RTA QA SPECIFICATION R141, USING WATER BORNE PAINT.

GUIDE POSTS

GUIDE POSTS TO BE INSTALLED IN ACCORDANCE WITH NRLG SPECIFICATION C263, AS1742 AND RTA DELINEATION GUIDE.

RRPMs

RETROREFLECTIVE RAISED PAVEMENT MARKERS (RRPMS) TO BE INSTALLED IN ACCORDANCE WITH RTA SPECIFICATION R142 AND SPACED IN ACCORDANCE WITH RTA QA SPECIFICATION R141 AND RTA DELINEATION GUIDE FOR EACH LINE TYPE.

COLOURED SURFACE TREATMENT

1. COLOURED SURFACE TREATMENT FOR FOR POTENTIAL CONFLICT ZONE TO BE COLOUR G13 EMERALD AS SPECIFIED IN AS2700S 1996.
2. TO ACCOMODATE VARIATION OF MATERIALS/CONDITIONS APPROPRIATE COLOUR MATCH IS TO BE DETERMINED IN ACCORDANCE WITH AS/NS1580.601.1

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GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
LINEMARKING DETAILS

A3

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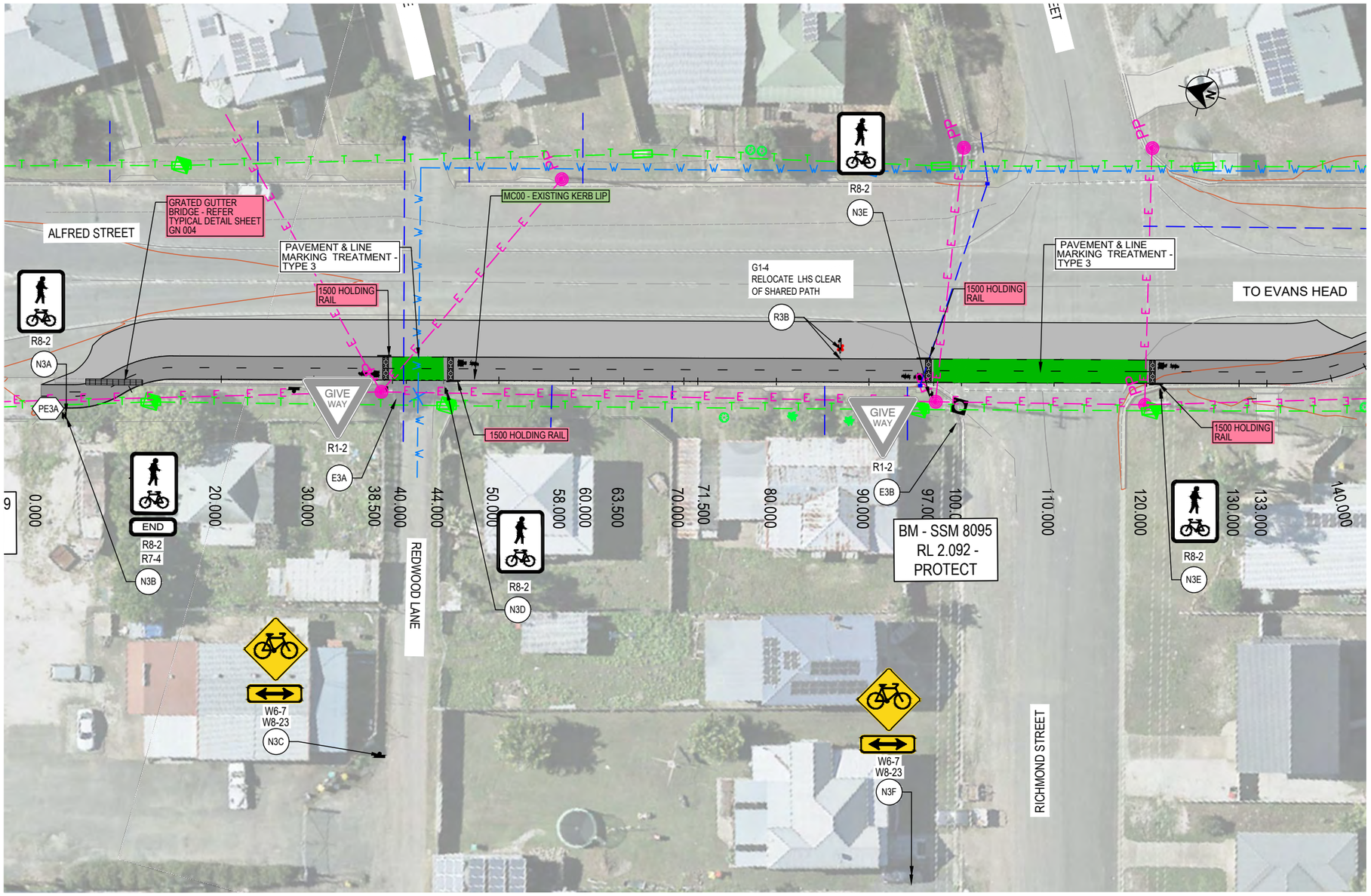

PLAN

ADJOINS SHEET No. GN-008

LEGEND

- PROPERTY BOUNDARY
- EXISTING CENTRELINE
- MC00 CONTROL STRING LABEL
- CONTROL ALIGNMENT
- DRAINAGE LINE - EXISTING
- DRAINAGE LINE - DESIGN
- KERB & GUTTER - EXISTING
- DISH DRAIN - DESIGN
- EDGE OF BITUMEN - EXISTING
- TABLE DRAIN - EXISTING
- TABLEDRAIN - DESIGN
- TOP OF BANK - EXISTING
- BOTTOM OF BANK - EXISTING
- EDGE FORMATION - EXISTING
- FENCE - EXISTING
- GUARD FENCE - EXISTING
- GUARD FENCE - DESIGN
- TELSTRA
- OPTIC FIBRE
- OVERHEAD TELSTRA
- ELECTRICITY
- UNDERGROUND ELECTRICITY
- WATER
- SEWER
- GAS
- HANDRAIL FENCE - DESIGN
- SUB-SOIL DRAINAGE - DESIGN
- NEW SERVICE CONDUIT
- VEGETATION LINE
- DESIGN BATTER EXTENT
- COMMS. CABLE MARKER
- COMMS. TWIN PIT
- COMMS. SINGLE PIT
- COMMS. PILLAR
- ENDANGERED, PROTECTED OR THREATENED SPECIES
- TREE TO RETAIN
- TREE TO BE PROTECTED
- TREE TO BE REMOVED
- PERMANENT MARK
- BENCH MARK
- STREET SIGN - EXISTING
- DRAINAGE PIT- EXISTING
- DRAINAGE PIT- DESIGN
- STOP VALVE
- HYDRANT
- WATER METER
- WATER MAIN MARKER POST
- AIR VALVE
- WATER PIT - ROUND
- SEWER PIT - ROUND
- SEWER PIT - SQUARE
- SEWER VALVE
- GUIDE POST - EXISTING
- POWER POLE
- POWER STAY ANCHOR
- STREET LIGHT POLE
- NEW CONCRETE
- NEW PAVEMENT
- NEW GRASSED VERGE
- N1D SIGN ID REFER DRG 009-GN & 010-GN FOR SIGNAGE SCHEDULE
- NEW SIGN
- EXISTING SIGN TO REMAIN
- EXISTING SIGN REMOVE

NOTES

1. FOR PAVEMENT AND LINE MARKING TREATMENTS AND NOTES REFER DRG 006-GN
2. REFER PRIVATE ENTRANCE TABLE ON DRG 005-GN FOR WORKS AT DRIVEWAY LOCATIONS, WHICH INCLUDES THE FOLLOWING;
   - SHARED PATH TREATMENTS AT DRIVEWAYS
   - DRIVEWAY WORKS
   - DRAINAGE WORKS
3. SIGN AND GUIDE POST LOCATIONS ARE SHOWN AS INDICATIVE ONLY. REFER AS1742.2 FOR LATERAL AND LONGITUDINAL SPACING
4. FOR DRAINAGE DETAILS REFER DRAINAGE DETAIL SHEETS SM-001 TO SM-008
5. FOR PUBLIC UTILITIES INFORMATION AND WORKS REFER DRG 011-GN
6. SIGNS REMOVED AT CROSSINGS FOR CLARITY REFER DRG 008-GN FOR DETAILS

ACCEPTED FOR CONSTRUCTION

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0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: 0 10 20 30 40 50 SCALE 1:1000m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk | bridge knowledge ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:29 PM PLOT BY: GM

TITLE	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
SIGNS & LINEMARKING PLANS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: GN-007 OF 67 | ISSUE: A

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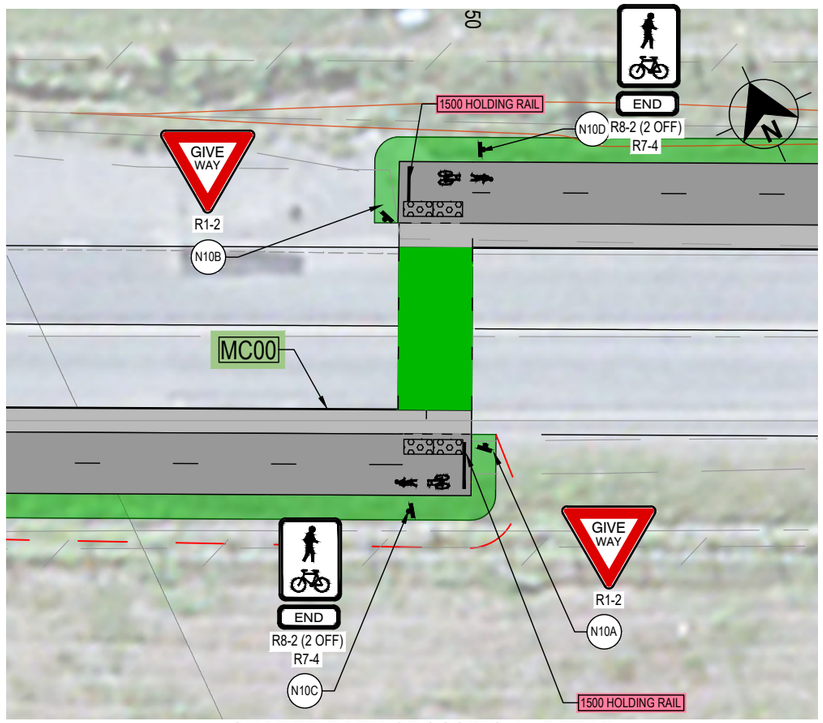
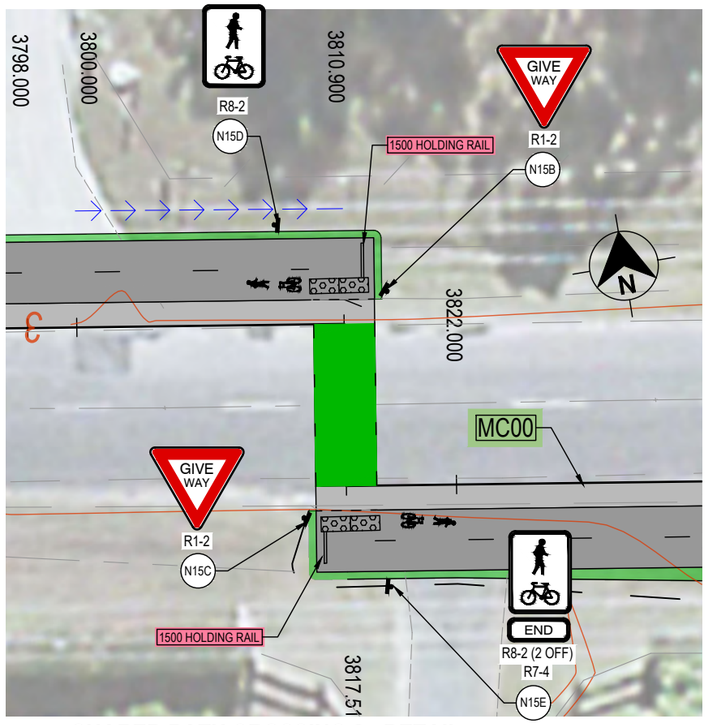


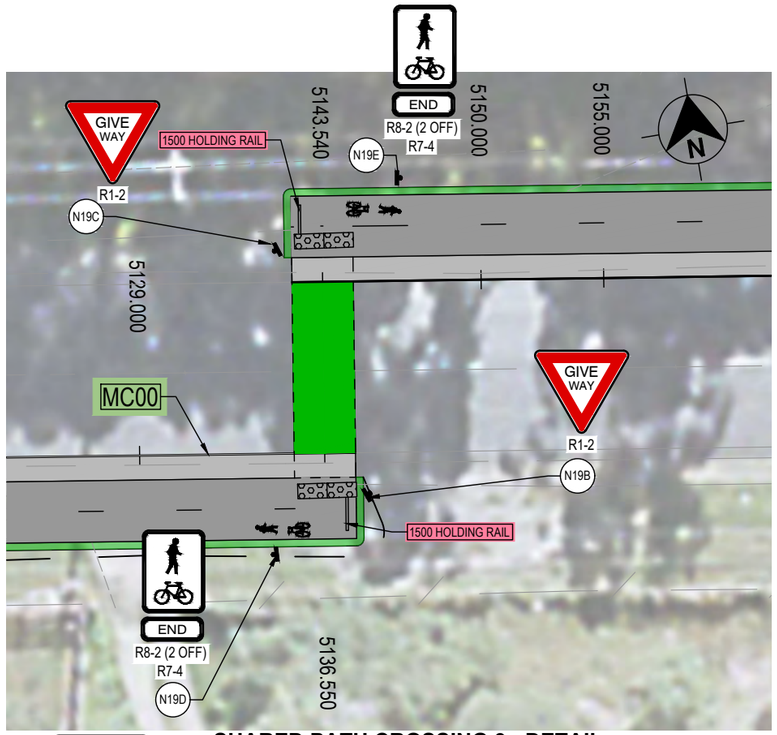
SHARED PATH CROSSING 1 - DETAIL

SCALE 1:250 m



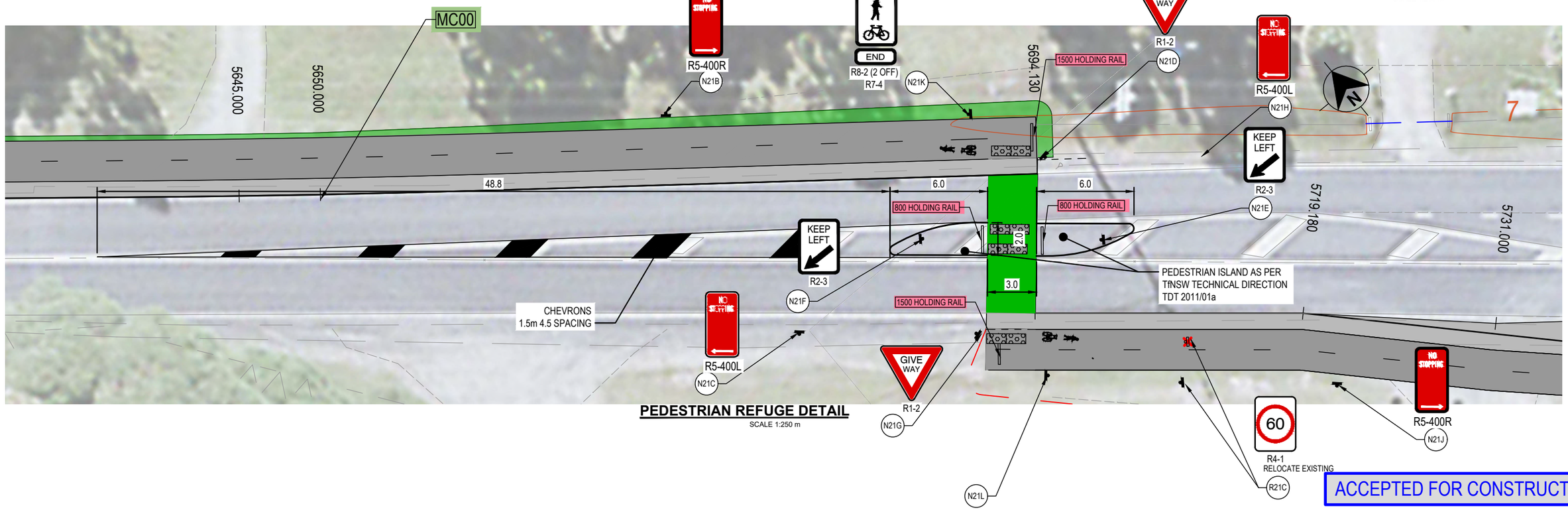
SHARED PATH CROSSING 2 - DETAIL

SCALE 1:250 m



SHARED PATH CROSSING 3 - DETAIL

SCALE 1:250 m



PEDESTRIAN REFUGE DETAIL

SCALE 1:250 m

ACCEPTED FOR CONSTRUCTION

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50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

PLOT DATE / TIME: 19/01/2024-4:30 PM — PLOT BY: GM

SCALES ON A3 SIZE DRAWING: 0 2.5 5.0 7.5 10.0 12.5 — SCALE 1:250m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) — HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

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DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK — environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
SIGNS & LINEMARKING PLANS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: GN-008 OF 67 | ISSUE: A

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NEW SIGN DETAILS

sign ID	Approx. chainage	Sheet reference	Control line	RHS/LHS	Sign type	Sign no	Sign name	No. posts	Setout		Comment
									Lateral offset	longitudinal placement	
N3A	2.000	003-RW	MC00	RHS	Regulatory	R8-2	Shared path	1 CHS	As per MUTCD	As per MUTCD	Locate ch2.2 (MC00 RHS)
N3B	2.000	003-RW	MC00	RHS	Regulatory	R8-2 & R7-4	Shared path & end plate	-	As per MUTCD	As per MUTCD	Locate ch2.2 (MC00 RHS) same pole as N3A
N3C	55.000	003-RW	REDWOOD LANE	LHS	Warning	W6-7 & W8-23	Bicycles, crossing arrows	1 CHS	As per MUTCD	As per MUTCD	locate 40m from intersection
N3D	97.000	003-RW	MC00	RHS	Regulatory	R8-2	Shared path	1 CHS	As per MUTCD	As per MUTCD	
N3E	123.000	003-RW	MC00	RHS	Regulatory	R8-2	Shared path	1 CHS	As per MUTCD	As per MUTCD	
N3F	45.000	003-RW	RICHMOND STREET	LHS	Warning	W6-7 & W8-23	Bicycles, crossing arrows	1 CHS	As per MUTCD	As per MUTCD	locate 45m from intersection
N4A	516.000	004-RW	MC00	LHS	Regulatory	R1-2	Giveway	1 CHS	As per MUTCD	As per MUTCD	
N4B	75.000	004-RW	WAGNER STREET	LHS	Warning	W6-7 & W8-23	Bicycles, crossing arrows	1 CHS	As per MUTCD	As per MUTCD	locate 40 - 60m from crossing
N4C	516.000	004-RW	MC00	RHS	Regulatory	R8-2 (2 OFF) & R7-4	Shared path & end plate	1 CHS	As per MUTCD	As per MUTCD	
N4D	526.000	004-RW	MC00	LHS	Regulatory	R8-2 (2 OFF) & R7-4	Shared path	1 CHS	As per MUTCD	As per MUTCD	
N4E	525.000	004-RW	MC00	RHS	Regulatory	R1-2	Giveway	1 CHS	As per MUTCD	As per MUTCD	
N10A	2031.000	008-GN-SL	MC00	RHS	Regulatory	R1-2	Giveway	1 CHS	As per MUTCD	As per MUTCD	
N10B	2308.000	008-GN-SL	MC00	LHS	Regulatory	R1-2	Giveway	1 CHS	As per MUTCD	As per MUTCD	
N10C	2299.000	008-GN-SL	MC00	RHS	Regulatory	R8-2 (2 OFF) & R7-4	Shared path & end plate	1 CHS	As per MUTCD	As per MUTCD	
N10D	2308.000	008-GN-SL	MC00	LHS	Regulatory	R8-2 (2 OFF) & R7-4	Shared path & end plate	1 CHS	As per MUTCD	As per MUTCD	
N15A	3690.000	015-RW	MC00	LHS	Warning	W6-9 W8-23	Bicycle pedestrian, crossing arrows	1 CHS	As per MUTCD	As per MUTCD	
N15B	3810.000	008-GN-SL	MC00	LHS	Regulatory	R1-2	Giveway	1 CHS	As per MUTCD	As per MUTCD	
N15C	3817.000	008-GN-SL	MC00	LHS	Regulatory	R1-2	Giveway	1 CHS	As per MUTCD	As per MUTCD	
N15D	3808.000	008-GN-SL	MC00	LHS	Regulatory	R8-2 (2 OFF) & R7-4	Shared path & end plate	1 CHS	As per MUTCD	As per MUTCD	
N15E	3819.000	008-GN-SL	MC00	RHS	Regulatory	R8-2 (2 OFF) & R7-4	Shared path & end plate	1 CHS	As per MUTCD	As per MUTCD	
N19A	5014.000	019-RW	MC00	LHS of Roadway	Warning	W6-9 W8-23	Bicycle pedestrian, crossing arrows	1 CHS	LHS of Road As per MUTCD	As per MUTCD	
N19B	5136.000	019-RW	MC00	RHS	Regulatory	R1-2	Giveway	1 CHS	As per MUTCD	As per MUTCD	
N19C	5143.000	019-RW	MC00	LHS	Regulatory	R1-2	Giveway	1 CHS	As per MUTCD	As per MUTCD	
N19D	5135.000	008-GN-SL	MC00	LHS	Regulatory	R8-2 (2 OFF) & R7-4	Shared path & end plate	1 CHS	As per MUTCD	As per MUTCD	
N19E	5148.000	008-GN-SL	MC00	RHS	Regulatory	R8-2 (2 OFF) & R7-4	Shared path & end plate	1 CHS	As per MUTCD	As per MUTCD	
N20A	5265.000	020-RW	MC00	RHS of Roadway	Warning	W6-9 W8-23	Bicycle pedestrian, crossing arrows	1 CHS	RHS of Road As per MUTCD	As per MUTCD	
N21A	5570.000	021-RW	MC00	LHS	Warning	W6-1 W8-25	Pedestrian, refuge island	1 CHS	As per MUTCD	As per MUTCD	
N21B	5625.000	008-GN-SL	MC00	LHS	Regulatory	R5-400R	No stopping	1 CHS	As per MUTCD	As per MUTCD	
N21C	5671.000	008-GN-SL	MC00	RHS of Roadway	Regulatory	R5-400L	No stopping	1 CHS	As per MUTCD	As per MUTCD	
N21D	5694.000	008-GN-SL	MC00	LHS	Regulatory	R1-2	Giveway	1 CHS	As per MUTCD	As per MUTCD	
N21E	5697.000	008-GN-SL	MC00	LHS	Regulatory	R2-3	Keep left	1 CHS	As per MUTCD	As per MUTCD	
N21F	5697.000	008-GN-SL	MC00	RHS	Regulatory	R2-3	Keep left	1 CHS	As per MUTCD	As per MUTCD	
N21G	5700.000	008-GN-SL	MC00	RHS	Regulatory	R1-2	Giveway	1 CHS	As per MUTCD	As per MUTCD	
N21H	5712.000	008-GN-SL	MC00	RHS	Regulatory	R5-400L	posted speed 60	1 CHS	As per MUTCD	As per MUTCD	
N21J	5721.000	008-GN-SL	MC00	RHS	Regulatory	R5-400R	No stopping	1 CHS	As per MUTCD	As per MUTCD	
N21K	5690.000	008-GN-SL	MC00	LHS	Regulatory	R8-2 (2 OFF) & R7-4	Shared path & end plate	1 CHS	As per MUTCD	As per MUTCD	
N21L	5703.000	008-GN-SL	MC00	RHS	Regulatory	R8-2 (2 OFF) & R7-4	Shared path & end plate	1 CHS	As per MUTCD	As per MUTCD	
N22A		022-RW	-	RHS of Roadway	Warning	W6-1 W8-25	pedestrian, refuge island	1 CHS	As per MUTCD	As per MUTCD	locate 180m from crossing

ACCEPTED FOR CONSTRUCTION

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0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: NOT APPLICABLE

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:30 PM PLOT BY: GM

TITLE	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
SIGN SCHEDULES 1

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: GN-009 OF 67 | ISSUE: A

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SIGN RELOCATION DETAILS

sign ID	Chainage	Control line	sheet reference	side of path	Sign type	Sign no	Sign name	No. posts	setout	
									lateral	longitudinal
R3B	88	RICHMOND STREET	003-RW	LHS	Guide	G1-4	Guide sign	2 CHS		at existing chainage
R4A	358	MC00	004-RW	RHS	Guide	G5-1	Guide sign	1 CHS	shift RHS clear of path as per MUTCD	at existing chainage
R5A	670	MC00	005-RW	RHS	Non standard	Non standard	Water restriction	2 CHS	shift RHS clear of path as per MUTCD	at existing chainage
R5B	785	MC00	005-RW	RHS	Guide	G9-79	50 ahead	1 CHS	shift RHS clear of path as per MUTCD	at existing chainage
R12A	3011	MC00	012-RW	LHS	Directional	D4-1-1 L & R	Chevron	3 CHS	Remove and Reinstate as per MUTCD	Reinstate as per existing
R12B	3011	MC00	012-RW	Guide	Guide	G5-1	Street name	1 CHS	Remove and Reinstate as per MUTCD	Reinstate as per existing
R12C	3011	MC00	012-RW	Guide	Non standard	Non standard	Golf course	-	Remove and Reinstate as per MUTCD	Reinstate as per existing
R13A	3153	MC00	013-RW	LHS	Regulatory	R4-1	80 speed sign	1 CHS	shift LHS clear of path as per MUTCD	
R13B	3180	MC00	013-RW	LHS	Non standard	Non standard	Mile marker	1 CHS	shift LHS clear of path and drainage structure	at existing chainage
R13C	3299	MC00	013-RW	LHS	Warning	W1-3L	Curve	1 CHS	shift LHS clear of path as per MUTCD	at existing chainage
R15A	3847	MC00	015-RW	RHS	Warning	W1-3R	Curve	1 CHS	shift RHS clear of path as per MUTCD	at existing chainage
R21A	5494	MC00	021-RW	LHS	Warning/ Regulatory	W6-204N & R7-2	School bus stop ahead	1 CHS	shift LHS clear of path as per MUTCD	at existing chainage
R21B	5578	MC00	021-RW	LHS	Warning	W2-4	T - intersection	1 CHS	LHS clear of path as per MUTCD	Relocate to chainage ch5625
R21C	5767	MC00	008-GN-SL	RHS	Regulatory	R4-1	60 speed	1 CHC	shift RHS clear of path as per MUTCD	at existing chainage
R21D	5767	MC00	021-RW	LHS	Regulatory	R5-20	Bus zone	1 CHC	Remove and Reinstate as per MUTCD	at existing chainage
R22A	5786	MC00	022-RW	RHS	Warning/ Regulatory	W4-9	Left lane ends	1 CHS	shift RHS clear of path as per MUTCD	at existing chainage

EXISTING SIGN DETAILS

sign ID	Approximate Chainage	Control line	LHS/RHS	Sign Type	Sign No.	Sign Name	Treatment
E3A	5	REDWOOD LANE	LHS	Regulatory	R1-4	Giveway	to remain
E3B	5	RICHMOND STREET	LHS	Regulatory	R1-4	Giveway	to remain
E22A	5768	MC00	RHS	Regulatory	R5-20R	Bus Zone	to remain

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CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

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DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
SIGN SCHEDULES 2

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: GN-010 OF 67 | ISSUE A

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SERVICES

UTILITY TYPE	SERVICE ID	ASSET OWNER	LOCATION (CHAINAGE)	DESCRIPTION	TREATMENT
WATER	WA01	RICHMOND VALLEY COUNCIL	42	Main Crossing	no treatment required - locate prior to excavation
	WA03		185	Main Crossing	no treatment required - locate prior to excavation
	WA04		610-830	water main under fill batter longitudinally	no treatment required - locate prior to excavation
	WA05		724	Air valve	Raise cover to match fill batter
	WA06		825	Marker post	no treatment required - locate prior to excavation
	WA07		830	Main Crossing	no treatment required - locate prior to excavation
	WA08		2357	service crossing	Asses depth relative to new tabledrain excavation - protect or relocate as required
	WA09		2488	Stop Valve	no treatment required - locate prior to excavation
	WA10		2500	Stop Valve	Raise Cover to match new path
	WA11		2500-3350	water Main under path longitudinally	no treatment required - locate prior to excavation
	WA12		2594	marker post & service crossing	Asses depth relative to new tabledrain excavation - protect or relocate as required
	WA13		2690	Stop Valve	Raise Cover to match new path
	WA14		2778	Water Meter & service crossing	Asses depth relative to new tabledrain excavation - protect or relocate as required
	WA15		2988	Main Crossing	Asses depth relative to new tabledrain excavation - protect or relocate as required
	WA16		3003	Water Meter & service crossing	Asses depth relative to new tabledrain excavation - protect or relocate as required
	WA17		3018	Water Meter & service crossing	Asses depth relative to new tabledrain excavation - protect or relocate as required
	WA18		3022	Water Meter & service crossing	Asses depth relative to new tabledrain excavation - protect or relocate as required
	WA19		3093	Stop Valve	Raise Cover - second main not picked up in survey
	WA20		3212	Water Meter & service crossing	Asses depth relative to new tabledrain excavation - protect or relocate as required
	WA21		3223	Air Valve	Raise Cover to new footpath level
	WA22		3346	HYDRANT	no treatment required - CLEAR OF WORKS - locate prior to excavation
	WA23		3421	service crossing	Asses depth relative to new tabledrain excavation - protect or relocate as required
	WA24		3535	Water Meter & service crossing	Asses depth relative to new tabledrain excavation - protect or relocate as required
	WA25		3563	service crossing	Asses depth relative to new tabledrain excavation - protect or relocate as required
	WA26		3610	Water Meter & service crossing	Asses depth relative to new tabledrain excavation - protect or relocate as required
	WA27		3619	service crossing	Asses depth relative to new tabledrain excavation - protect or relocate as required
	WA28		3600-3817	water Main under path longitudinally	Asses depth relative to new tabledrain excavation - protect or relocate as required
	WA29		3727	Water Meter & service crossing	Asses depth relative to new tabledrain excavation - protect or relocate as required
	WA30		3730	Air Valve	Raise Cover to new footpath level
	WA31		3782	Water Meter & service crossing	Asses depth relative to new tabledrain excavation - protect or relocate as required
	WA32		3784	Stop Valve	Raise Cover to match new path
	WA33		3907	service crossing	Asses depth relative to new tabledrain excavation - protect or relocate as required
	WA34		4203	service crossing	no treatment required - locate prior to excavation
	WA35		4841	service crossing	no treatment required - locate prior to excavation
	WA36		5047	service crossing	no treatment required - locate prior to excavation
	WA37		5228	service crossing	no treatment required - locate prior to excavation
	WA38		5366	service crossing	no treatment required - locate prior to excavation
	WA39		5507-5623	water Main under path longitudinally	Asses depth relative to new tabledrain excavation - protect or relocate as required
	WA40		5614	Air Valve	Raise Cover to new footpath level
	WA41		5673	SERVICE CROSSING	NO TREATMENT REQUIRED - LOCATE PRIOR TO EXCAVATION
Sewer	SE01	RICHMOND VALLEY COUNCIL	180	main crossing	no treatment required - locate prior to excavation
	SE02		500	main crossing	no treatment required - locate prior to excavation
	SE03		2308-3810	sewer Main under path longitudinally	no treatment required - locate prior to excavation
	SE04		2325	SQUARE PIT in new path	Raise to match new path level
	SE05		2500	SQUARE PIT in batter	ADJUST to match new ground level, DIVERT TABLEDRAIN AS REQUIRED
	SE06		2687	SQUARE PIT in batter	ADJUST to match new ground level, DIVERT TABLEDRAIN AS REQUIRED
	SE07		2848	ROUND PIT in batter	ADJUST to match new ground level, DIVERT TABLEDRAIN AS REQUIRED
	SE08		3093	SQUARE PIT in batter	ADJUST to match new ground level, DIVERT TABLEDRAIN AS REQUIRED
	SE09		3669	SQUARE PIT in batter	ADJUST to match new ground level, DIVERT TABLEDRAIN AS REQUIRED
	SE10		3784	SQUARE PIT in batter	ADJUST to match new ground level, DIVERT TABLEDRAIN AS REQUIRED
	SE11		5143-5565	Sewer main under path longitudinally	no treatment required - locate prior to excavation
	SE12		5252	SQUARE PIT in VERGE	ADJUST to match new ground level, DIVERT TABLEDRAIN AS REQUIRED
	SE13		5471	SQUARE PIT in batter	ADJUST to match new ground level, DIVERT TABLEDRAIN AS REQUIRED
	SE14		5711	main crossing	no treatment required - locate prior to excavation
Electricity	EL01	ESSENTIAL ENERGY	38	OVERHEAD CROSSING	TAG - Power Pole clear of works
	EL02		97	OVERHEAD CROSSING	TAG - Power Pole clear of works
	EL03		120	OVERHEAD CROSSING	TAG - Power Pole clear of works
	EL04		150	OVERHEAD CROSSING	TAG - Power Pole clear of works
	EL05		2100	OVERHEAD CROSSING	TAG - Power Pole clear of works
	EL06		210	OVERHEAD CROSSING	TAG - Power Pole clear of works
	EL07		260	OVERHEAD CROSSING	TAG - Power Pole clear of works
	EL08		270	OVERHEAD CROSSING	TAG - Power Pole clear of works
	EL09		310	OVERHEAD CROSSING	TAG - Power Pole clear of works
	EL10		345	OVERHEAD CROSSING	TAG - Power Pole clear of works
	EL11		660	POLE	
	EL12		770	POLE	
	EL13		880	pole	widen verge to 2m to divert tabledrain behind pole
	EL14		990	pole	pole within fill batter clear of path - protect during construction
	EL15		1075	pole	clear of construction footprint - protect during construction
	EL16		1160	pole	clear of construction footprint - protect during construction
	EL17		1241	pole	clear of construction footprint - protect during construction
	EL18		1341	pole	clear of construction footprint - protect during construction
	EL19		1444	pole	clear of construction footprint - protect during construction
	EL20		1544	pole	clear of construction footprint - protect during construction
	EL21		2249	pole and overhead crossing	Tag, clear of construction footprint - protect during construction
	EL22		2359	OVERHEAD CROSSING	TAG
	EL23		2481	OVERHEAD CROSSING	TAG
	EL24		2988	stay	STAY WITHIN FILLED VERGE - ADJUST AND PROTECT DURING CONSTRUCTION

SERVICES

UTILITY TYPE	SERVICE ID	ASSET OWNER	LOCATION (CHAINAGE)	DESCRIPTION	TREATMENT
Electricity	EL25	ESSENTIAL ENERGY	3001	Pole and overhead crosssing	TAG, POLE WITHIN FILLED VERGE - PROTECT DURING CONSTRUCTION
	EL26		3101	pole & OVERHEAD CROSSING	TAG, POLE WITHIN FILL BATTER - PROTECT DURING CONSTRUCTION
	EL27		3252	pole & OVERHEAD CROSSING	TAG, POLE WITHIN FILL BATTER - PROTECT DURING CONSTRUCTION
	EL28		3401	pole & OVERHEAD CROSSING	TAG, POLE WITHIN FILL BATTER - PROTECT DURING CONSTRUCTION
	EL29		3526	pole	pole within fill batter clear of path - protect during construction
	EL30		3578	STAY	STAY WITHIN FILLED VERGE - ADJUST AND PROTECT DURING CONSTRUCTION
	EL31		3629	STAY	pole within fill batter clear of path - protect during construction
	EL32		3639	POLE AND OVERHEAD CROSSING	TAG, POLE WITHIN FILL BATTER - PROTECT DURING CONSTRUCTION
	EL33		3695	OVERHEAD CROSSING	TAG
	EL34		3780	POLE AND OVERHEAD CROSSING	TAG, POLE WITHIN FILL BATTER - PROTECT DURING CONSTRUCTION
	EL35		3927	pole	widen verge to 2m to divert tabledrain behind pole
	EL36		3937	stay	widen verge to 2m to divert tabledrain behind pole
	EL37		4044	pole	clear of construction footprint - protect during construction
	EL38		4110	pole	clear of construction footprint - protect during construction
	EL39		4154	stay	clear of construction footprint - protect during construction
	EL40		4155	pole	on edge of cut batter - Protect diring construction
	EL41		4271	POLE AND OVERHEAD CROSSING	Tag, pole clear of construction footprint - protect during construction
	EL42		4325	pole	clear of construction footprint - protect during construction
	EL43		4380	POLE AND OVERHEAD CROSSING	Tag, pole clear of construction footprint - protect during construction
	EL44		4495	POLE AND OVERHEAD CROSSING	tag, pole within fill batter clear of path - protect during construction
	EL45		4603	stay	clear of construction footprint - protect during construction
	EL46		4610	POLE AND OVERHEAD CROSSING	Tag, pole clear of construction footprint - protect during construction
	EL47		4711	stay	clear of construction footprint - protect during construction
	EL48		4720	POLE AND OVERHEAD CROSSING	Tag, pole clear of construction footprint - protect during construction
	EL49		4837	pole	clear of construction footprint - protect during construction
	EL50		4846	stay	clear of construction footprint - protect during construction
	EL51		4850	pole & overhead crossing	Tag, narrow path to 2m and install partial barrier
	EL52		4956	stay	Narrow path to 2m and install partial barrier
	EL53		5060	POLE AND OVERHEAD CROSSING	Tag, pole clear of construction footprint - protect during construction
	EL54		5068	stay	Clear of construction footprint
	EL55		5294	pole	pole within fill batter clear of path - protect during construction
	EL56		5355	POLE AND OVERHEAD CROSSING	TAG, POLE WITHIN FILLED VERGE - PROTECT DURING CONSTRUCTION
	EL57		5456	stay	stay within fill batter clear of path - protect during construction
	EL58		5475	OVERHEAD CROSSING	TAG
	EL59		5500	OVERHEAD CROSSING	TAG
	EL60		5580	pole	pole within fill batter clear of path - protect during construction
	EL61		5690	OVERHEAD CROSSING	TAG
	EL62		5700	POLE AND OVERHEAD CROSSING	TAG, clear of construction footprint - protect during construction
	EL63		5700-5740	underground power	Appears Clear of works - Locate prior to excavation
telecommunications	T01	Telstra	0-5	Telstra cable longitudinally	no treatment required - locate prior to excavation
	T02		1510	Telstra cable crosses alignment	no treatment required - locate prior to excavation
	T03		2266-2301	Telstra cable longitudinally	no treatment required - locate prior to excavation
	T04		2473.5	Telstra cable crosses alignment	no treatment required - locate prior to excavation
	T05		3044	Telstra cable marker	in new tabledrain - relocate
	T06		3044-3810	Telstra cable longitudinally	Asses depth relative to new tabledrain excavation - protect or relocate as required
	T07		3157	Telstra cable crosses alignment	Asses depth relative to new tabledrain excavation - protect or relocate as required
	T08		3157	Telstra pit	CONFIRM LOCATION, SHAPE TABLEDRAIN LOCALLY AROUND PIT IF REQUIRED
	T09		3165	Telstra cable marker	in new tabledrain - relocate
	T10		3407	Telstra cable crosses alignment	Asses depth relative to new tabledrain excavation - protect or relocate as required
	T11		3563	TELSTRA PILLAR	RAISE AND INSTALL PARTIAL BARRIER
	T12		3566	TELSTRA PILLAR	RAISE AND INSTALL PARTIAL BARRIER
	T13		3631	Telstra pit	RAISE PIT, SHAPE TABLEDRAIN LOCALLY AROUND PIT OR RELOCATE CLEAR OF DRAIN INVERT
	T14		3844-3935	Telstra cable longitudinally	Asses depth relative to new tabledrain excavation - protect or relocate as required
	T15		3847	TELSTRA PILLAR AND PIT	RAISE PIT, SHAPE TABLEDRAIN LOCALLY AROUND PIT OR RELOCATE CLEAR OF DRAIN INVERT
	T16		3858	TELSTRA PIT	RAISE PIT, SHAPE TABLEDRAIN LOCALLY AROUND PIT OR RELOCATE CLEAR OF DRAIN INVERT
	T17		4110	TELSTRA PILLAR	no treatment required - locate prior to excavation
	T18		4255	TELSTRA PILLAR	no treatment required - locate prior to excavation
	T19		4266	Telstra cable crosses alignment	Asses depth relative to new tabledrain excavation - protect or relocate as required
	T20		4266	TELSTRA PILLAR AND PIT	no treatment required - locate prior to excavation
	T21		4423	Telstra cable marker	no treatment required - locate prior to excavation
	T22		4512	Telstra cable marker	no treatment required - locate prior to excavation
	T23		4830	Telstra pillar & cable crosses alignment	no treatment required - locate prior to excavation
	T24		4837	Telstra cable marker	no treatment required - locate prior to excavation
	T25		4935-5050	Telstra cable longitudinally	no treatment required - locate prior to excavation
	T26		4950	Telstra cable marker	Relocate clear of new path
	T27		5060	Telstra cable marker	no treatment required - locate prior to excavation
	T28		5125	Telstra Pillar & cable crosses alignment	no treatment required - locate prior to excavation
	T29		5365	Telstra cable crosses alignment	no treatment required - locate prior to excavation
	T30		5457	TELSTRA PILLAR	no treatment required - locate prior to excavation
	T31		5712	TELSTRA PIT	no treatment required - locate prior to excavation
	T32		5726	TELSTRA PIT	no treatment required - locate prior to excavation
	T33		5739	TELSTRA PIT	no treatment required - locate prior to excavation
	T34		5749	TELSTRA PIT	no treatment required - locate prior to excavation
	T35		5781-5785	Telstra cable longitudinally	no treatment required - locate prior to excavation

ACCEPTED FOR CONSTRUCTION

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50mm ON A3 SIZE ORIGINAL
0 5 10 15 20 25 30 35 40 45

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: NOT APPLICABLE

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:30 PM PLOT BY: GM

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DESIGN		G. MULCAHY	16.1.24
DESIGN CHECK		J. ARMSTRONG	16.1.24
DESIGN MNGR		C. RILEY	16.1.24
PROJECT MNGR		M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
PUBLIC UTILITIES

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: GN-011 OF 67 | ISSUE: A

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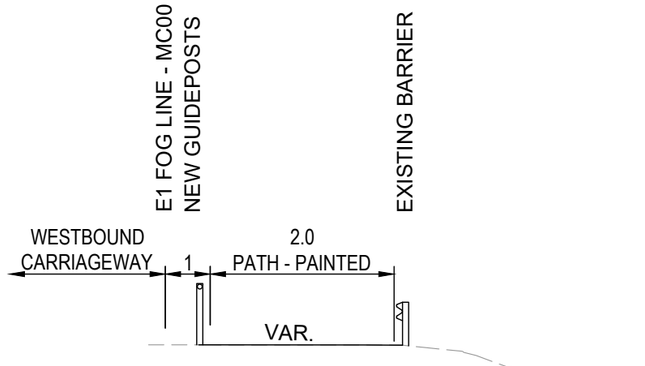
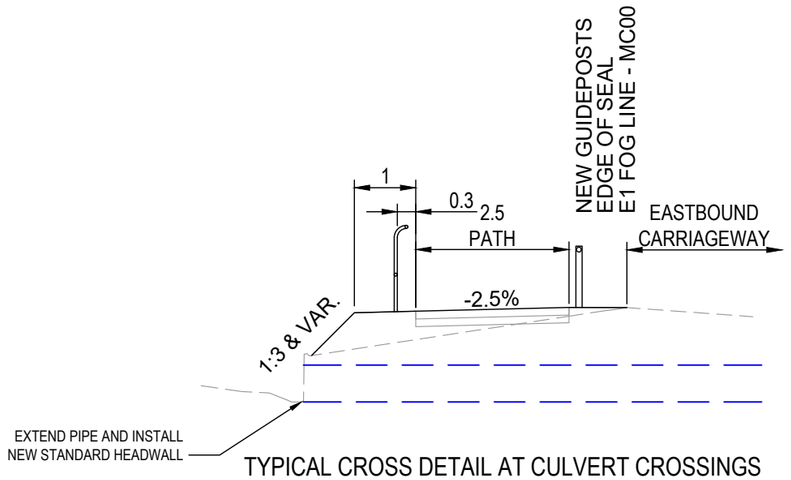


TYPICAL SECTION - ON ROAD PAINTED PATH



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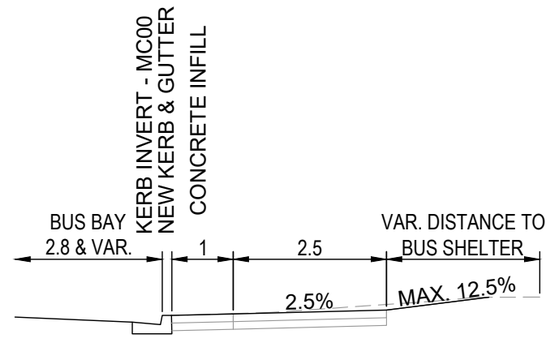
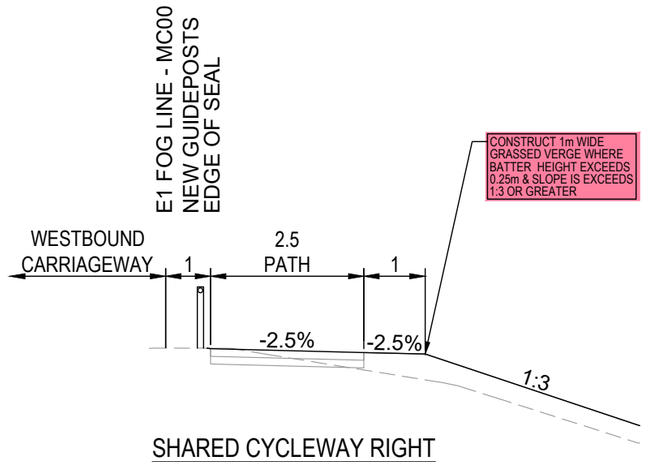
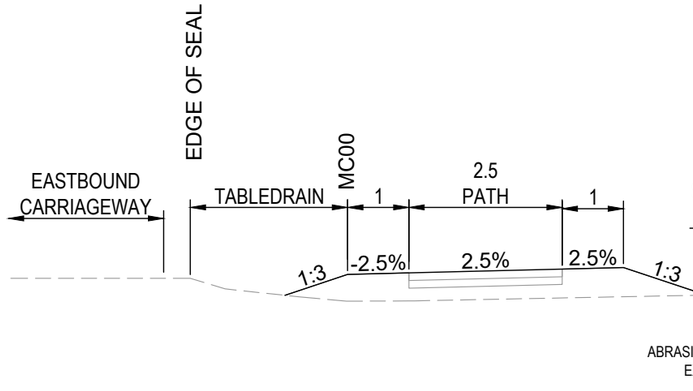


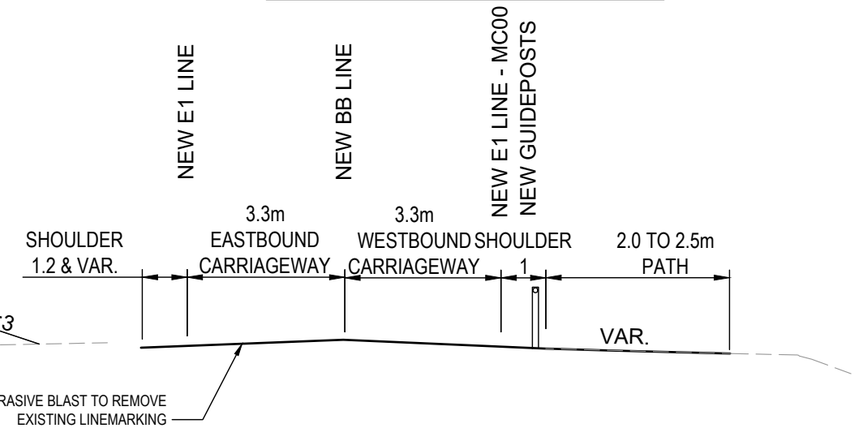
TYPICAL CROSS SECTION AT BUS BAY



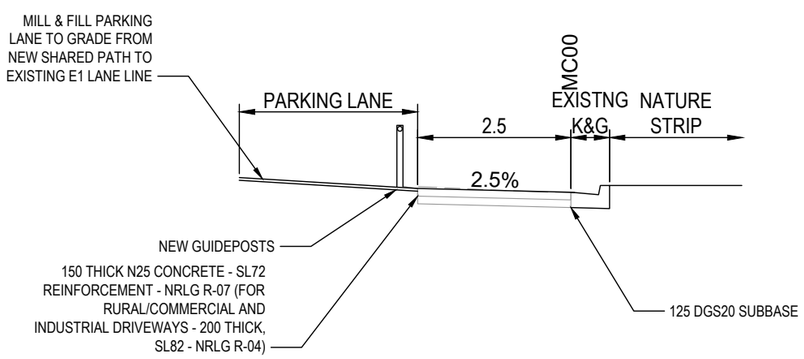
SHARED CYCLEWAY RIGHT



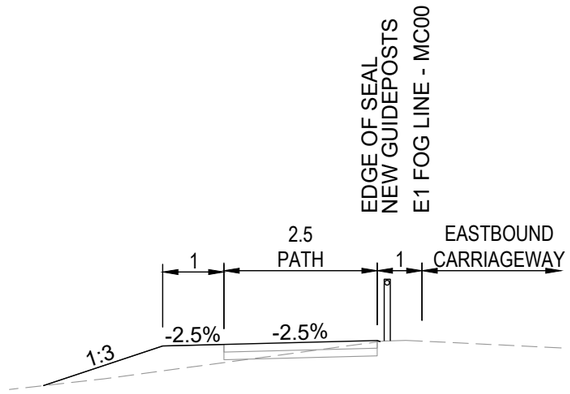
SHARED PATH - OFF ROAD



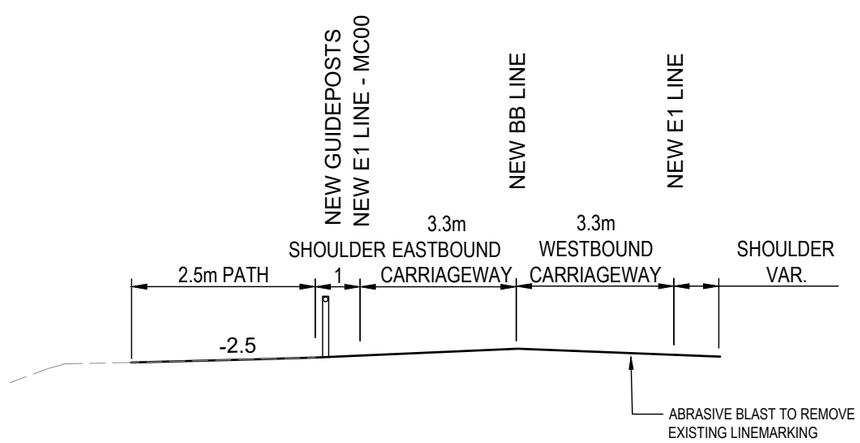
TYPICAL SECTION - ROAD LANE
RECONFIGURATION CH 1500 TO CH 2300



CH 0 - 150 - ON STREET -
EXISTING KERB LIP CONTROL



SHARED CYCLEWAY LEFT



TYPICAL SECTION - ROAD LANE
RECONFIGURATION CH 2308 TO CH 2415

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AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: NOT APPLICABLE

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

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DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
TYPICAL SECTIONS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: RW-001 OF 67 | ISSUE: A

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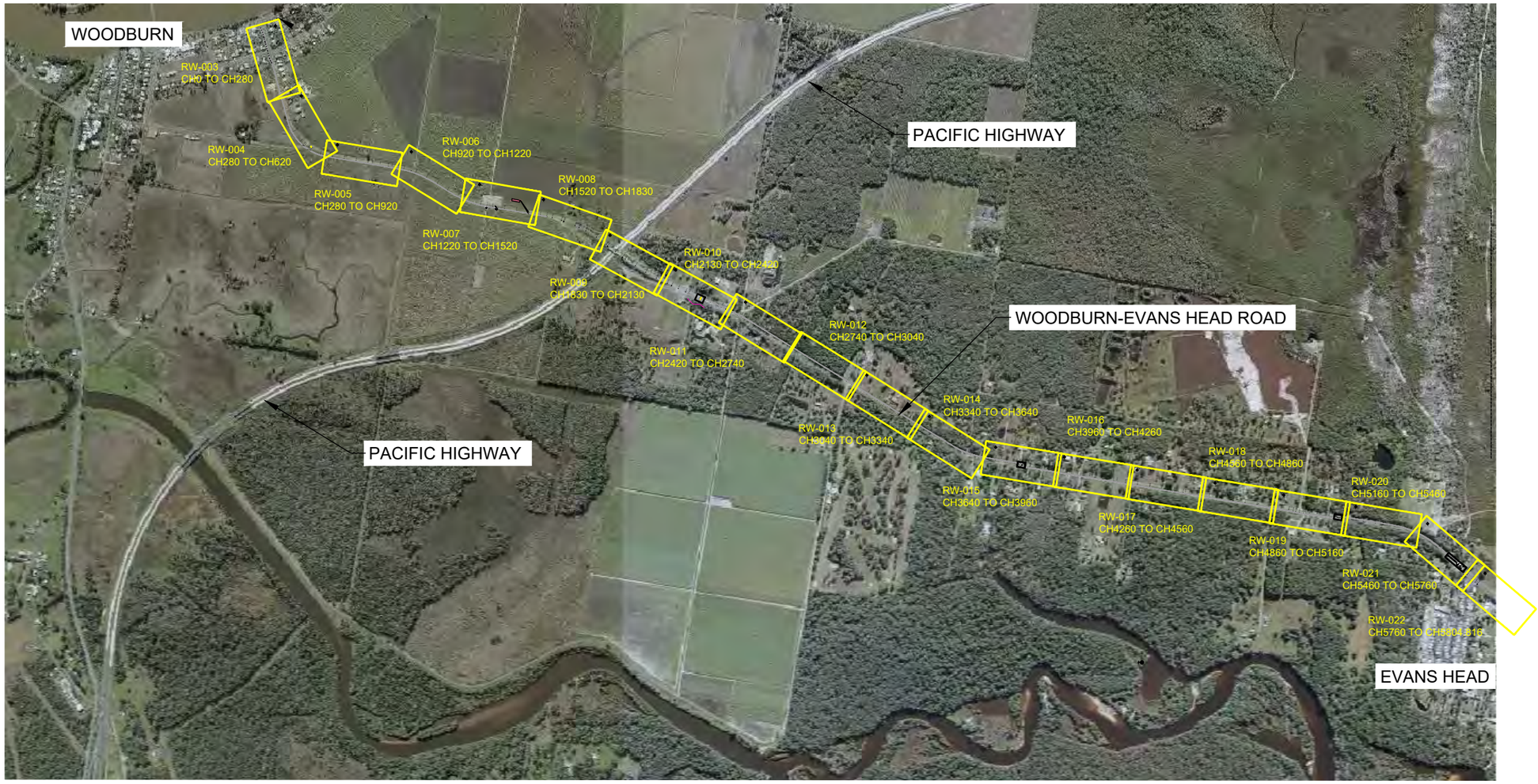

KEY PLAN

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GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
KEY PLAN

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: RW-002 OF 67 | ISSUE: A

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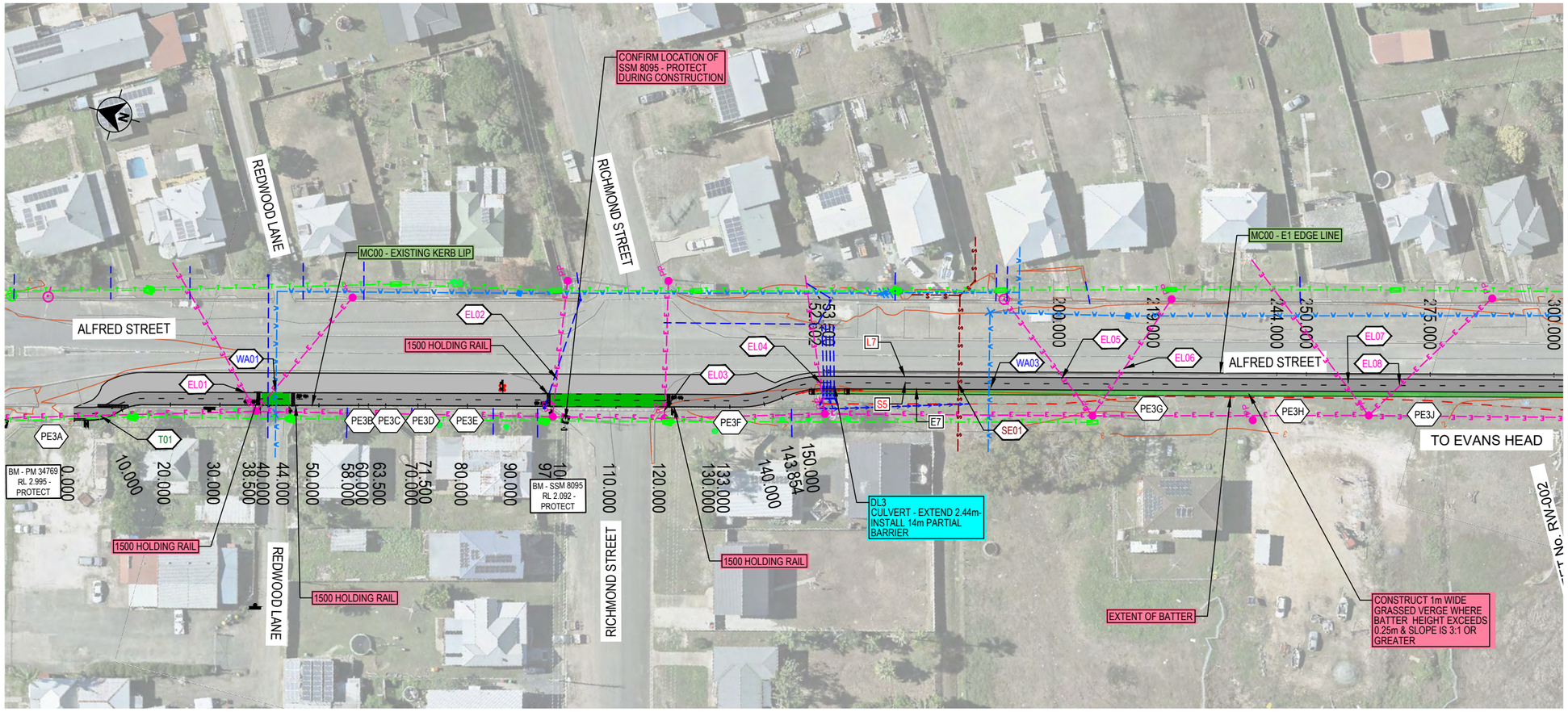

PLAN

LEGEND

- PROPERTY BOUNDARY
- EXISTING CENTRELINE
- MC00 CONTROL STRING LABEL
- CONTROL ALIGNMENT
- DRAINAGE LINE - EXISTING
- DRAINAGE LINE - DESIGN
- KERB & GUTTER - EXISTING
- DISH DRAIN - DESIGN
- EDGE OF BITUMEN - EXISTING
- TABLE DRAIN - EXISTING
- TABLEDRAIN - DESIGN
- TOP OF BANK - EXISTING
- BOTTOM OF BANK - EXISTING
- EDGE FORMATION - EXISTING
- FENCE - EXISTING
- GUARD FENCE - EXISTING
- GUARD FENCE - DESIGN
- TELSTRA
- OPTIC FIBRE
- OVERHEAD TELSTRA
- ELECTRICITY
- UNDERGROUND ELECTRICITY
- WATER
- SEWER
- GAS
- HANDRAIL FENCE - DESIGN
- SUB-SOIL DRAINAGE - DESIGN
- NEW SERVICE CONDUIT
- VEGETATION LINE
- DESIGN BATTER EXTENT
- COMMS. CABLE MARKER
- COMMS. TWIN PIT
- COMMS. SINGLE PIT
- COMMS. PILLAR
- ENDANGERED, PROTECTED OR THREATENED SPECIES
- TREE TO RETAIN
- TREE TO BE PROTECTED
- TREE TO BE REMOVED
- PERMANENT MARK
- BENCH MARK
- STREET SIGN - EXISTING
- DRAINAGE PIT- EXISTING
- DRAINAGE PIT- DESIGN
- STOP VALVE
- HYDRANT
- WATER METER
- WATER MAIN MARKER POST
- AIR VALVE
- WATER PIT - ROUND
- SEWER PIT - ROUND
- SEWER PIT - SQUARE
- SEWER VALVE
- GUIDE POST - EXISTING
- POWER POLE
- POWER STAY ANCHOR
- STREET LIGHT POLE
- NEW CONCRETE
- NEW PAVEMENT
- NEW GRASSED VERGE
- PE01 DRIVEWAY ID - REFER DRG 005-GN FOR SHARED PATH/ DRIVEWAY AND DRAINAGE TREATMENTS
- N1D SIGN ID REFER DRG 009-GN & 010-GN FOR SIGNAGE SCHEDULE
- NEW SIGN
- EXISTING SIGN TO REMAIN
- EXISTING SIGN REMOVE
- WA03 UTILITIES REF ID - WATER
- SE01 UTILITIES REF ID - SEWER
- EL01 UTILITIES REF ID - ELECTRICAL
- T01 UTILITIES REF ID - TELECOMMUNICATIONS

NOTES

1. FOR PAVEMENT AND LINE MARKING TREATMENTS AND NOTES REFER DRG 006-GN
2. REFER PRIVATE ENTRANCE TABLE ON DRG 005-GN FOR WORKS AT DRIVEWAY LOCATIONS, WHICH INCLUDES THE FOLLOWING;
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   - DRIVEWAY WORKS
   - DRAINAGE WORKS
3. SIGN AND GUIDE POST LOCATIONS ARE SHOWN AS INDICATIVE ONLY. REFER AS1742.2 FOR LATERAL AND LONGITUDINAL SPACING
4. FOR DRAINAGE DETAILS REFER DRAINAGE DETAIL SHEETS SM-001 TO SM-008
5. FOR PUBLIC UTILITIES INFORMATION AND WORKS REFER DRG 011-GN
6. SIGNS REMOVED AT CROSSROADS FOR CLARITY REFER DRG 009_GN FOR DETAILS AND 007_GN FOR SIGNAGE SCHEDULE

ACCEPTED FOR CONSTRUCTION

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0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING

0 10 20 30 40 50

SCALE 1:1000m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

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PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
PLAN

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: RW-003 OF 67 | ISSUE: A

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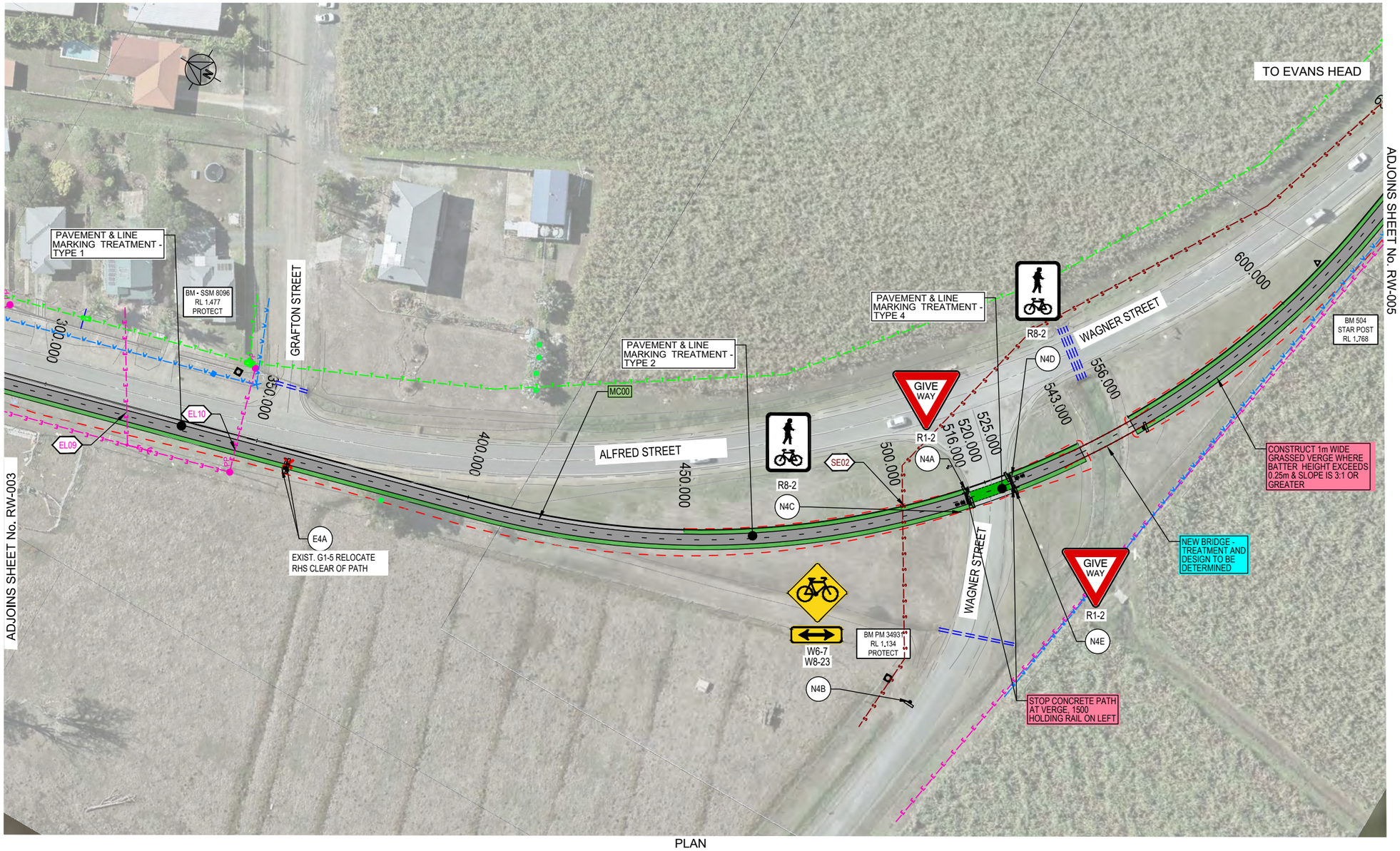

PLAN

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6. SIGNS REMOVED AT CROSSINGS FOR CLARITY REFER DRG 008-GN FOR DETAILS

ACCEPTED FOR CONSTRUCTION

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50mm ON A3 SIZE ORIGINAL
0 5 10 15 20 25 30 35 40 45 50

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

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SCALES ON A3 SIZE DRAWING: 0 10 20 30 40 50 SCALE 1:1000m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

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CLIENT: GeoLINK

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
PLAN

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-004 OF 67 | ISSUE A

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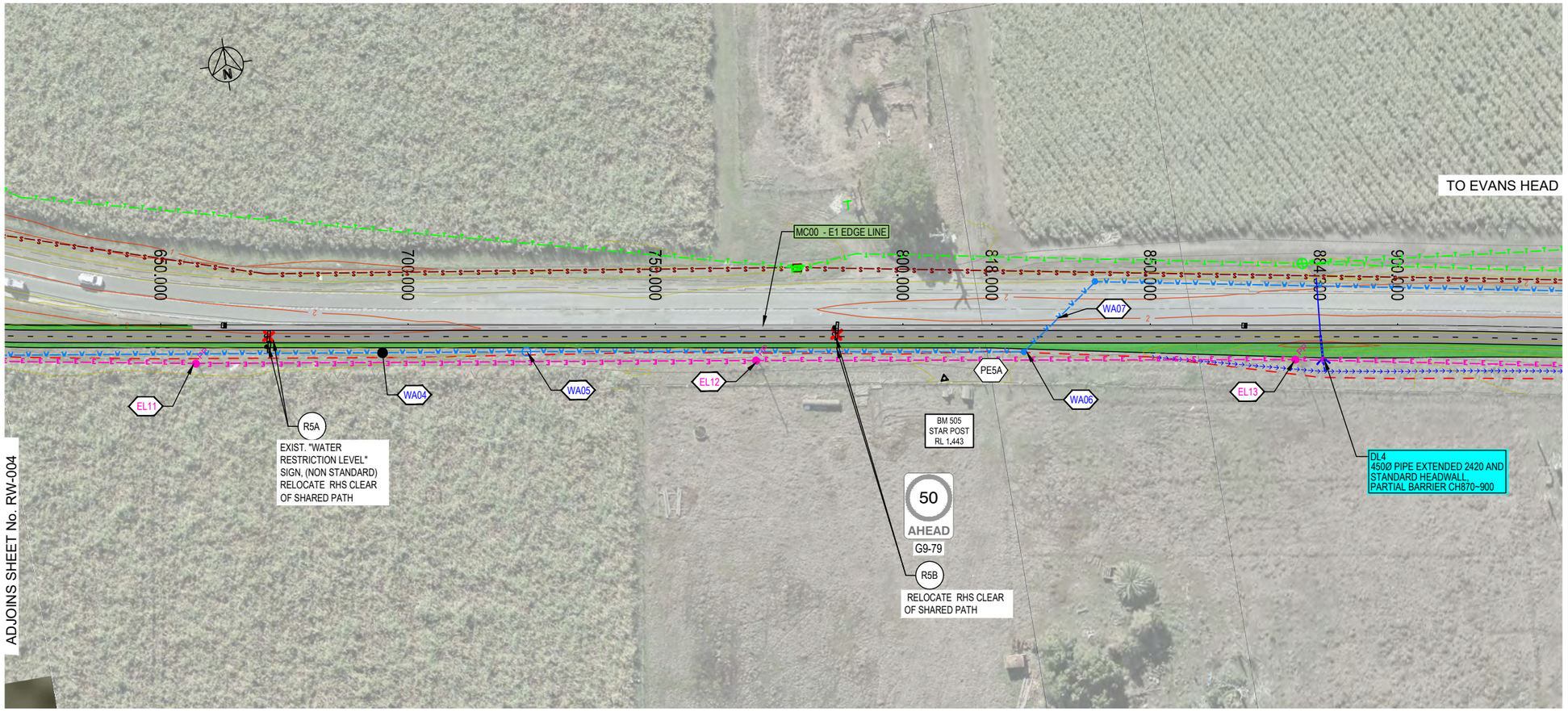

PLAN

LEGEND

- PROPERTY BOUNDARY
- EXISTING CENTRELINE
- MC00 CONTROL STRING LABEL
- CONTROL ALIGNMENT
- DRAINAGE LINE - EXISTING
- DRAINAGE LINE - DESIGN
- KERB & GUTTER - EXISTING
- DISH DRAIN - DESIGN
- EDGE OF BITUMEN - EXISTING
- TABLE DRAIN - EXISTING
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- TOP OF BANK - EXISTING
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- EDGE FORMATION - EXISTING
- FENCE - EXISTING
- GUARD FENCE - EXISTING
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- TELSTRA
- OPTIC FIBRE
- OVERHEAD TELSTRA
- ELECTRICITY
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- WATER
- SEWER
- GAS
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AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: 0 10 20 30 40 50 SCALE 1:1000m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:30 PM PLOT BY: GM

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PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
PLAN

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-005 OF 67 | ISSUE A

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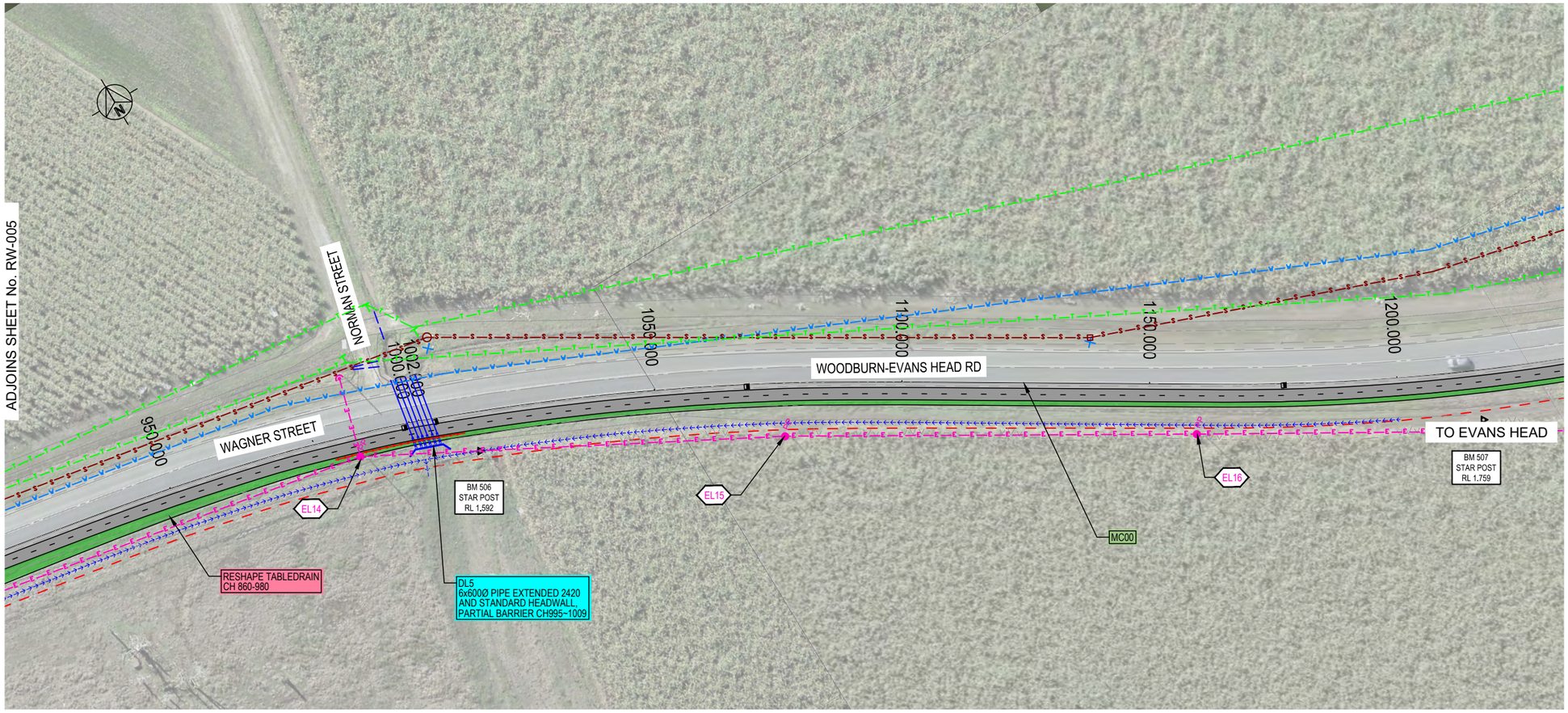

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DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

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PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK

PREPARED FOR: Richmond Valley Council

GEOLINK
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SHARED BICYCLE/PEDESTRIAN PATH DESIGN
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A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: RW-006 OF 67 | ISSUE: A

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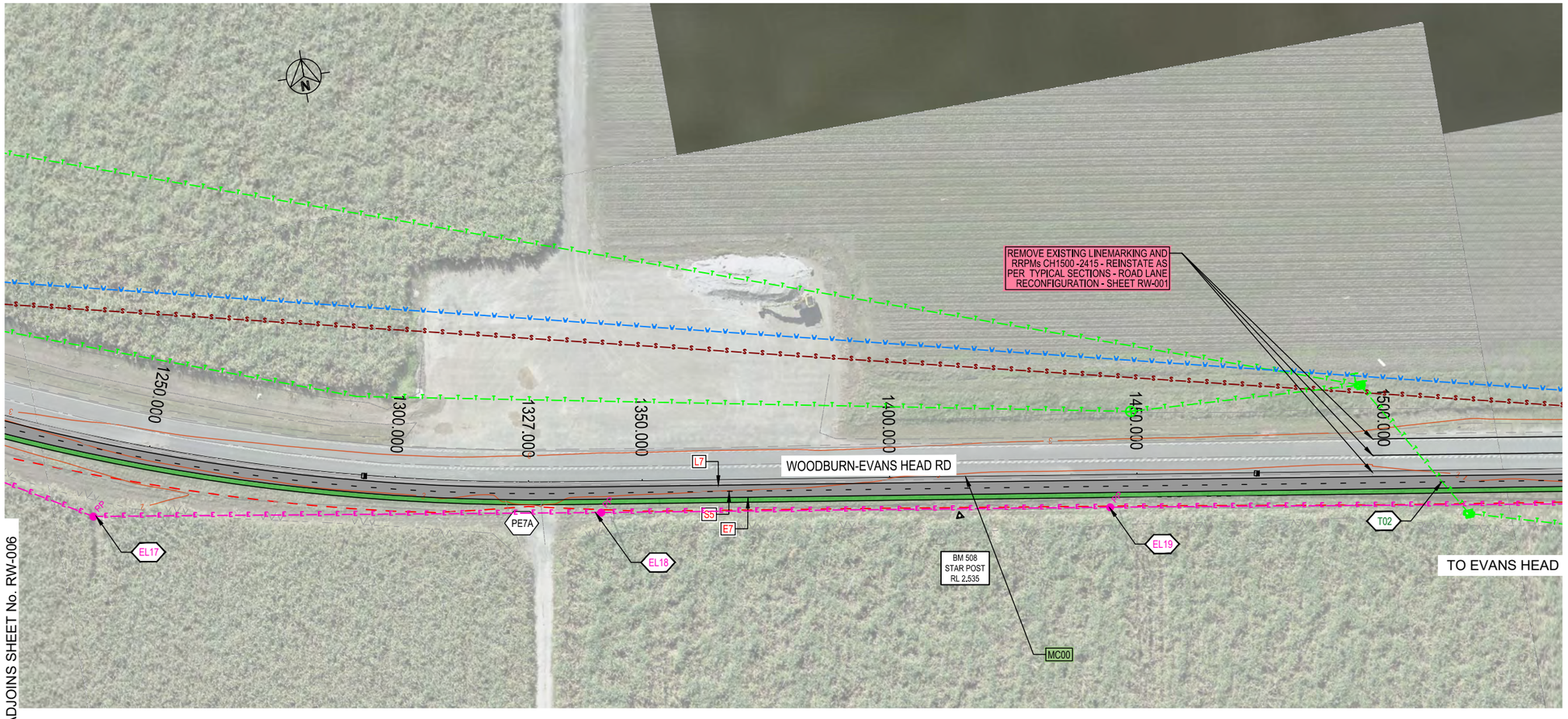

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CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

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CLIENT: GeoLINK environment | engineering | planning | design

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GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
PLAN

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-007 OF 67 | ISSUE A

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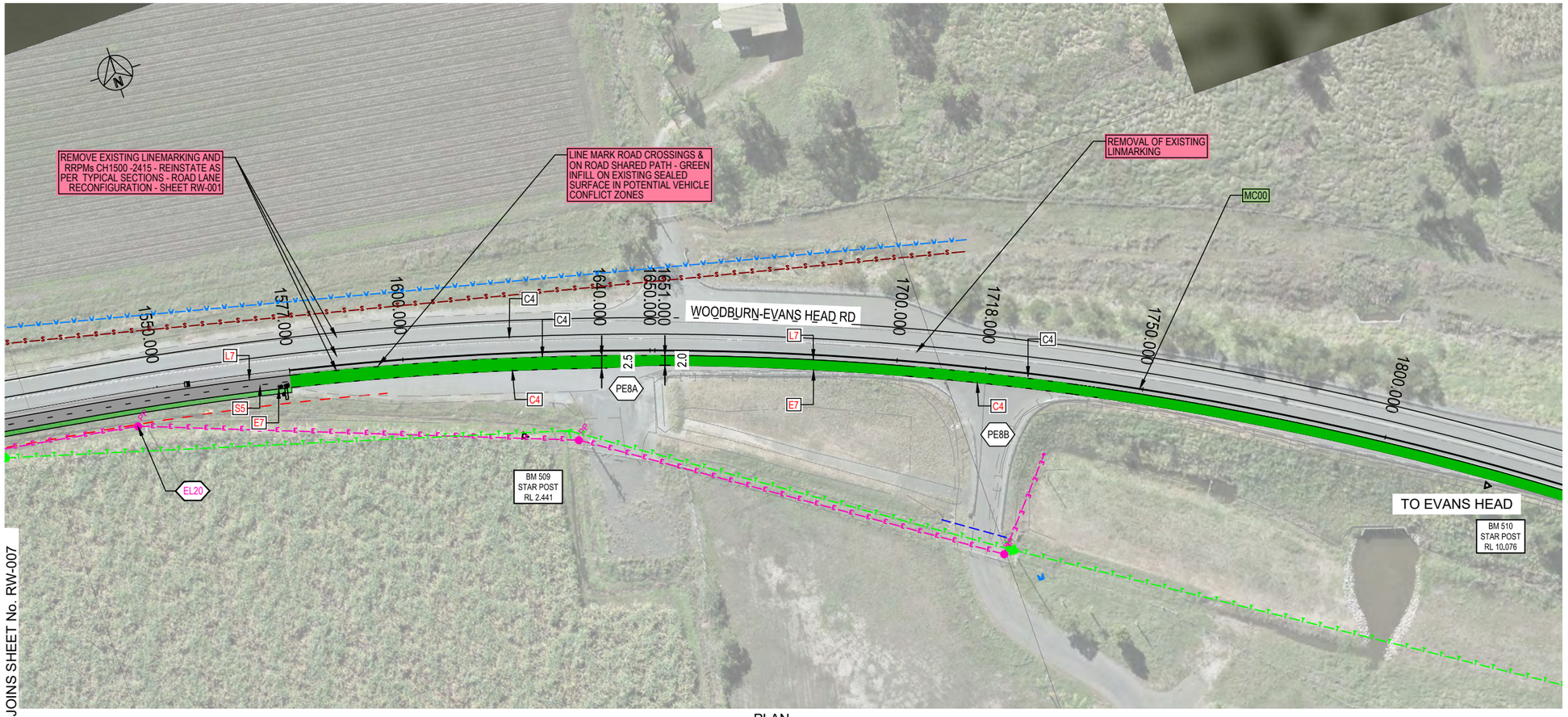

PLAN

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CLIENT: GeoLINK environment | engineering | planning | design

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GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
PLAN

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: RW-008 OF 67 | ISSUE: A

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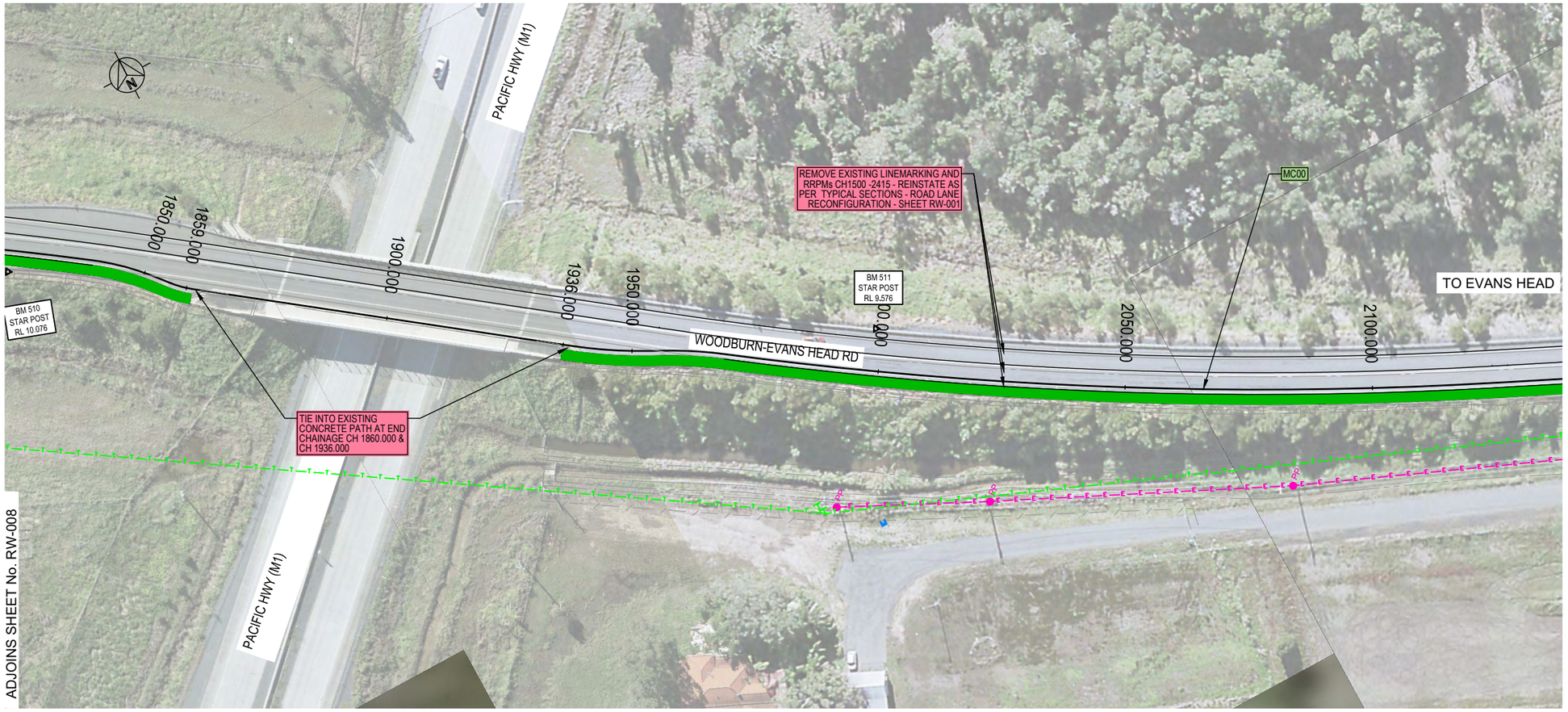

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PREPARED FOR: Richmond Valley Council

GEOLINK
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SHARED BICYCLE/PEDESTRIAN PATH DESIGN
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BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-009 OF 67 | ISSUE A

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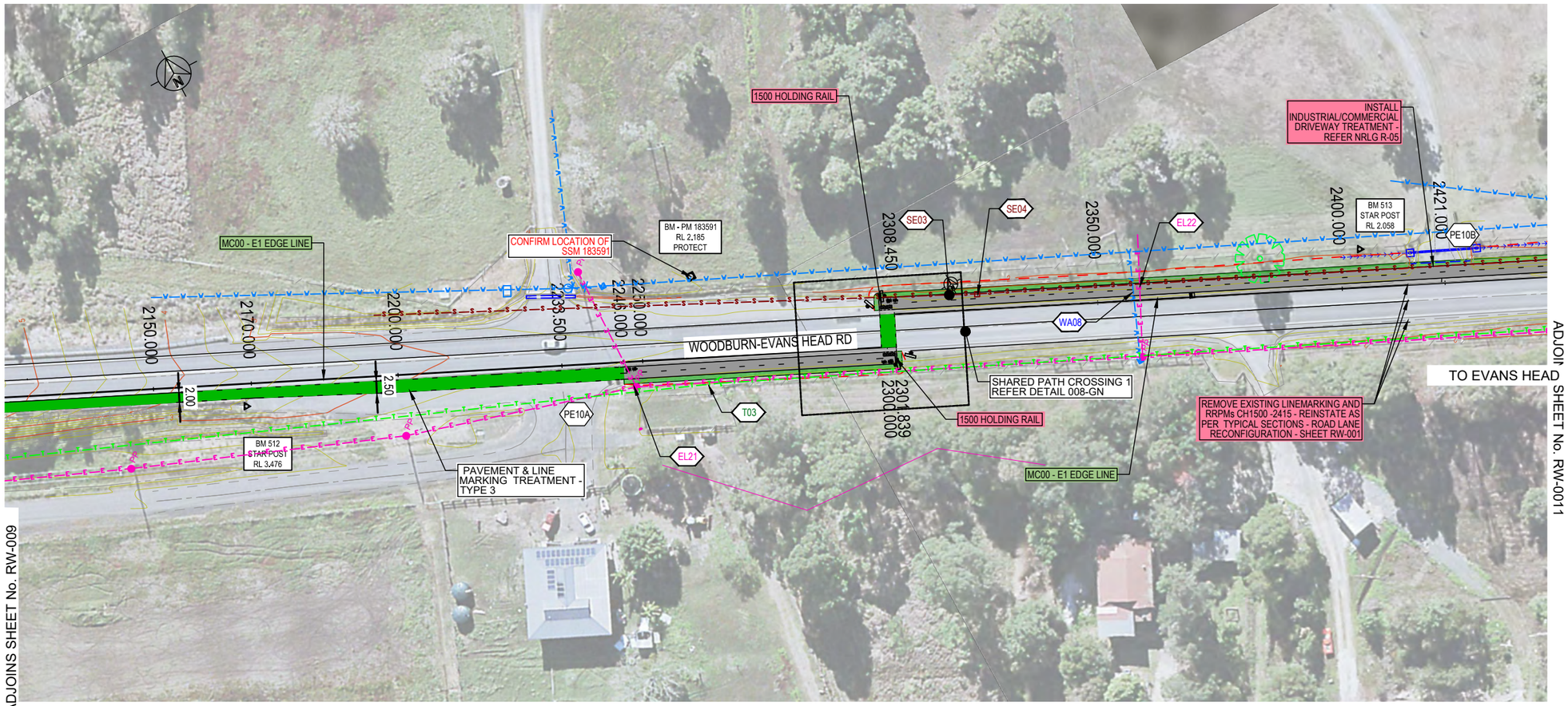

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- WATER MAIN MARKER POST
- AIR VALVE
- WATER PIT - ROUND
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- SEWER PIT - SQUARE
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- POWER POLE
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- STREET LIGHT POLE
- NEW CONCRETE
- NEW PAVEMENT
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- PE01 DRIVEWAY ID - REFER DRG 005-GN FOR SHARED PATH/ DRIVEWAY AND DRAINAGE TREATMENTS
- N1D SIGN ID REFER DRG 009-GN & 010-GN FOR SIGNAGE SCHEDULE
- NEW SIGN
- EXISTING SIGN TO REMAIN
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- WA03 UTILITIES REF ID - WATER
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NOTES

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4. FOR DRAINAGE DETAILS REFER DRAINAGE DETAIL SHEETS SM-001 TO SM-008
5. FOR PUBLIC UTILITIES INFORMATION AND WORKS REFER DRG 011-GN
6. SIGNS REMOVED AT CROSSINGS FOR CLARITY REFER DRG 008-GN FOR DETAILS

ACCEPTED FOR CONSTRUCTION

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0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: 0 10 20 30 40 50 — SCALE 1:1000m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:30 PM PLOT BY: GM

	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
PLAN

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-010 OF 67 | ISSUE A

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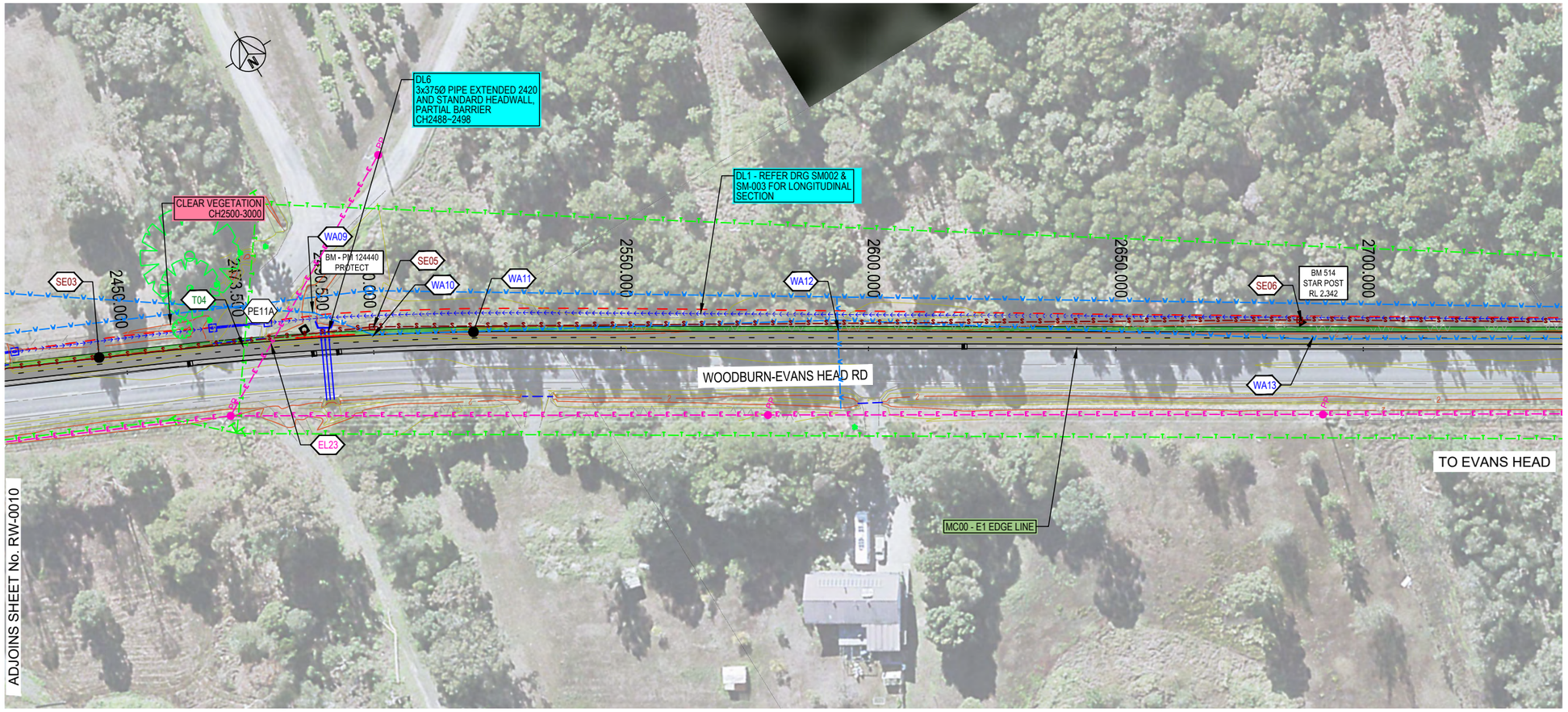

PLAN

LEGEND

- PROPERTY BOUNDARY
- EXISTING CENTRELINE
- MC00 CONTROL STRING LABEL
- CONTROL ALIGNMENT
- DRAINAGE LINE - EXISTING
- DRAINAGE LINE - DESIGN
- KERB & GUTTER - EXISTING
- DISH DRAIN - DESIGN
- EDGE OF BITUMEN - EXISTING
- TABLE DRAIN - EXISTING
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- TOP OF BANK - EXISTING
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- FENCE - EXISTING
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- TELSTRA
- OPTIC FIBRE
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- ELECTRICITY
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- DESIGN BATTER EXTENT
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- ENDANGERED, PROTECTED OR THREATENED SPECIES
- TREE TO RETAIN
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DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC		PLOT DATE / TIME: 19/01/2024-4:31 PM	PLOT BY: GM	CLIENT: GeoLINK	GEOLINK WOODBURN TO EVANS HEAD ROAD SHARED BICYCLE/PEDESTRIAN PATH DESIGN PLAN
SCALES ON A3 SIZE DRAWING	DRAWINGS / DESIGN PREPARED BY	TITLE / NAME / DATE			A3
0 10 20 30 40 50 SCALE 1:1000m	BRIDGE KNOWLEDGE PTY LTD bk. bridge knowledge. ENGINEERING CONSULTING SERVICES	DRAWN: J. REN 16.1.24 DRG CHECK: J. ARMSTRONG 16.1.24 DESIGN: G. MULCAHY 16.1.24 DESIGN CHECK: J. ARMSTRONG 16.1.24 DESIGN MNGR: C. RILEY 16.1.24 PROJECT MNGR: M. ERWIN		PREPARED FOR: Richmond Valley Council	BK PROJECT No. BKCD119A GEOLINK PROJECT No. PART 1
CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD					ISSUE STATUS: IFC SHEET No. RW-011 OF 67 ISSUE A

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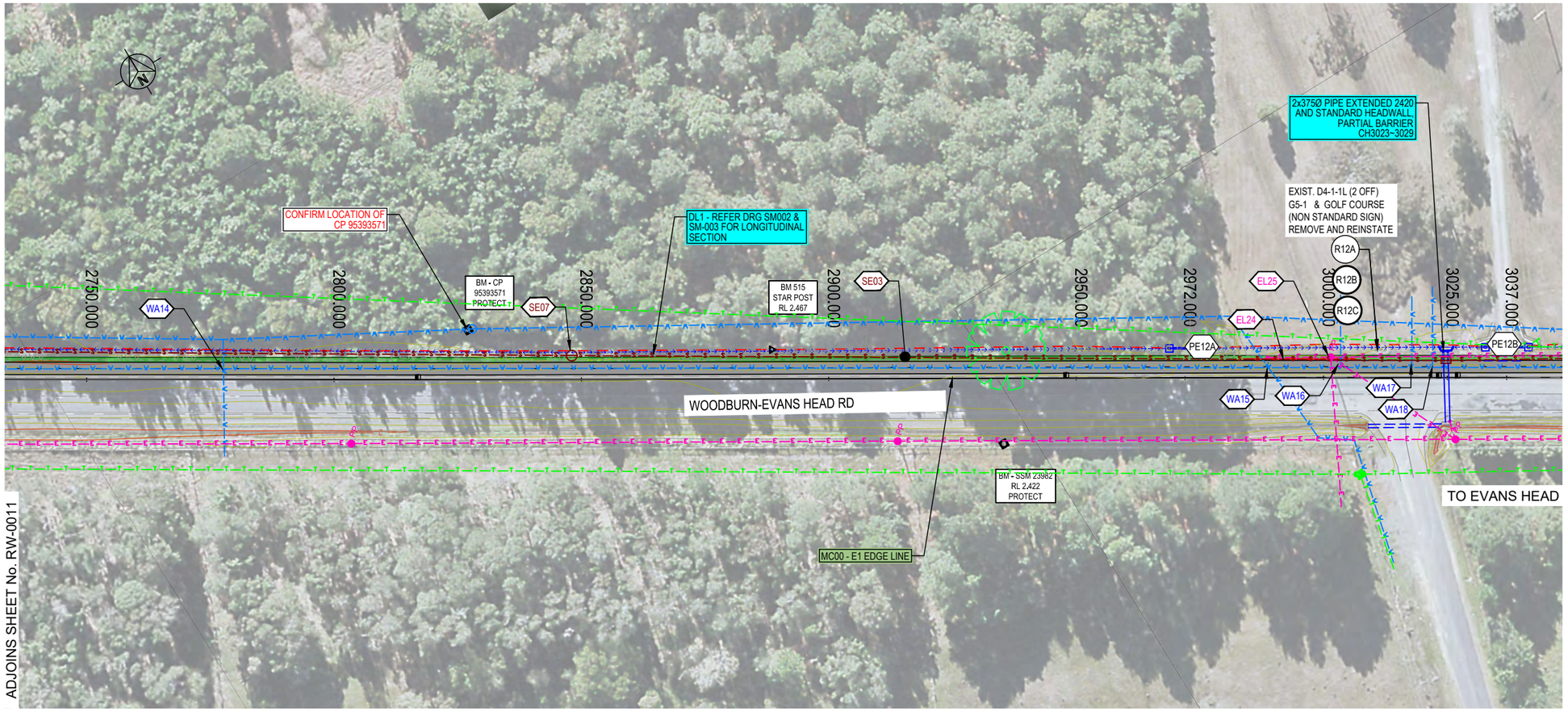

PLAN

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CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk bridge knowledge ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:31 PM PLOT BY: GM

TITLE	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
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DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
PLAN

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-012 OF 67 | ISSUE A

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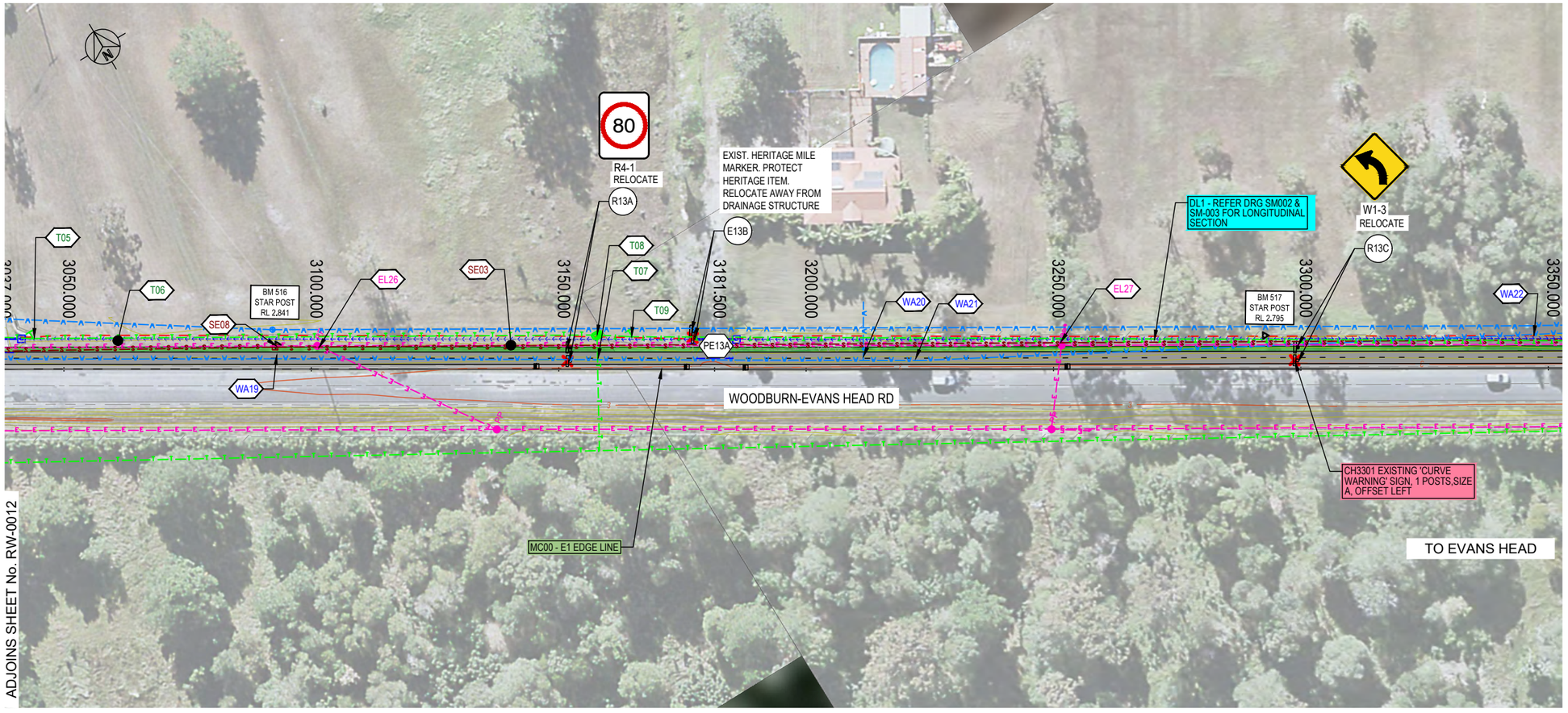

PLAN

LEGEND

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- MC00 CONTROL STRING LABEL
- CONTROL ALIGNMENT
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CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

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PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
PLAN

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-013 OF 67 | ISSUE A

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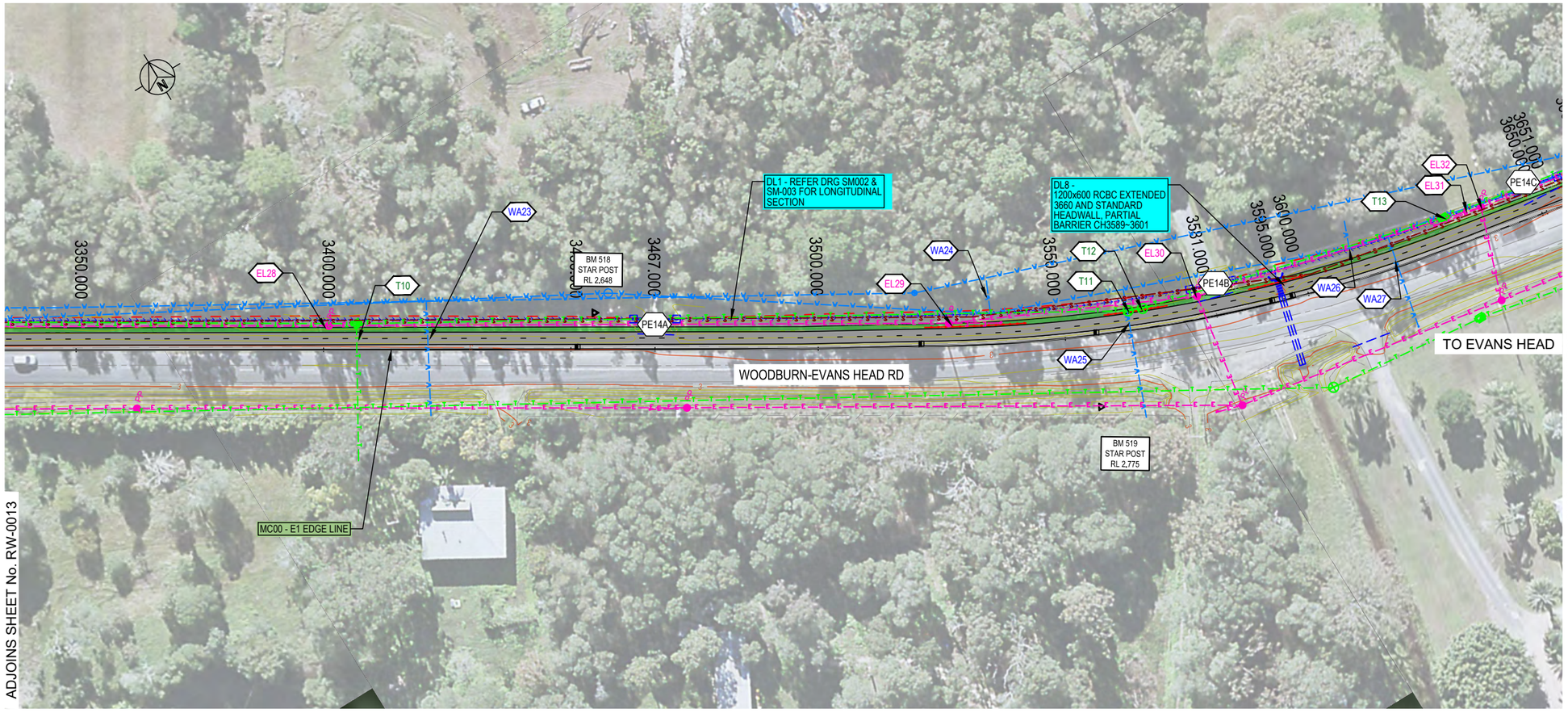

PLAN

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GEOLINK
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A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-014 OF 67 | ISSUE A

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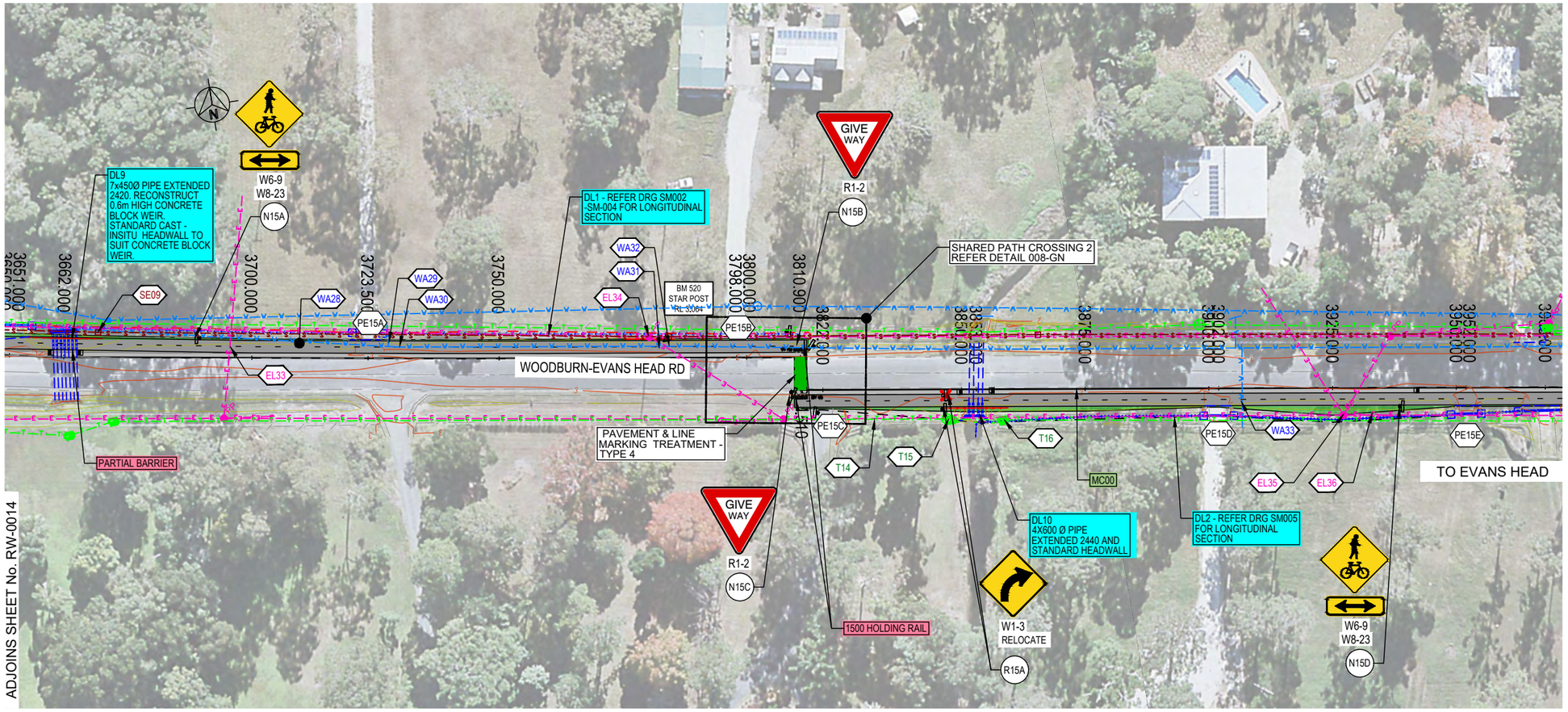

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6. SIGNS REMOVED AT CROSSINGS FOR CLARITY REFER DRG 008-GN FOR DETAILS

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0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: 0 10 20 30 40 50 SCALE 1:1000m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:31 PM PLOT BY: GM

	NAME	DATE
TITLE		
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
PLAN

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-015 OF 67 | ISSUE A

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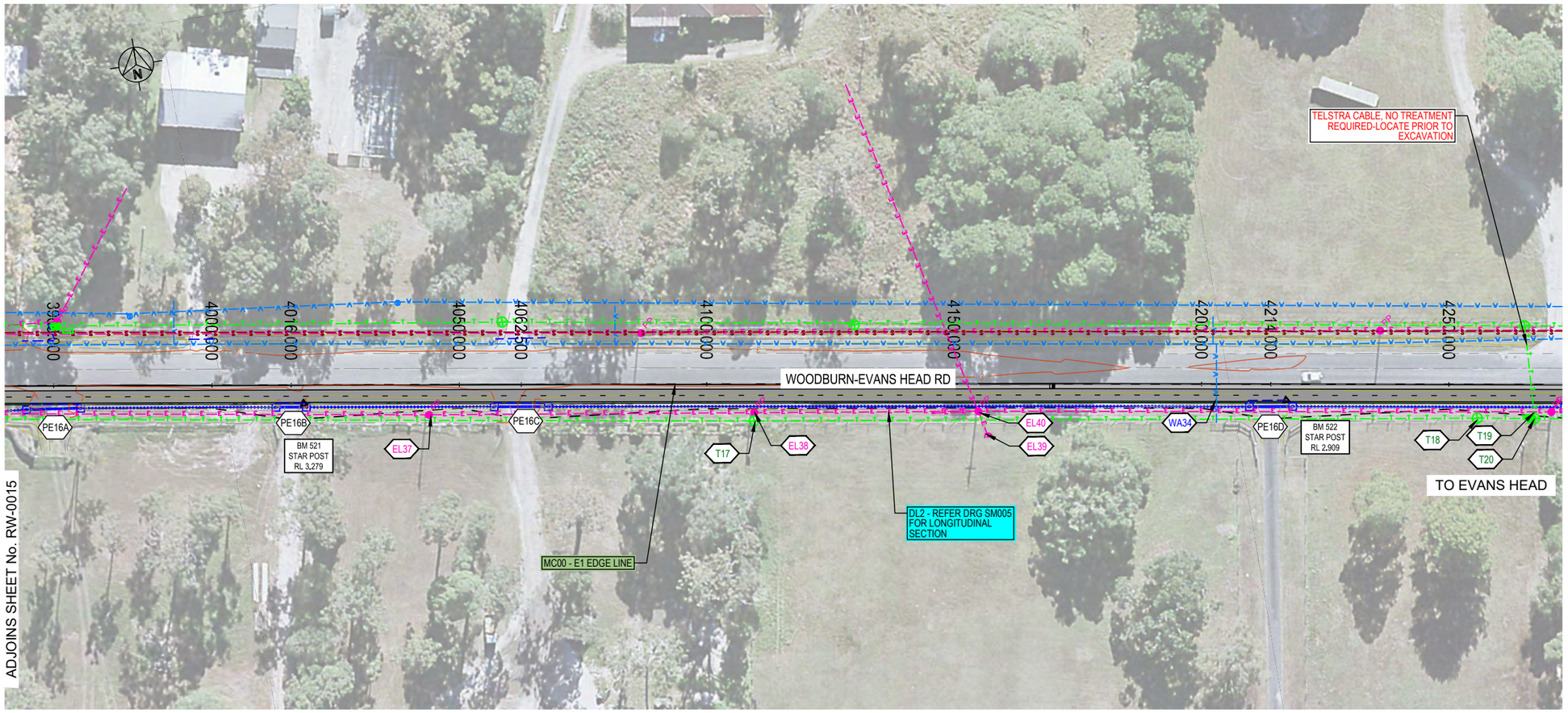

PLAN

LEGEND

- PROPERTY BOUNDARY
- EXISTING CENTRELINE
- MC00 CONTROL STRING LABEL
- CONTROL ALIGNMENT
- DRAINAGE LINE - EXISTING
- DRAINAGE LINE - DESIGN
- KERB & GUTTER - EXISTING
- DISH DRAIN - DESIGN
- EDGE OF BITUMEN - EXISTING
- TABLE DRAIN - EXISTING
- TABLEDRAIN - DESIGN
- TOP OF BANK - EXISTING
- BOTTOM OF BANK - EXISTING
- EDGE FORMATION - EXISTING
- FENCE - EXISTING
- GUARD FENCE - EXISTING
- GUARD FENCE - DESIGN
- TELSTRA
- OPTIC FIBRE
- OVERHEAD TELSTRA
- ELECTRICITY
- UNDERGROUND ELECTRICITY
- WATER
- SEWER
- GAS
- HANDRAIL FENCE - DESIGN
- SUB-SOIL DRAINAGE - DESIGN
- NEW SERVICE CONDUIT
- VEGETATION LINE
- DESIGN BATTER EXTENT
- COMMS. CABLE MARKER
- COMMS. TWIN PIT
- COMMS. SINGLE PIT
- COMMS. PILLAR
- ENDANGERED, PROTECTED OR THREATENED SPECIES
- TREE TO RETAIN
- TREE TO BE PROTECTED
- TREE TO BE REMOVED
- PERMANENT MARK
- BENCH MARK
- STREET SIGN - EXISTING
- DRAINAGE PIT- EXISTING
- DRAINAGE PIT- DESIGN
- STOP VALVE
- HYDRANT
- WATER METER
- WATER MAIN MARKER POST
- AIR VALVE
- WATER PIT - ROUND
- SEWER PIT - ROUND
- SEWER PIT - SQUARE
- SEWER VALVE
- GUIDE POST - EXISTING
- POWER POLE
- POWER STAY ANCHOR
- STREET LIGHT POLE
- NEW CONCRETE
- NEW PAVEMENT
- NEW GRASSED VERGE
- PE01 DRIVEWAY ID - REFER DRG 005-GN FOR SHARED PATI
- DRIVEWAY AND DRAINAGE TREATMENTS
- N1D SIGN ID REFER DRG 009-GN & 010-GN FOR SIGNAGE SCHEDULE
- NEW SIGN
- EXISTING SIGN TO REMAIN
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- WA03 UTILITIES REF ID - WATER
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AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

SCALES ON A3 SIZE DRAWING

0 10 20 30 40 50

SCALE 1:1000m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

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CLIENT: GeoLINK

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
PLAN

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-016 OF 67 | ISSUE A

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PLAN

LEGEND

- PROPERTY BOUNDARY
- EXISTING CENTRELINE
- MC00 CONTROL STRING LABEL
- CONTROL ALIGNMENT
- DRAINAGE LINE - EXISTING
- DRAINAGE LINE - DESIGN
- KERB & GUTTER - EXISTING
- DISH DRAIN - DESIGN
- EDGE OF BITUMEN - EXISTING
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- COMMS. SINGLE PIT
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- STOP VALVE
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SCALES ON A3 SIZE DRAWING: 0 10 20 30 40 50 SCALE 1:1000m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

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PROJECT MNGR		M. ERWIN	

CLIENT: GeoLINK

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GEOLINK
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SHARED BICYCLE/PEDESTRIAN PATH DESIGN
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A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-017 OF 67 | ISSUE A

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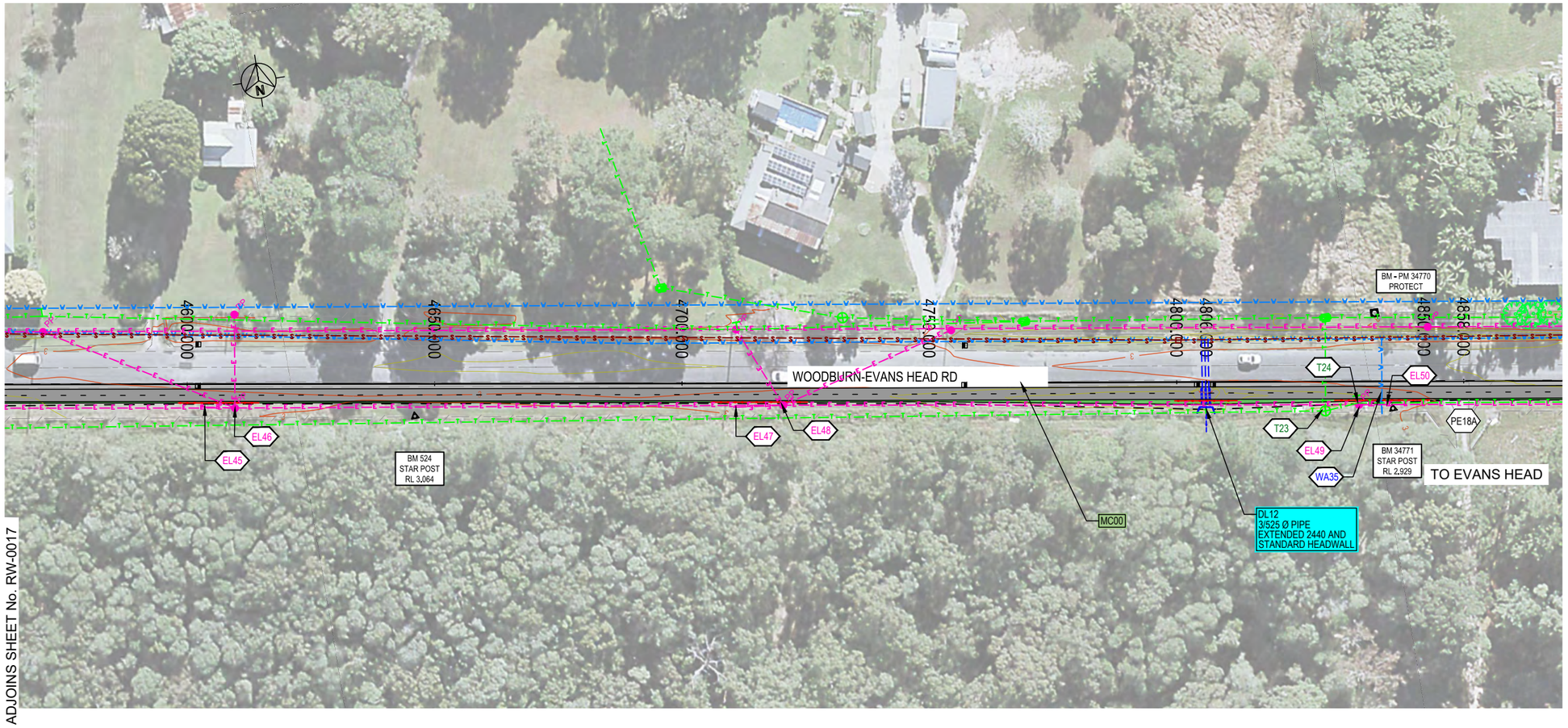

PLAN

LEGEND

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CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

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GEOLINK
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SHARED BICYCLE/PEDESTRIAN PATH DESIGN
PLAN

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: RW-018 OF 67 | ISSUE: A

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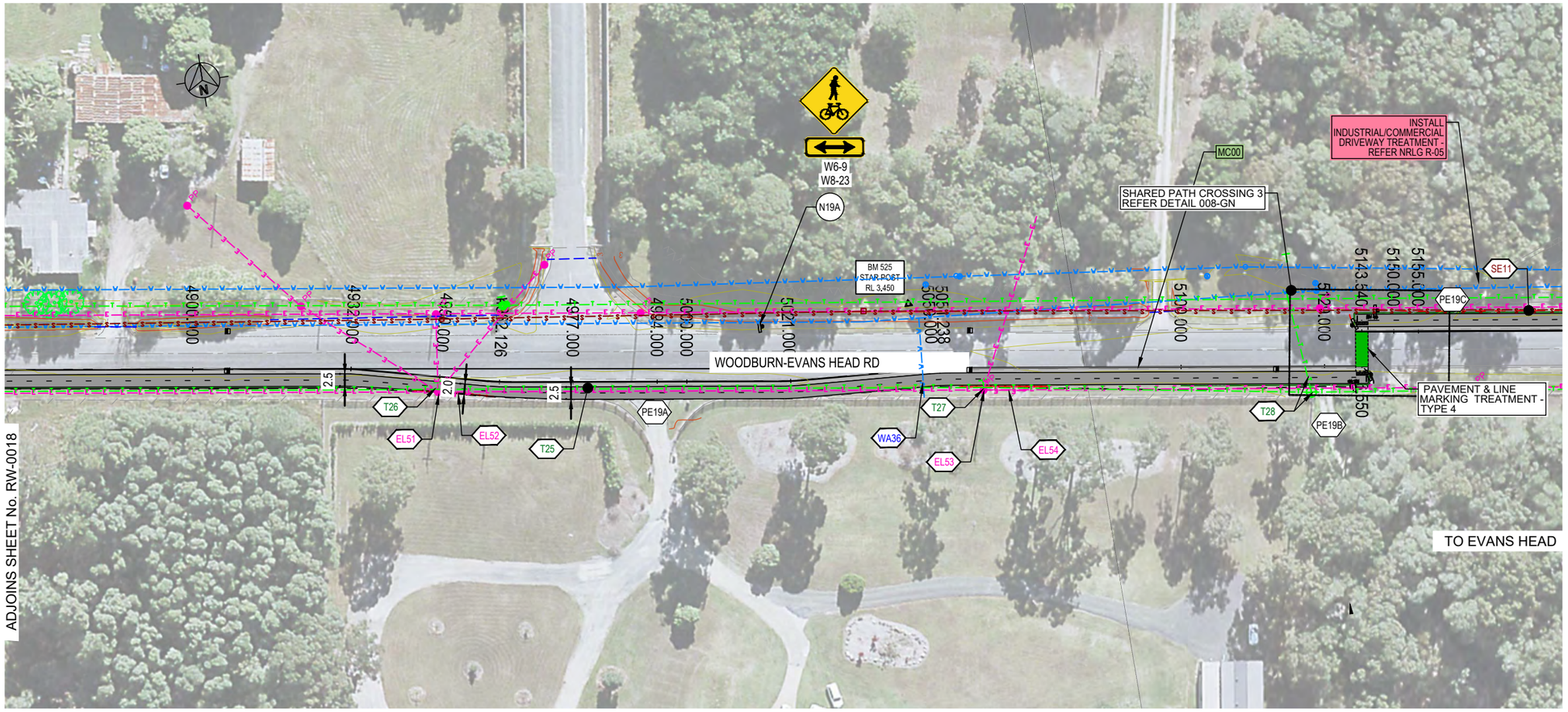

PLAN

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ISSUE STATUS: IFC | SHEET No.: RW-019 OF 67 | ISSUE: A

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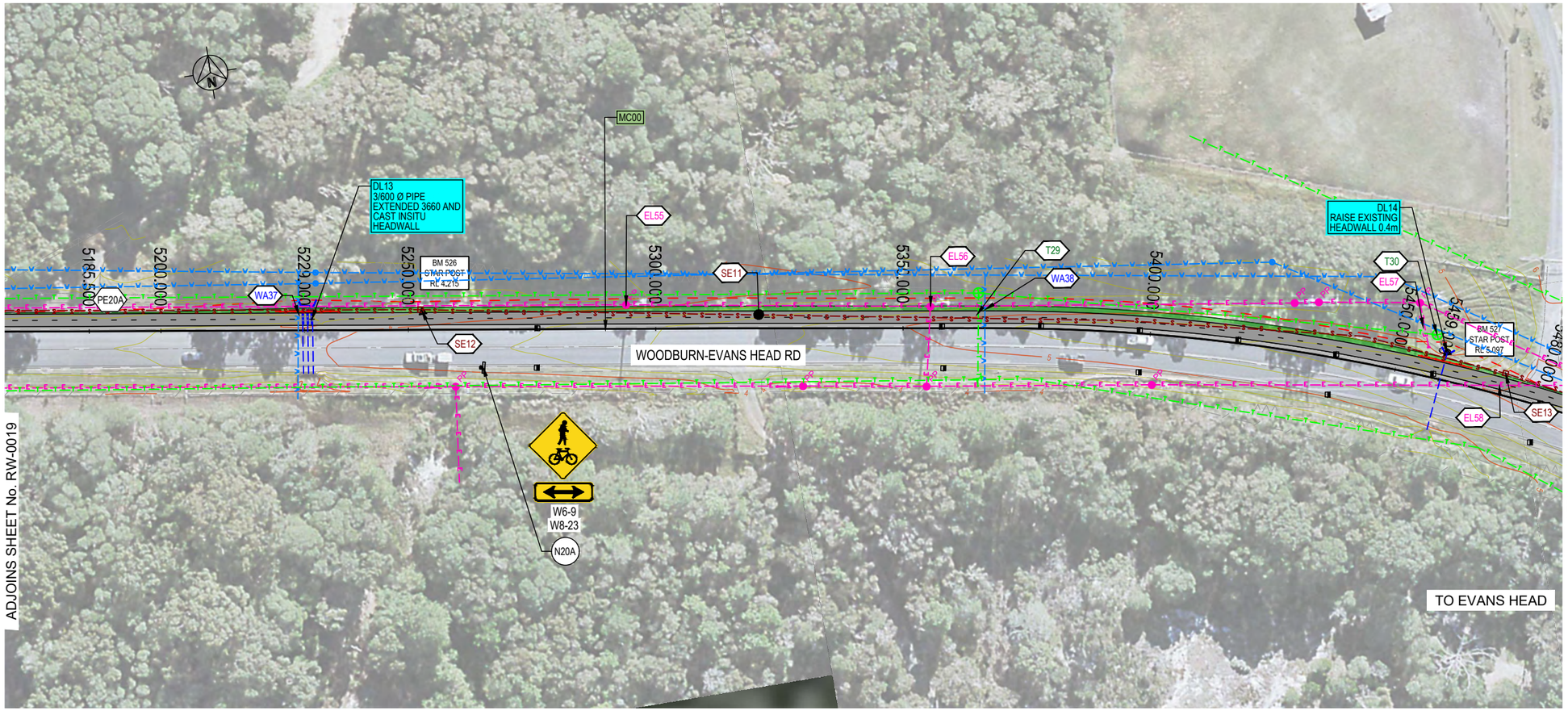

PLAN

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ISSUE STATUS: IFC | SHEET No. RW-020 OF 67 | ISSUE A

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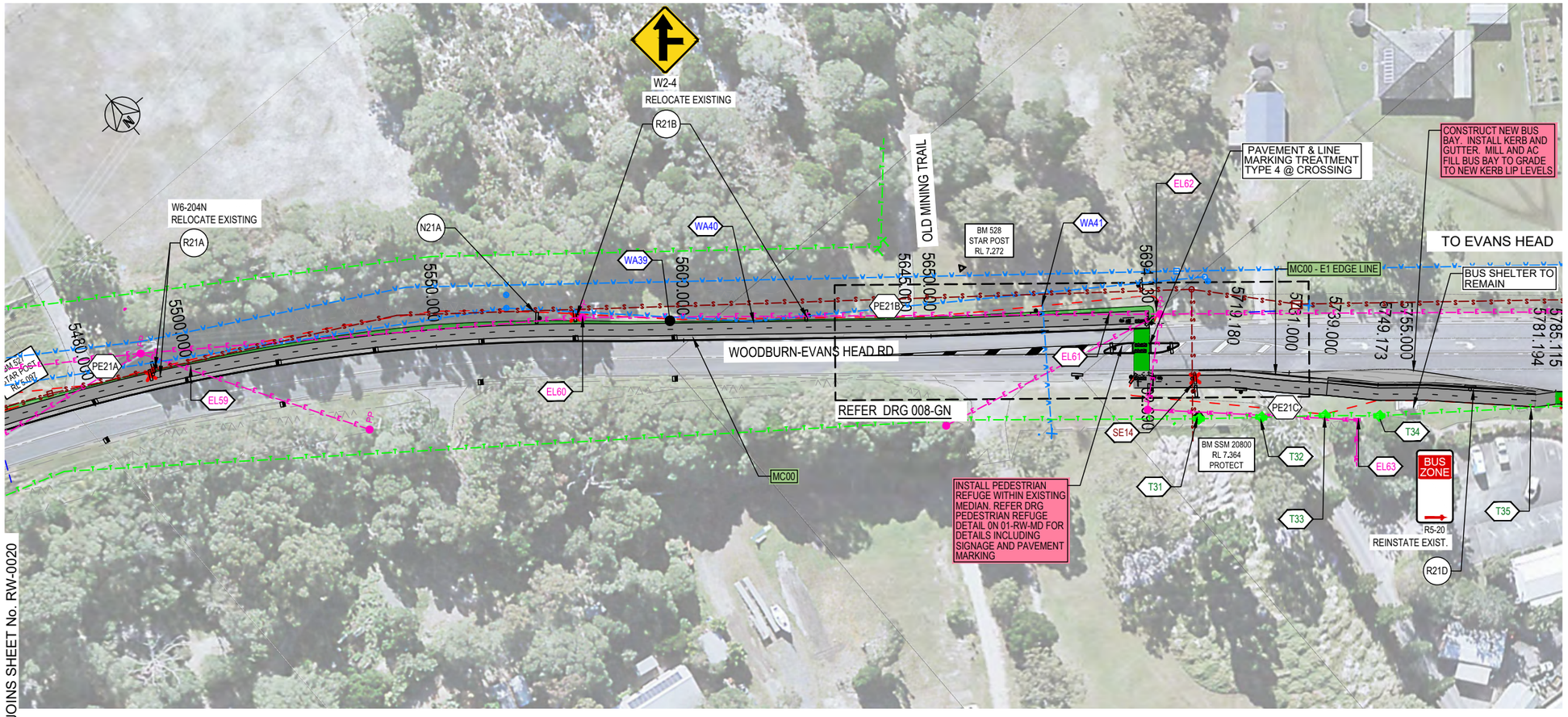

PLAN

LEGEND

- PROPERTY BOUNDARY
- EXISTING CENTRELINE
- MC00 — CONTROL STRING LABEL
- CONTROL ALIGNMENT
- DRAINAGE LINE - EXISTING
- DRAINAGE LINE - DESIGN
- KERB & GUTTER - EXISTING
- DISH DRAIN - DESIGN
- EDGE OF BITUMEN - EXISTING
- TABLE DRAIN - EXISTING
- TABLEDRAIN - DESIGN
- TOP OF BANK - EXISTING
- BOTTOM OF BANK - EXISTING
- EDGE FORMATION - EXISTING
- FENCE - EXISTING
- GUARD FENCE - EXISTING
- GUARD FENCE - DESIGN
- TELSTRA
- OPTIC FIBRE
- OVERHEAD TELSTRA
- ELECTRICITY
- UNDERGROUND ELECTRICITY
- WATER
- SEWER
- GAS
- HANDRAIL FENCE - DESIGN
- SUB-SOIL DRAINAGE - DESIGN
- NEW SERVICE CONDUIT
- VEGETATION LINE
- DESIGN BATTER EXTENT
- COMMS. CABLE MARKER
- COMMS. TWIN PIT
- COMMS. SINGLE PIT
- COMMS. PILLAR
- ENDANGERED, PROTECTED OR THREATENED SPECIES
- TREE TO RETAIN
- TREE TO BE PROTECTED
- TREE TO BE REMOVED
- PERMANENT MARK
- BENCH MARK
- STREET SIGN - EXISTING
- DRAINAGE PIT- EXISTING
- DRAINAGE PIT- DESIGN
- STOP VALVE
- HYDRANT
- WATER METER
- WATER MAIN MARKER POST
- AIR VALVE
- WATER PIT - ROUND
- SEWER PIT - ROUND
- SEWER PIT - SQUARE
- SEWER VALVE
- GUIDE POST - EXISTING
- POWER POLE
- POWER STAY ANCHOR
- STREET LIGHT POLE
- NEW CONCRETE
- NEW PAVEMENT
- NEW GRASSED VERGE
- PE01 — DRIVEWAY ID - REFER DRG 005-GN FOR SHARED PA DRIVEWAY AND DRAINAGE TREATMENTS
- N1D — SIGN ID REFER DRG 009-GN & 010-GN FOR SIGNAGE SCHEDULE
- NEW SIGN
- EXISTING SIGN TO REMAIN
- EXISTING SIGN REMOVE
- WA03 — UTILITIES REF ID - WATER
- SE01 — UTILITIES REF ID - SEWER
- EL01 — UTILITIES REF ID - ELECTRICAL
- T01 — UTILITIES REF ID - TELECOMMUNICATIONS

NOTES

1. FOR PAVEMENT AND LINE MARKING TREATMENTS AND NOTES REFER DRG 006-GN
2. REFER PRIVATE ENTRANCE TABLE ON DRG 005-GN FOR WORKS AT DRIVEWAY LOCATIONS, WHICH INCLUDES THE FOLLOWING;
   - SHARED PATH TREATMENTS AT DRIVEWAYS
   - DRIVEWAY WORKS
   - DRAINAGE WORKS
3. SIGN AND GUIDE POST LOCATIONS ARE SHOWN AS INDICATIVE ONLY. REFER AS1742.2 FOR LATERAL AND LONGITUDINAL SPACING
4. FOR DRAINAGE DETAILS REFER DRAINAGE DETAIL SHEETS SM-001 TO SM-008
5. FOR PUBLIC UTILITIES INFORMATION AND WORKS REFER DRG 011-GN
6. SIGNS REMOVED AT CROSSINGS FOR CLARITY REFER DRG 008-GN FOR DETAILS

ACCEPTED FOR CONSTRUCTION

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED
0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: 0 10 20 30 40 50 — SCALE 1:1000m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:31 PM PLOT BY: GM

TITLE	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK — environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
PLAN

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: RW-021 OF 67 | ISSUE: A

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PLAN

ADJOINS SHEET No. RW-0021

LEGEND

- PROPERTY BOUNDARY
- EXISTING CENTRELINE
- MC00 CONTROL STRING LABEL
- CONTROL ALIGNMENT
- DRAINAGE LINE - EXISTING
- DRAINAGE LINE - DESIGN
- KERB & GUTTER - EXISTING
- DISH DRAIN - DESIGN
- EDGE OF BITUMEN - EXISTING
- TABLE DRAIN - EXISTING
- TABLEDRAIN - DESIGN
- TOP OF BANK - EXISTING
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- EDGE FORMATION - EXISTING
- FENCE - EXISTING
- GUARD FENCE - EXISTING
- GUARD FENCE - DESIGN
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- OVERHEAD TELSTRA
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- WATER
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- HANDRAIL FENCE - DESIGN
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- NEW SERVICE CONDUIT
- VEGETATION LINE
- DESIGN BATTER EXTENT
- COMMS. CABLE MARKER
- COMMS. TWIN PIT
- COMMS. SINGLE PIT
- COMMS. PILLAR
- ENDANGERED, PROTECTED OR THREATENED SPECIES
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- DRAINAGE PIT- DESIGN
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- WATER METER
- WATER MAIN MARKER POST
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ACCEPTED FOR CONSTRUCTION

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0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

PLOT DATE / TIME: 19/01/2024-4:31 PM PLOT BY: GM

SCALES ON A3 SIZE DRAWING: 0 10 20 30 40 50 SCALE 1:1000m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
PLAN

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-022 OF 67 | ISSUE A

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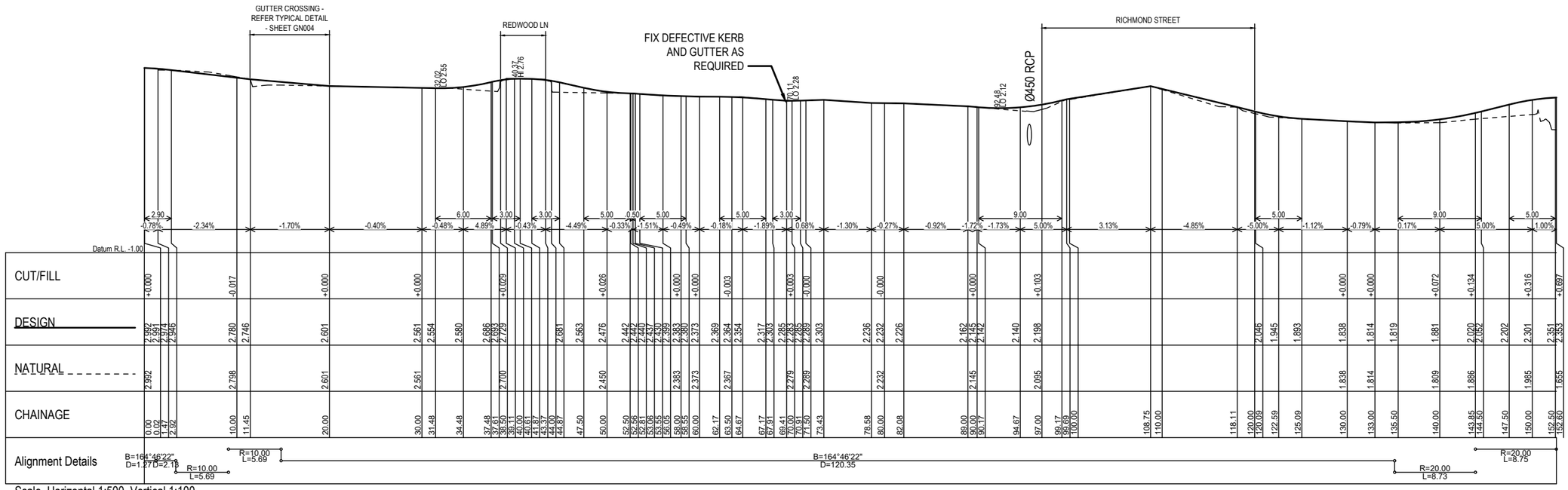

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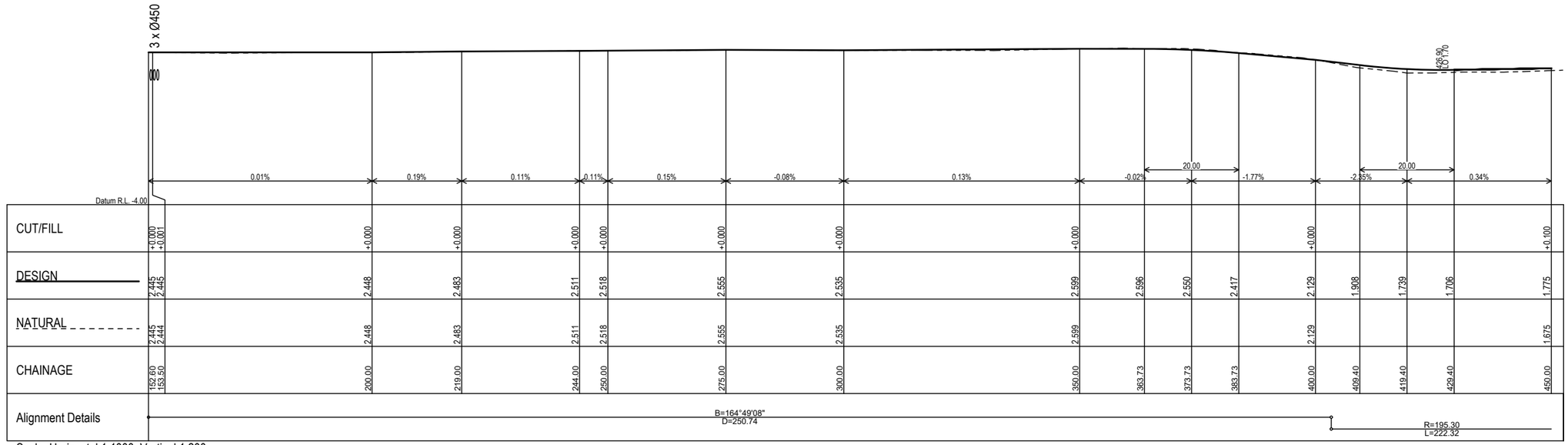
SCALE 1:100m

SCALE 1:500m



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50mm ON A3 SIZE ORIGINAL

ADJOINS SHEET No. RW-0024

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING

HORIZONTAL SCALE 1:1000m

VERTICAL SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

	TITLE	NAME	DATE
DRAWN	J. REN		16.1.24
DRG CHECK	J. ARMSTRONG		16.1.24
DESIGN	G. MULCAHY		16.1.24
DESIGN CHECK	J. ARMSTRONG		16.1.24
DESIGN MNGR	C. RILEY		16.1.24
PROJECT MNGR	M. ERWIN		

CLIENT: GeoLINK (environment | engineering | planning | design)

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
LONGITUDINAL SECTION

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-023 OF 67 | ISSUE A

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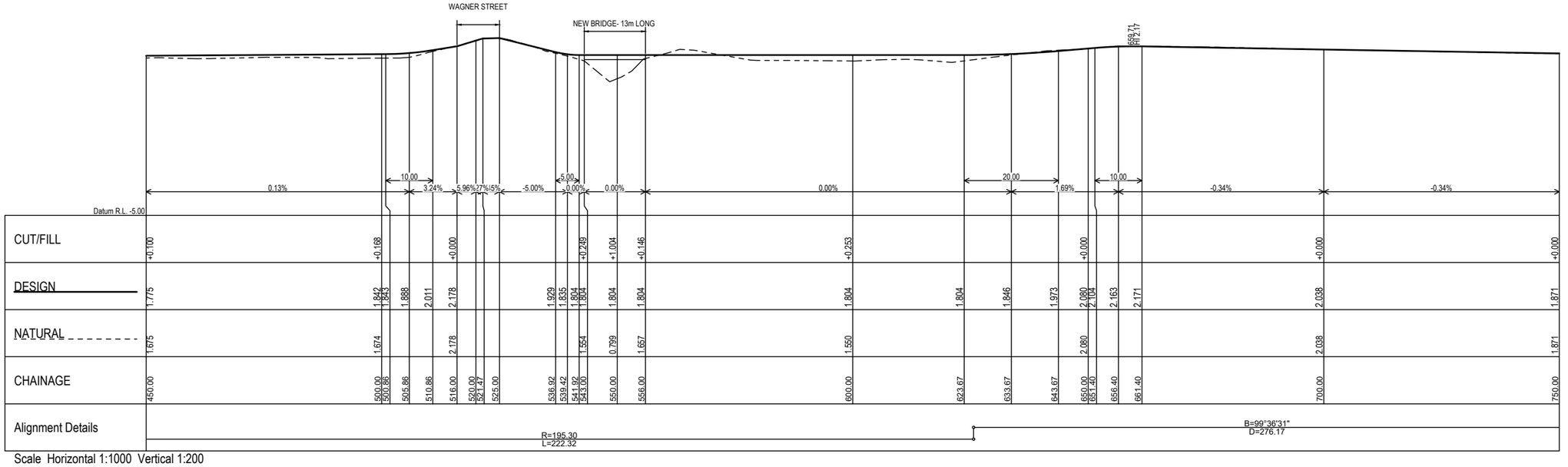
ADJOINS SHEET No. RW-0023

ADJOINS SHEET No. RW-0025



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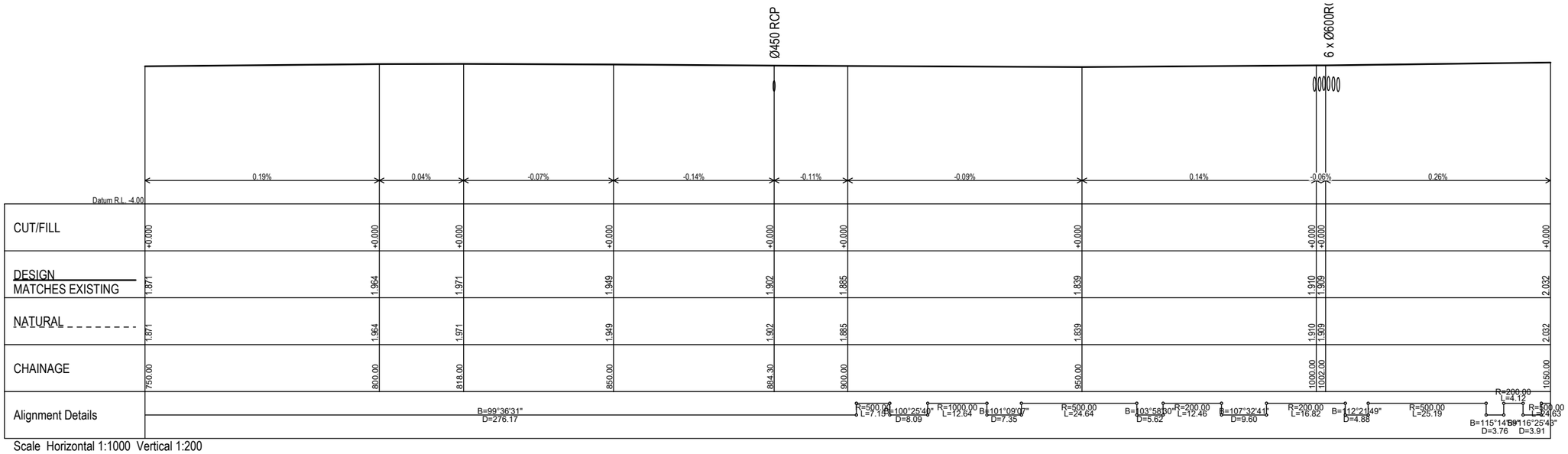

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ACCEPTED FOR CONSTRUCTION

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING
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HORIZONTAL SCALE 1:1000m
0 2 4 6 8 10
VERTICAL SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
LONGITUDINAL SECTION

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: RW-024 OF 67 | ISSUE: A

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50mm ON A3 SIZE ORIGINAL
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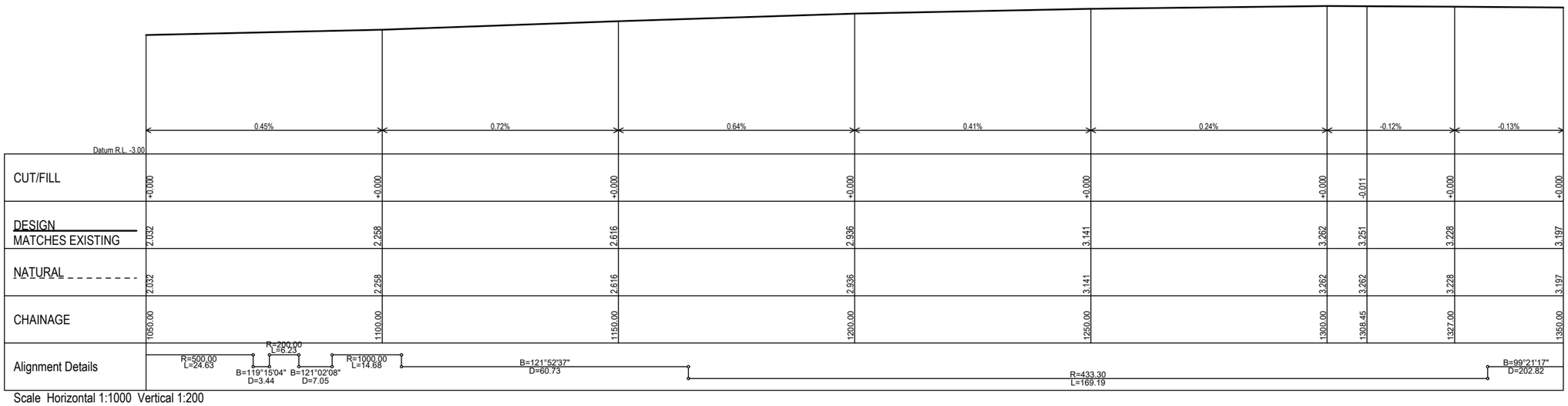
ADJOINS SHEET No. RW-0024

ADJOINS SHEET No. RW-0026



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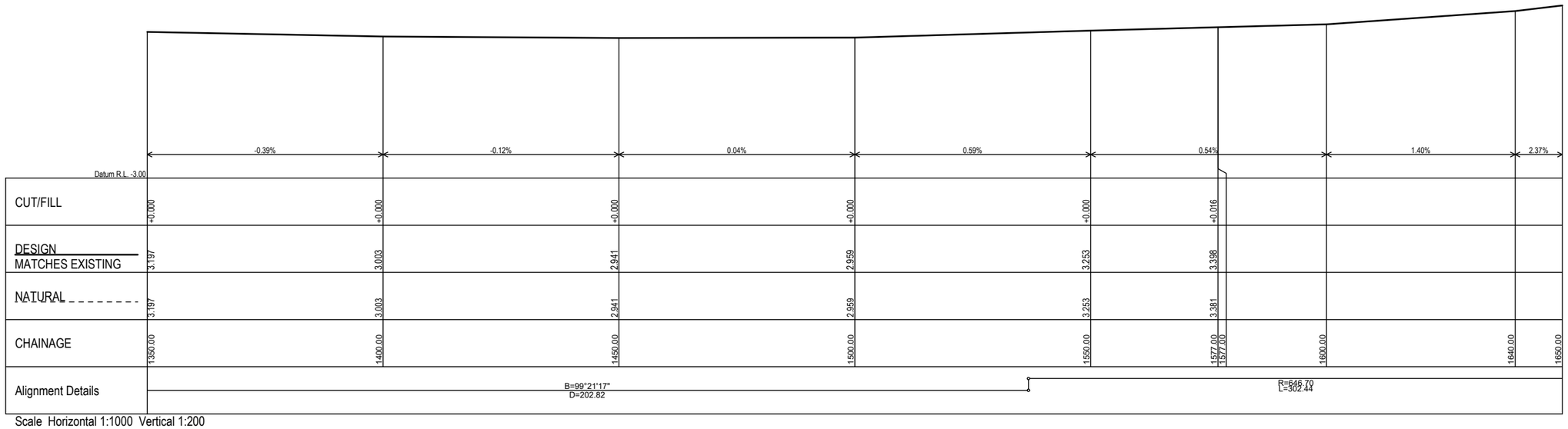

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50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING
HORIZONTAL SCALE 1:1000m
VERTICAL SCALE 1:200m
CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
LONGITUDINAL SECTION

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-025 OF 67 | ISSUE A

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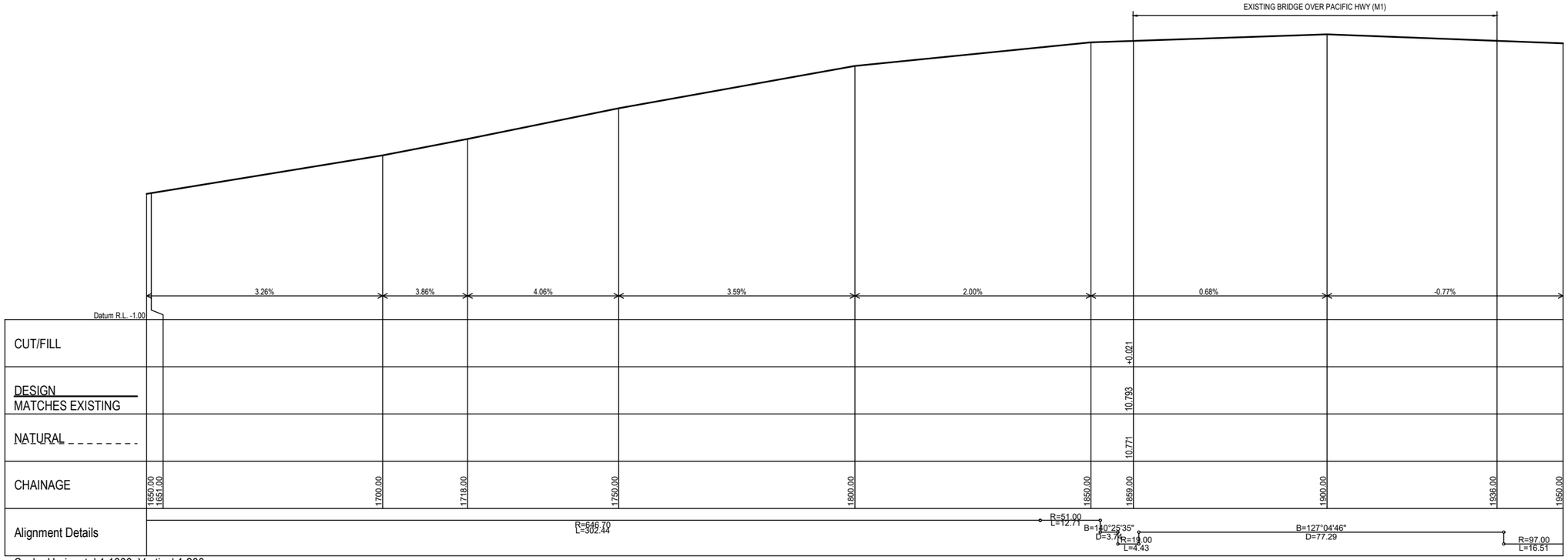
ADJOINS SHEET No. RW-0025

ADJOINS SHEET No. RW-0027



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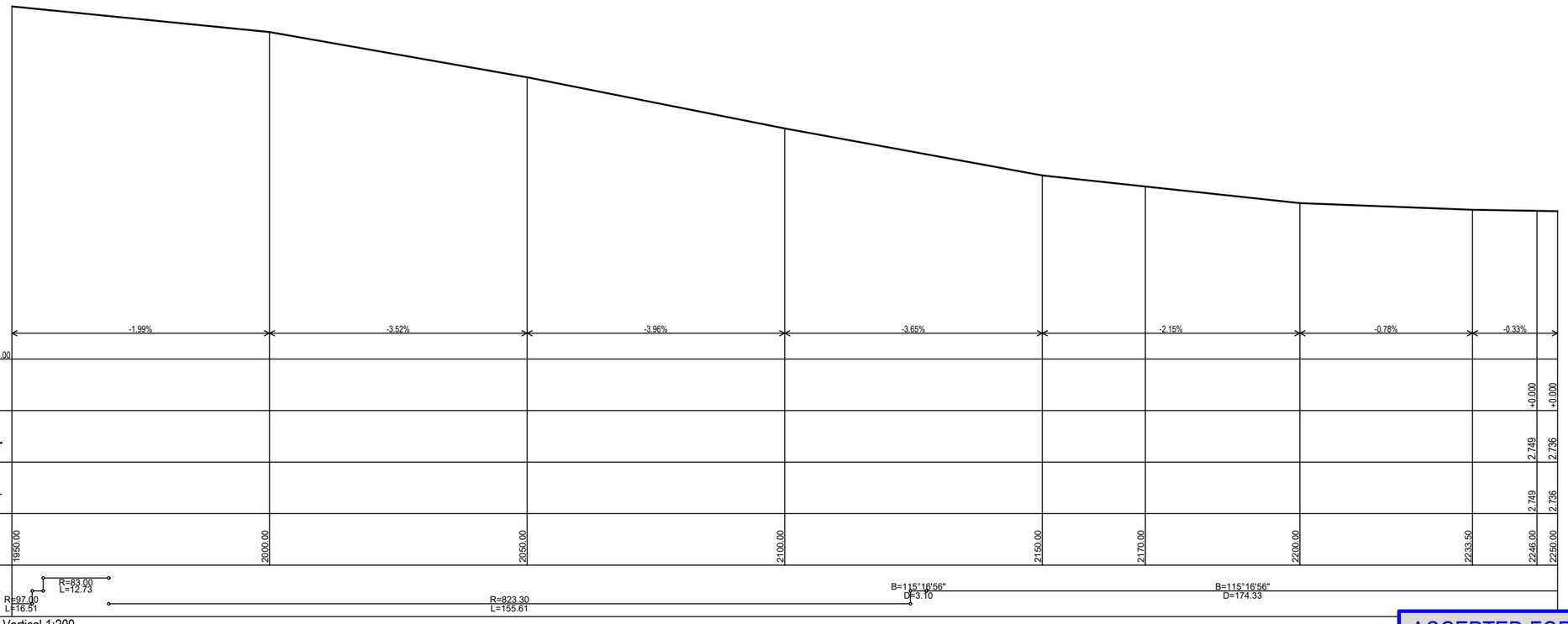

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50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING

HORIZONTAL SCALE 1:1000m (0 10 20 30 40 50)

VERTICAL SCALE 1:200m (0 2 4 6 8 10)

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
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PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
LONGITUDINAL SECTION

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-026 OF 67 | ISSUE A

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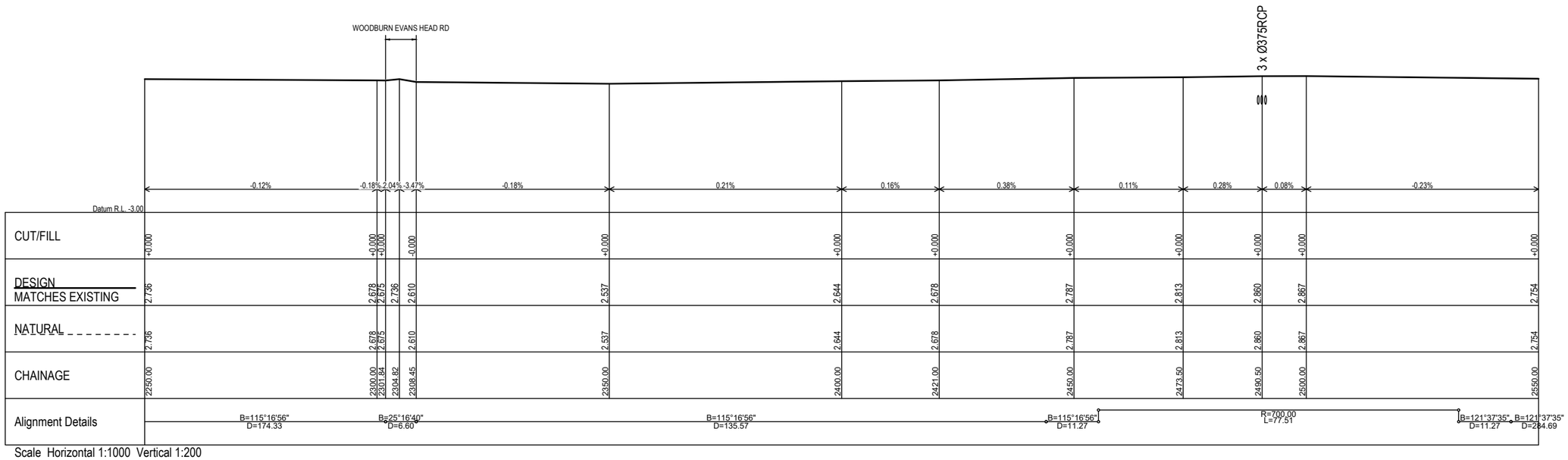

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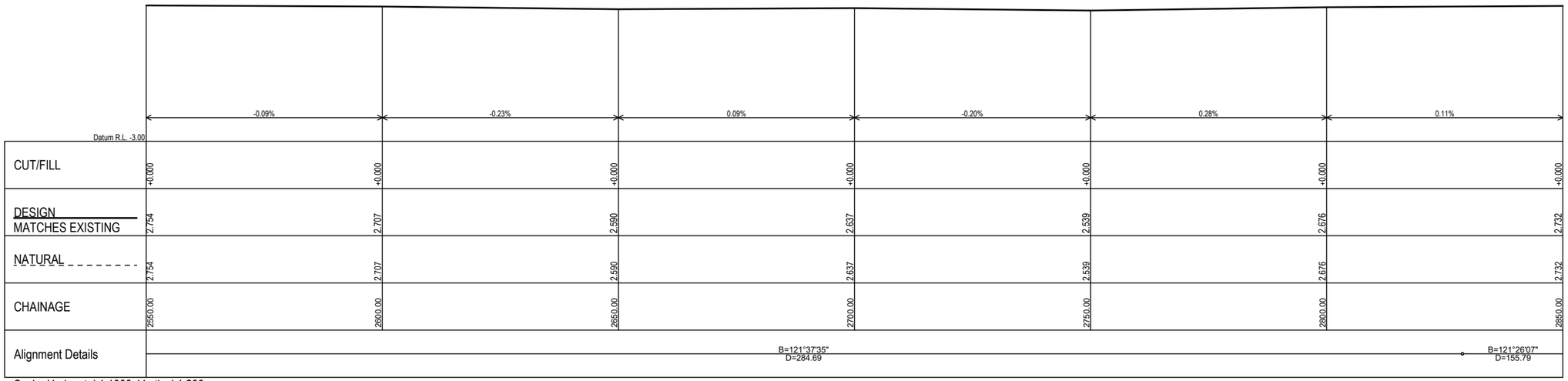

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50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING
0 10 20 30 40 50
HORIZONTAL SCALE 1:1000m
0 2 4 6 8 10
VERTICAL SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

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DRAWN	J. REN	16.1.24
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PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
LONGITUDINAL SECTION

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-027 OF 67 | ISSUE A

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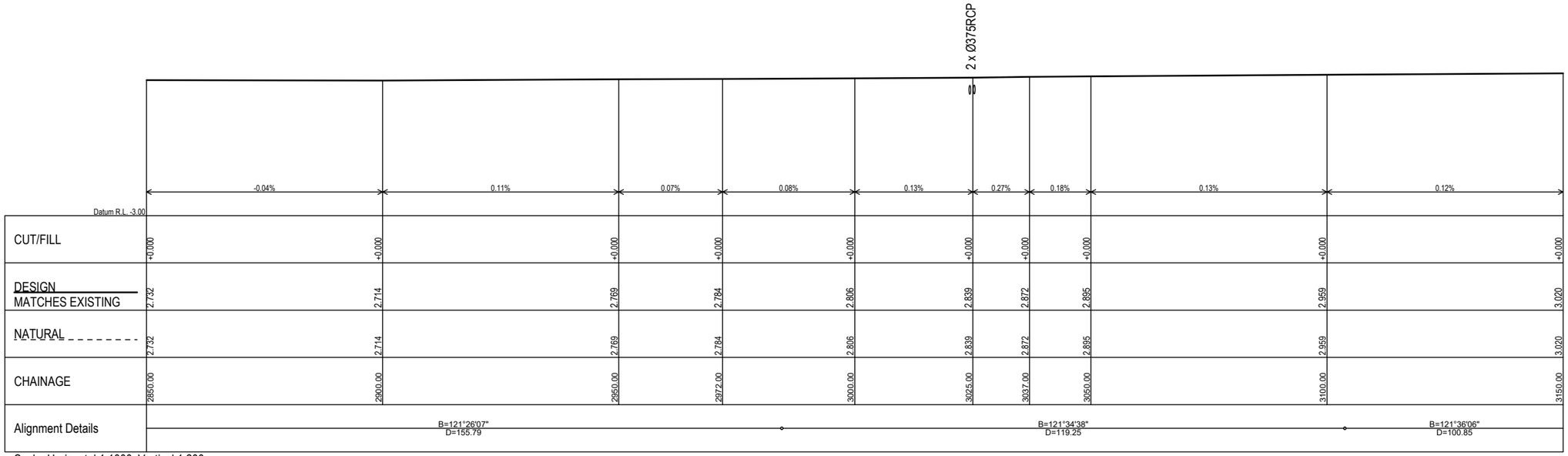
ADJOINS SHEET No. RW-0027

ADJOINS SHEET No. RW-0029



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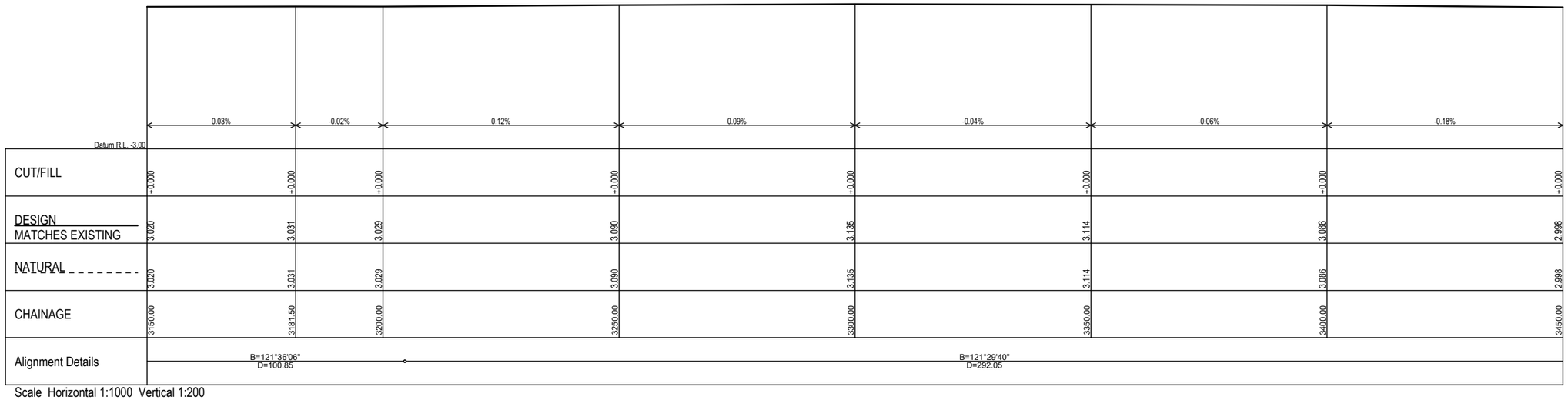

Scale Horizontal 1:1000 Vertical 1:200

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50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING
0 10 20 30 40 50
HORIZONTAL SCALE 1:1000m
0 2 4 6 8 10
VERTICAL SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
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DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
LONGITUDINAL SECTION

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: RW-028 OF 67 | ISSUE: A

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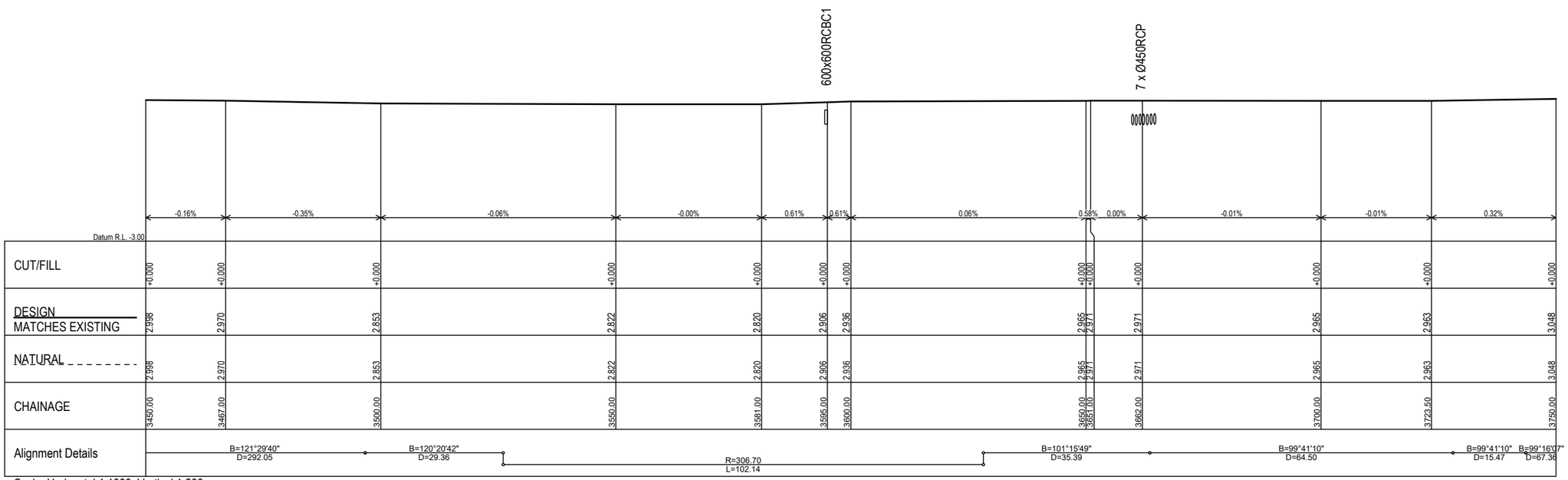
ADJOINS SHEET No. RW-0028

ADJOINS SHEET No. RW-0030



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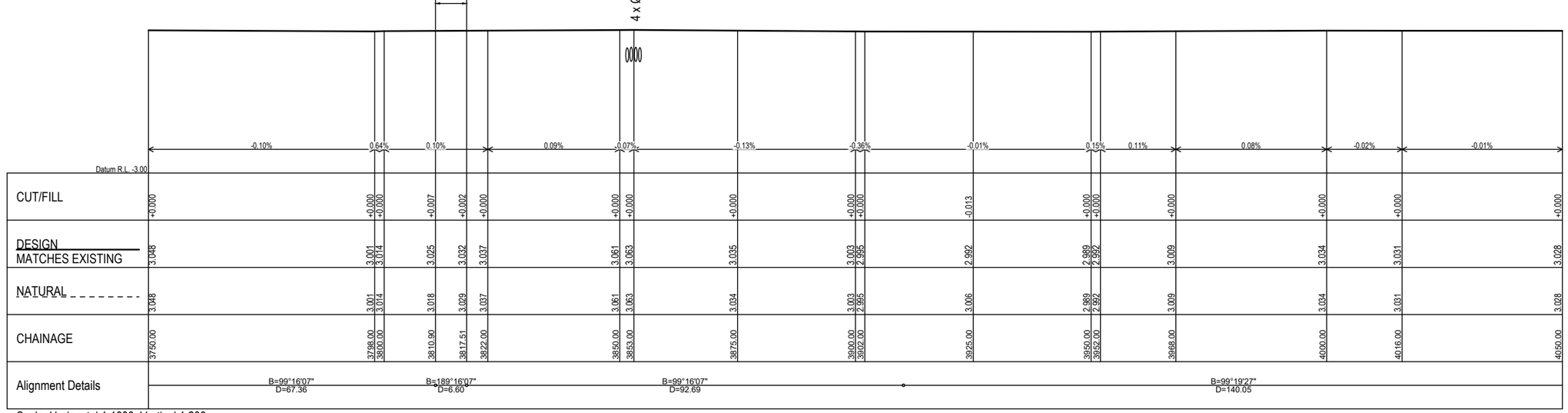

Scale Horizontal 1:1000 Vertical 1:200

ACCEPTED FOR CONSTRUCTION

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0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING
0 10 20 30 40 50
HORIZONTAL SCALE 1:1000m
0 2 4 6 8 10
VERTICAL SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

	NAME	DATE
TITLE		
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
LONGITUDINAL SECTION

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-029 OF 67 | ISSUE A

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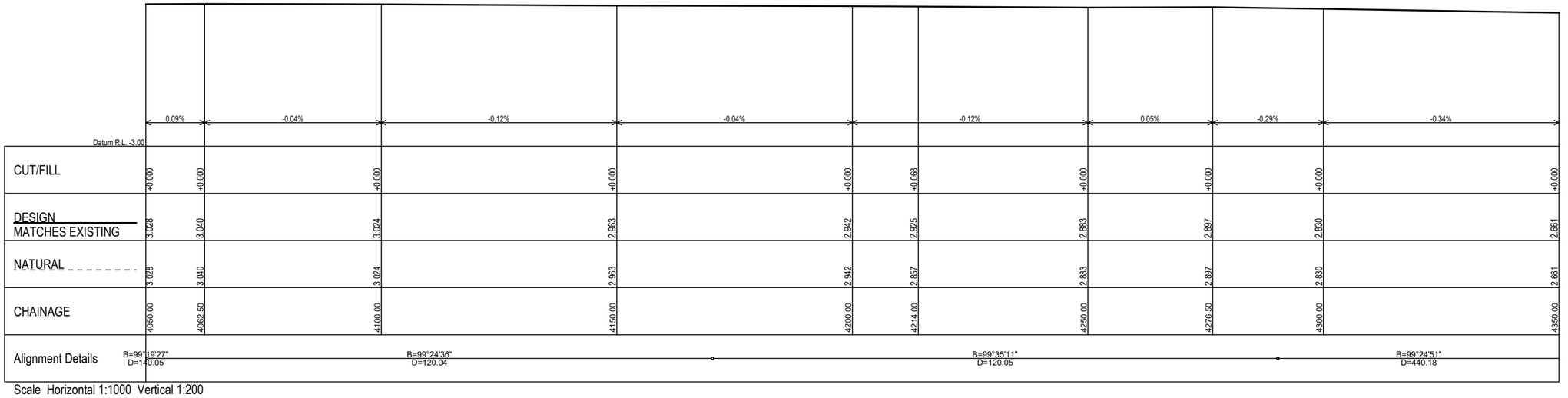
ADJOINS SHEET No. RW-0029

ADJOINS SHEET No. RW-0031



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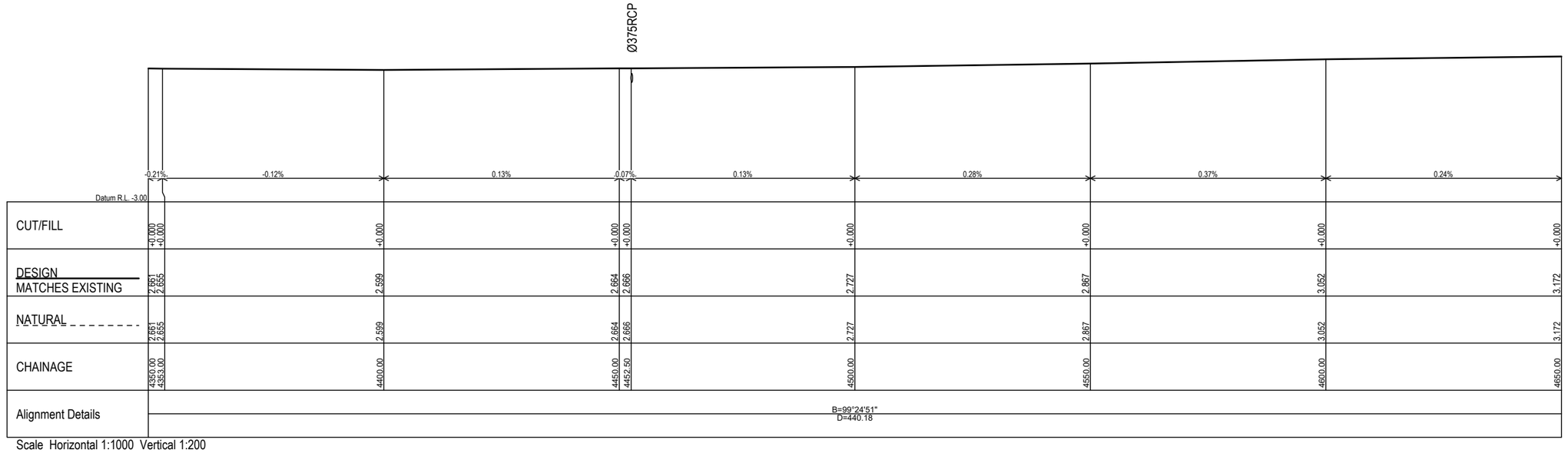

Scale Horizontal 1:1000 Vertical 1:200

ACCEPTED FOR CONSTRUCTION

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING
0 10 20 30 40 50
HORIZONTAL SCALE 1:1000m
0 2 4 6 8 10
VERTICAL SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

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CLIENT: GeoLINK environment | engineering | planning | design

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GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
LONGITUDINAL SECTION

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-030 OF 67 | ISSUE A

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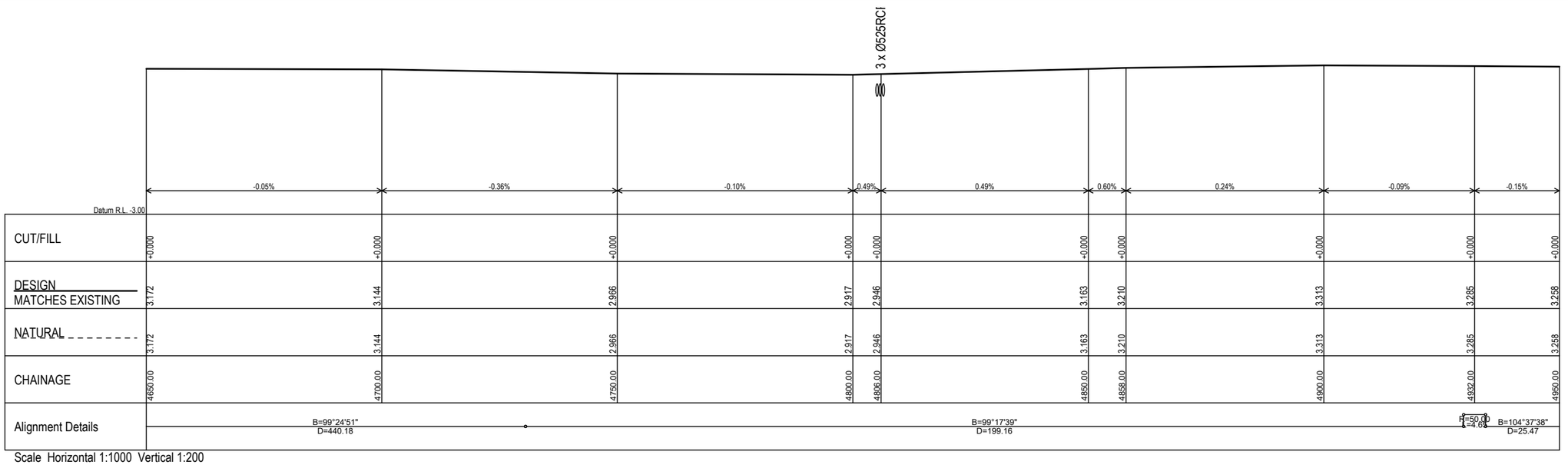
ADJOINS SHEET No. RW-0030

ADJOINS SHEET No. RW-0032



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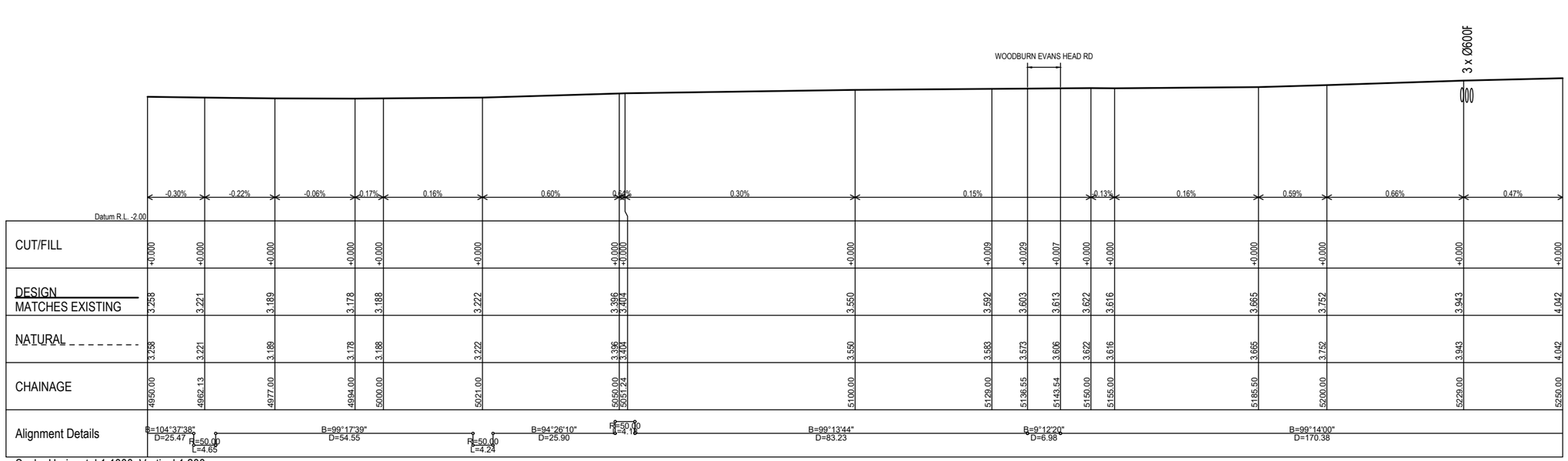

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150mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
TBC

SCALES ON A3 SIZE DRAWING
0 10 20 30 40 50
HORIZONTAL SCALE 1:1000m
0 2 4 6 8 10
VERTICAL SCALE 1:200m

CO-ORDINATE SYSTEM HEIGHT DATUM
MGA ZONE 56 (GDA2020) AHD

DRAWINGS / DESIGN PREPARED BY
BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME PLOT BY
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CLIENT
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PREPARED FOR
Richmond Valley Council

GEOLINK
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BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS IFC | SHEET No. RW-031 OF 67 | ISSUE A

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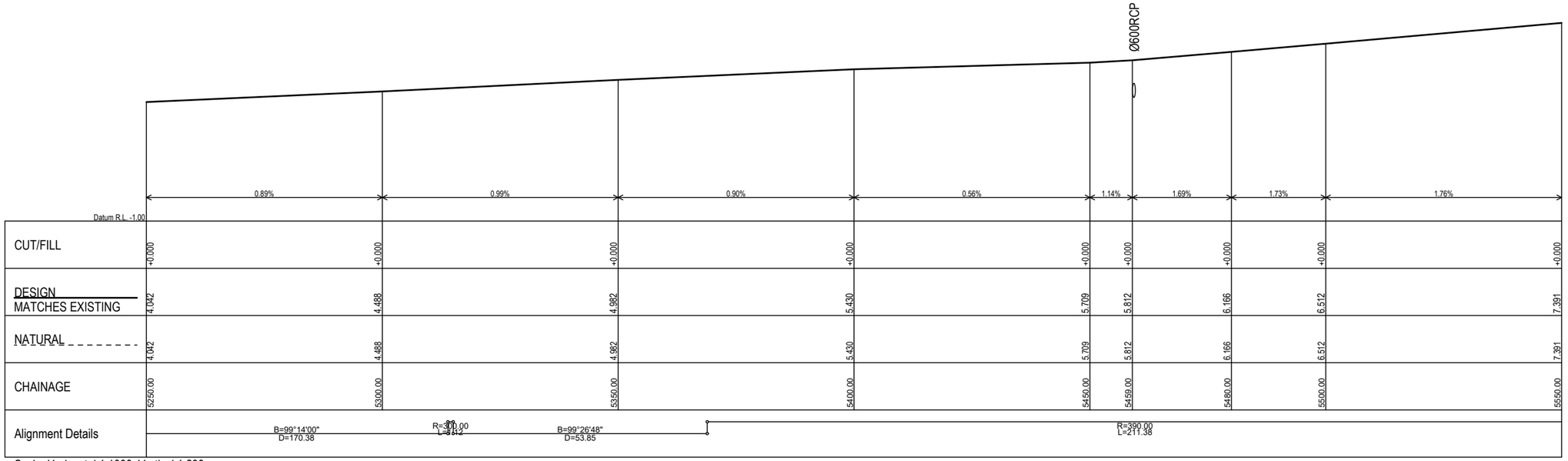
ADJOINS SHEET No. RW-0031

ADJOINS SHEET No. RW-0033



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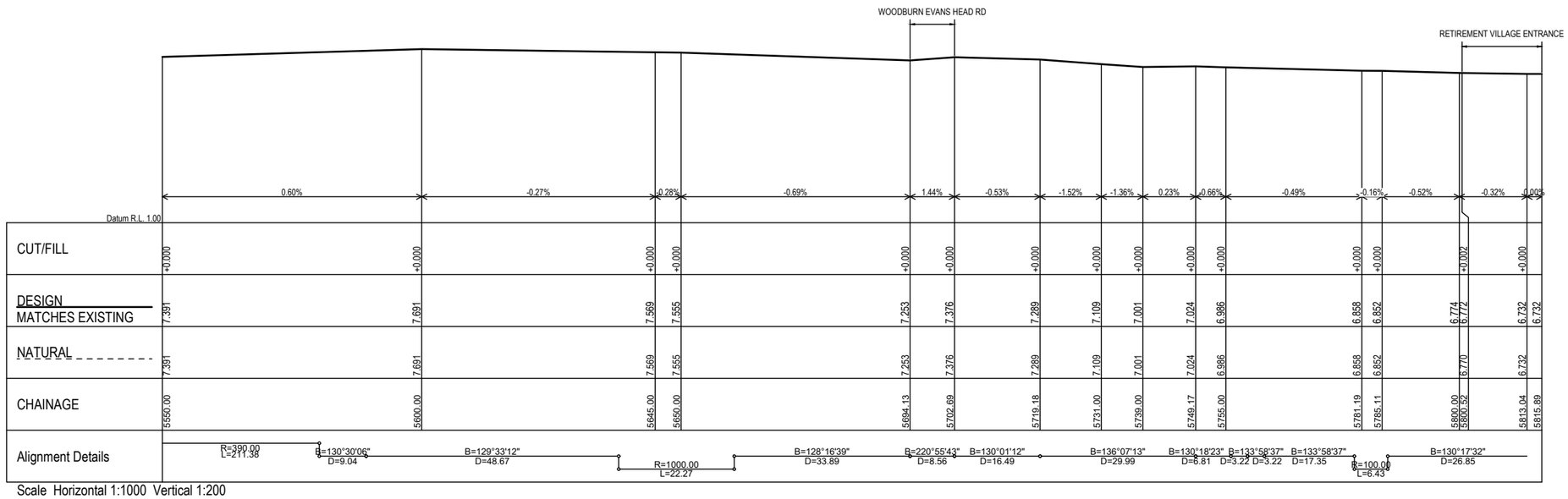

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50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING

0 10 20 30 40 50

HORIZONTAL SCALE 1:1000m

0 2 4 6 8 10

VERTICAL SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

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DESIGN CHECK		J. ARMSTRONG	16.1.24
DESIGN MNGR		C. RILEY	16.1.24
PROJECT MNGR		M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
LONGITUDINAL SECTION

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BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-032 OF 67 | ISSUE A

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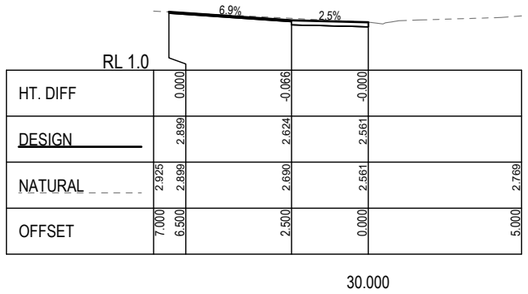

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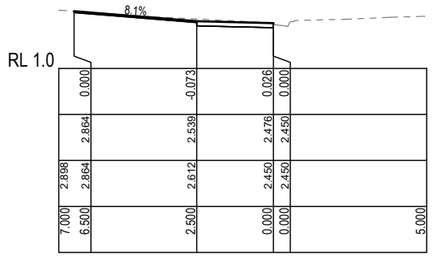

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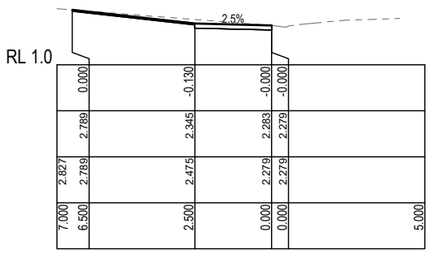

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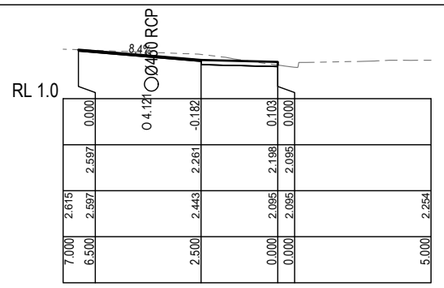

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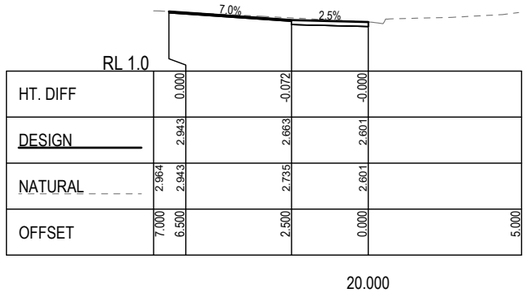

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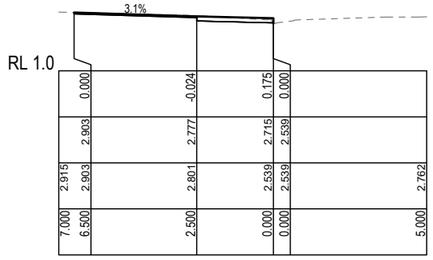

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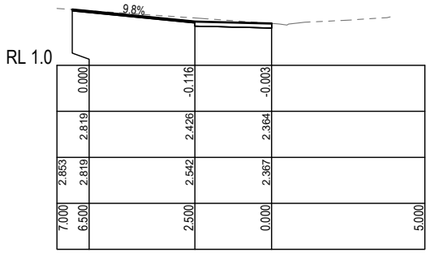

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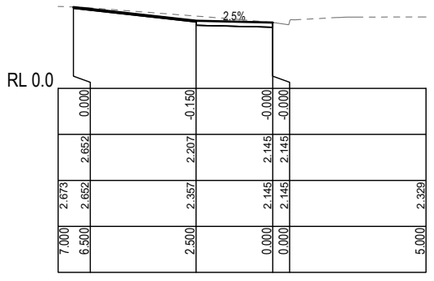

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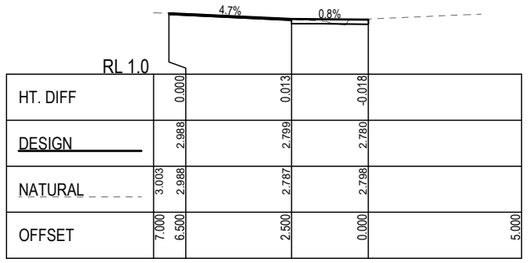

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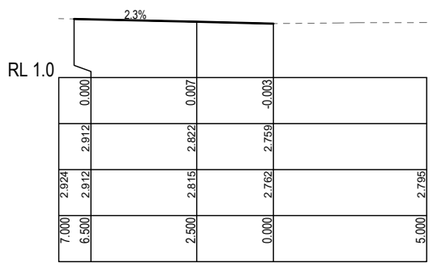

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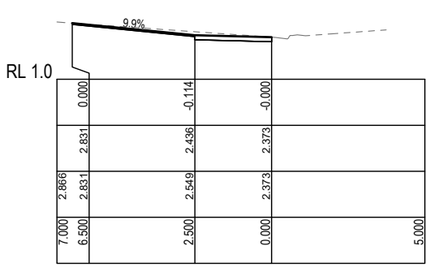

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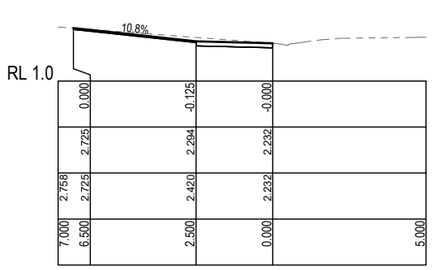

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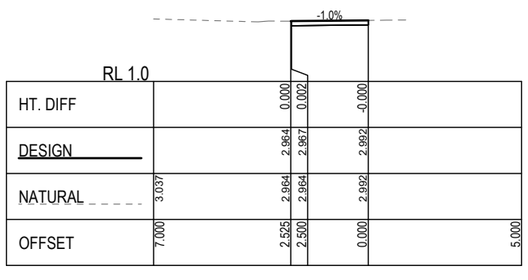

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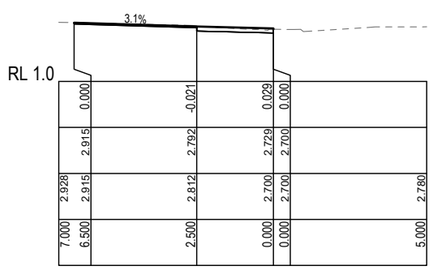

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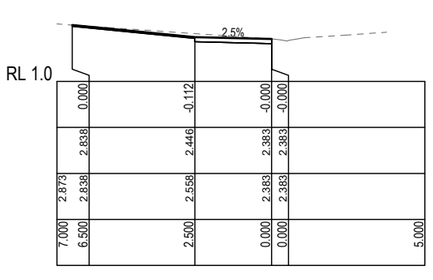

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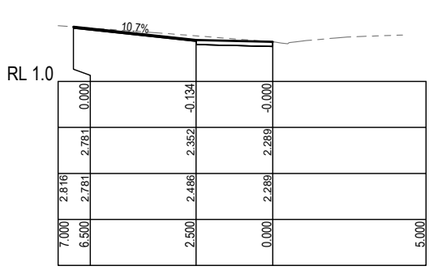

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ACCEPTED FOR CONSTRUCTION

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0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

SCALES ON A3 SIZE DRAWING

0 2 4 6 8 10

SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

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	PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
CROSS SECTIONS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: RW-033 OF 67 | ISSUE A

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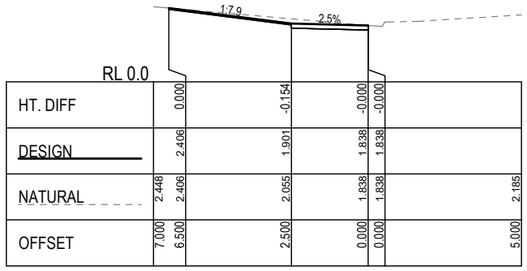

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DESIGN	2.406		1.901		1.838	1.838	
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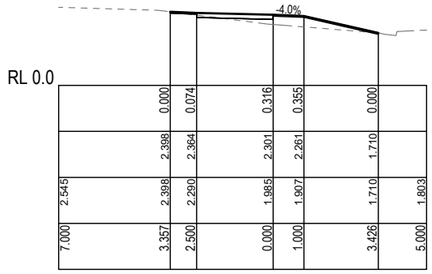
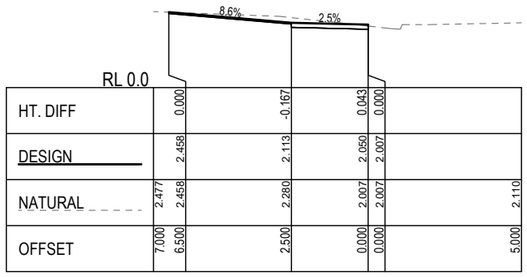
OFFSET	7.000	6.500	2.500		0.000	0.000	5.000

130.000



			0.000	0.074	0.316	0.355	0.000
		2.398	2.398	2.364	2.301	2.261	1.710
	2.545	2.398	2.290		1.985	1.907	1.710	1.803
	7.000	3.357	2.500		0.000	1.000	3.426	5.000

150.000



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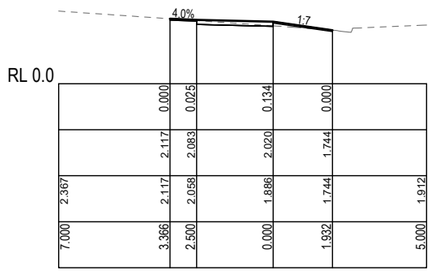
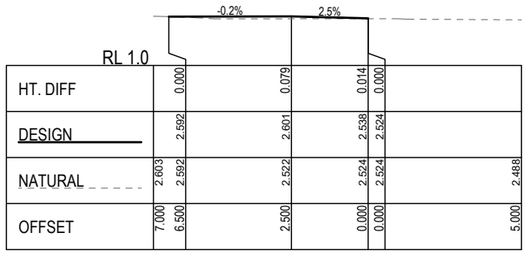
120.000



			0.000	0.025	0.134	0.000	
		2.117	2.117	2.083	2.020	1.744	
	2.367	2.117	2.058		1.886	1.744	1.912
	7.000	3.366	2.500		0.000	1.932	5.000

143.854



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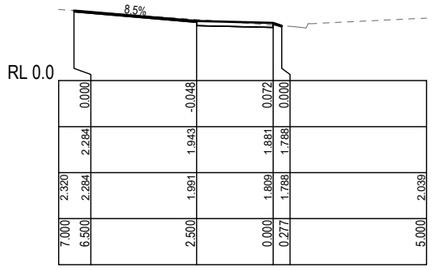
110.000



			0.000	-0.048	0.072	0.000	
		2.294	2.294	1.943	1.861	1.788	
	2.320	2.294	1.991		1.809	1.788	2.039
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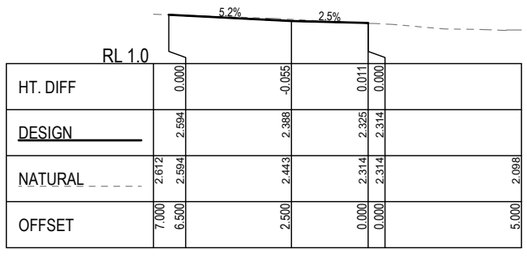

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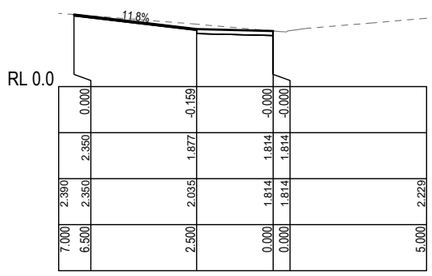
100.000



			0.000	-0.159	-0.000	-0.000	
		2.350	2.350	1.877	1.814	1.814	
	2.390	2.350	2.035		1.814	1.814	2.229
	7.000	6.500	2.500		0.000	0.000	5.000

133.000

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0 2 4 6 8 10
SCALE 1:200m

CO-ORDINATE SYSTEM HEIGHT DATUM
MGA ZONE 56 (GDA2020) AHD

DRAWINGS / DESIGN PREPARED BY
BRIDGE KNOWLEDGE PTY LTD
bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME 19/01/2024-4:32 PM PLOT BY GM

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CLIENT
GeoLINK environment | engineering | planning | design

PREPARED FOR
Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
CROSS SECTIONS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: RW-034 OF 67 | ISSUE: A

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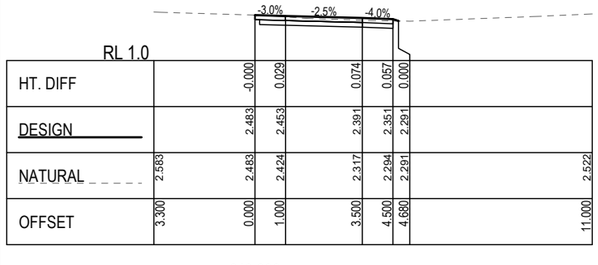

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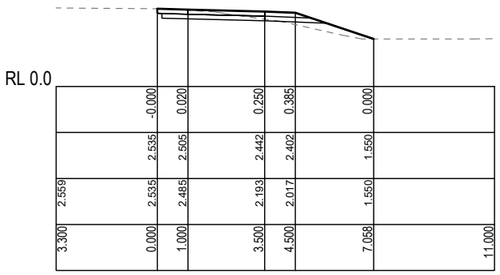

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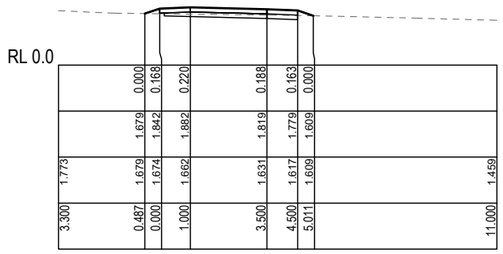

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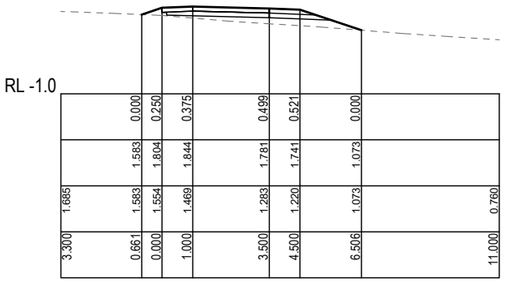

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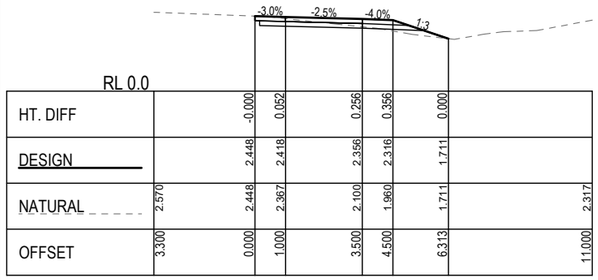

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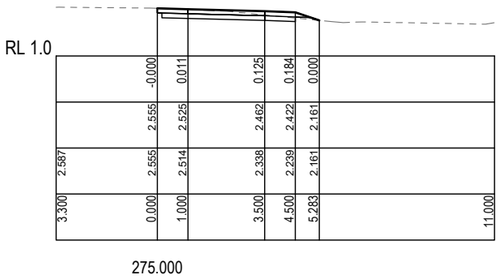

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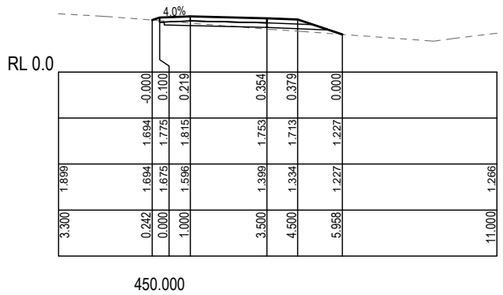

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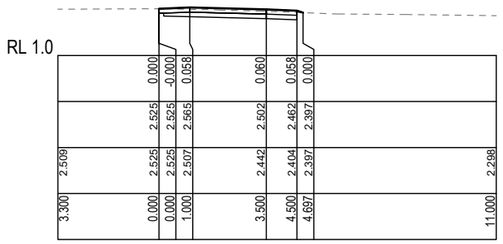

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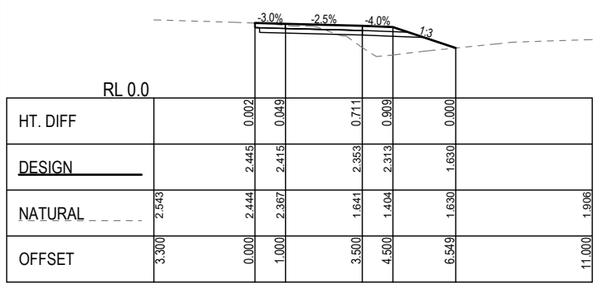

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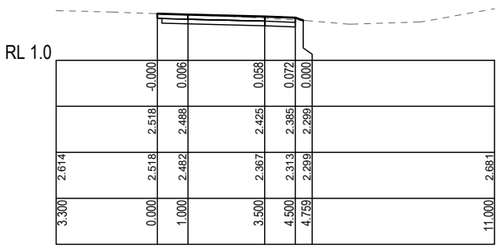

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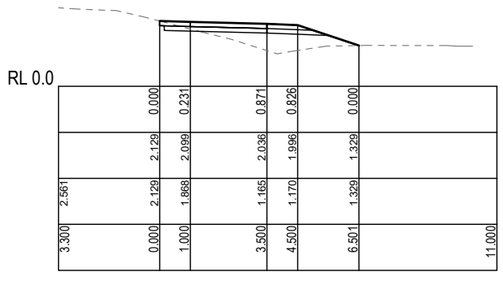

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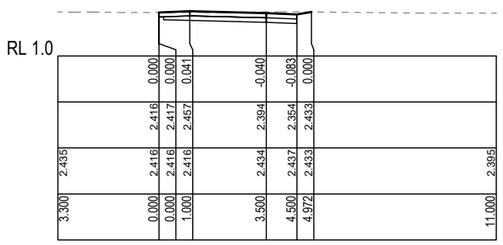

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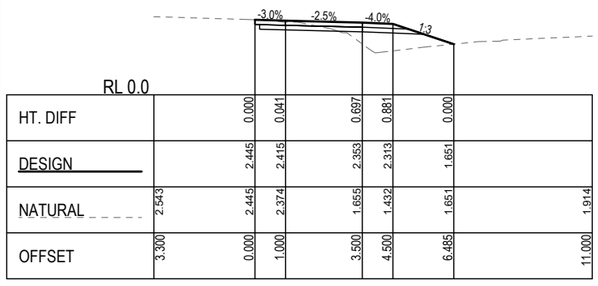

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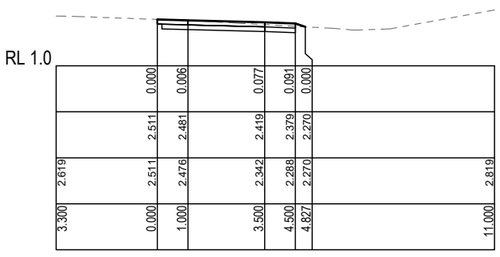

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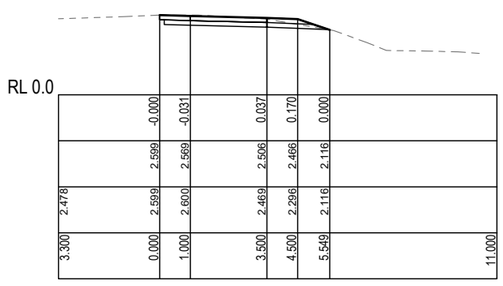

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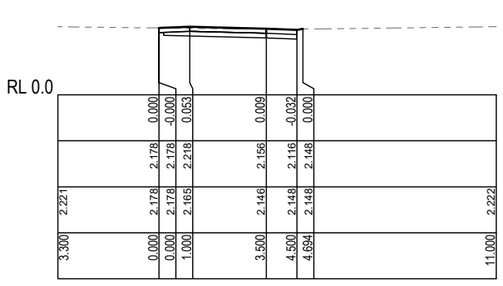

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ACCEPTED FOR CONSTRUCTION

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0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: 0 2 4 6 8 10 — SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK — environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
CROSS SECTIONS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-035 OF 67 | ISSUE A

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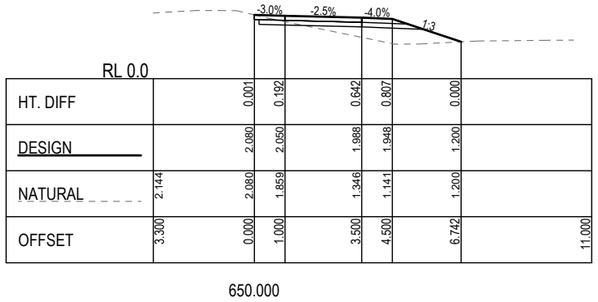

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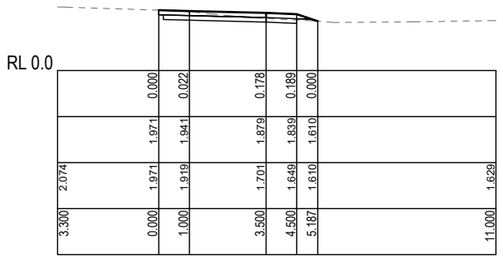

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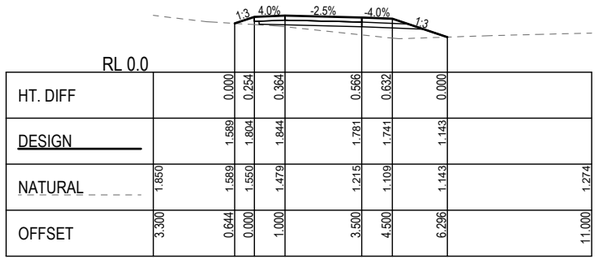

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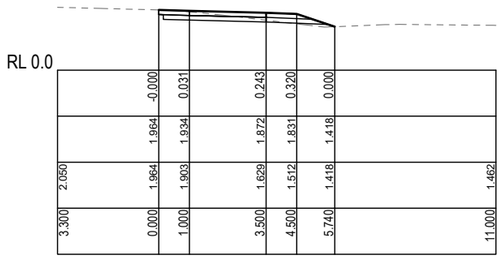

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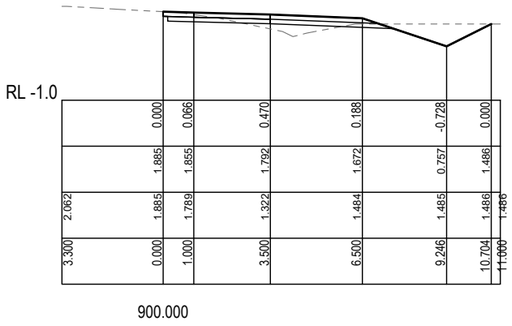

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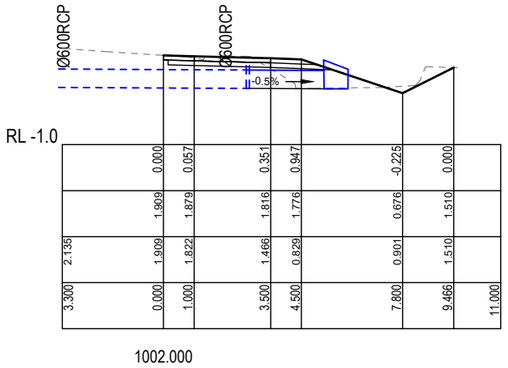

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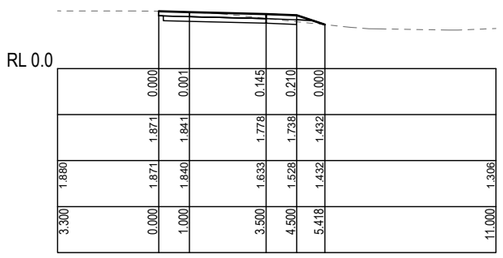

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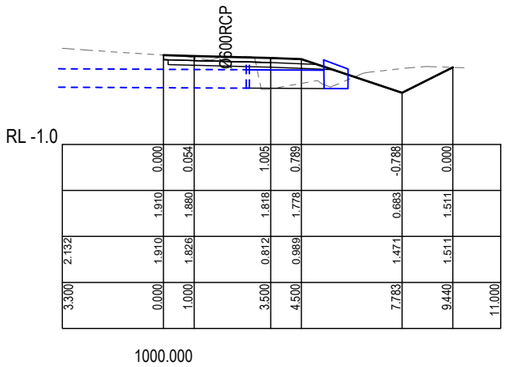

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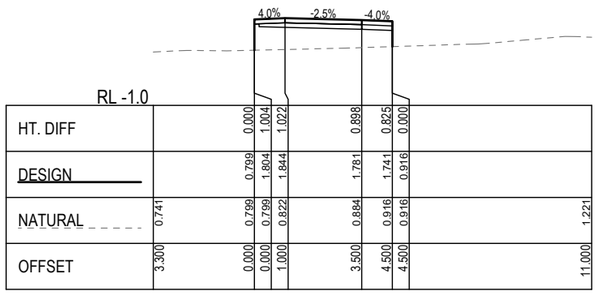

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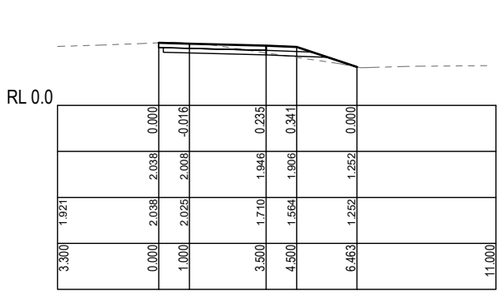

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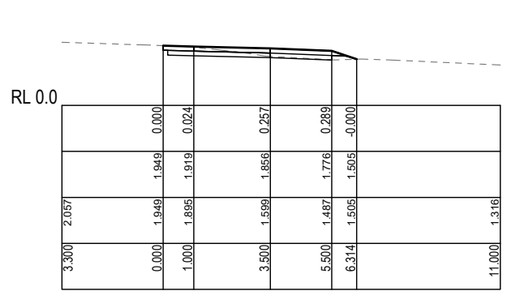

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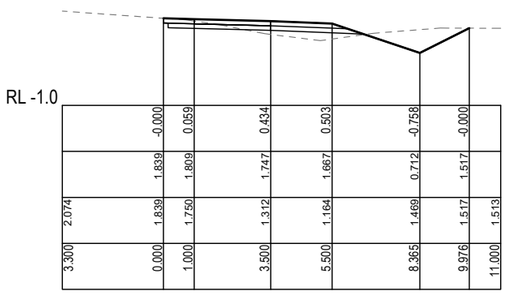

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ACCEPTED FOR CONSTRUCTION

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0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: 0 2 4 6 8 10 SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk | bridge knowledge ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

TITLE	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
CROSS SECTIONS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-036 OF 67 | ISSUE A

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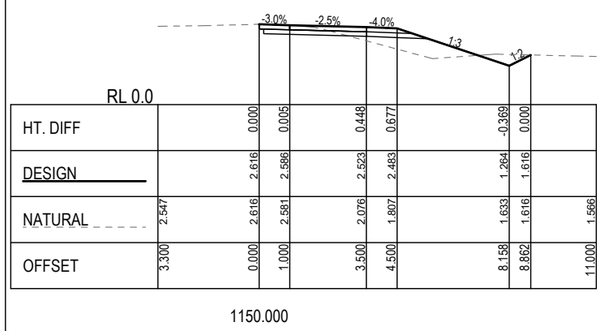

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HT. DIFF		0.000	0.005	0.448	0.677	-0.369	0.000		
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NATURAL	2.547	2.616	2.581	2.076	1.807	1.633	1.616	1.566	
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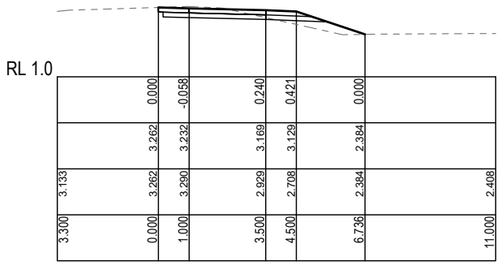
1150.000



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	3.133	3.262	3.290	2.929	2.708	2.384		2.408	
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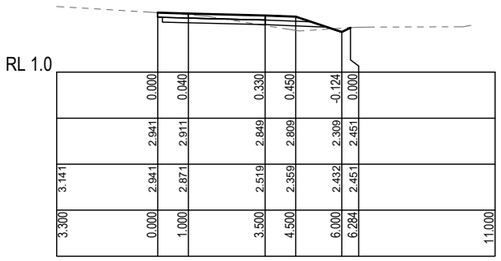

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	3.141	2.941	2.871	2.519	2.359	2.432	2.451		
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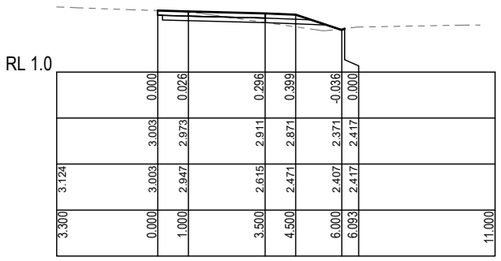
1450.000



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	3.124	3.003	2.947	2.615	2.471	2.407	2.417		
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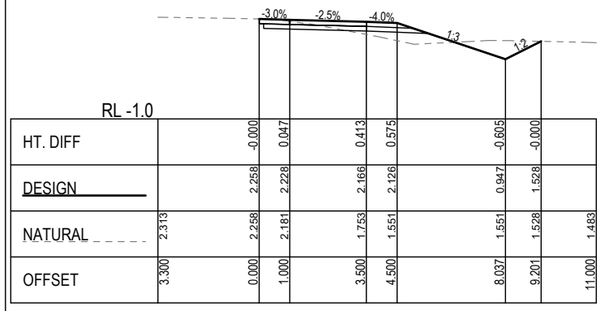
1400.000



RL -1.0

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NATURAL	2.313	2.258	2.181	1.753	1.551	1.551	1.528	1.483	
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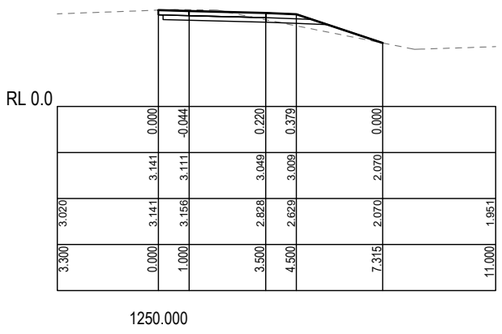

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	3.020	3.141	3.156	2.828	2.629	2.070		1.951	
	3.300	0.000	1.000	3.500	4.500	7.315		11.000	

1250.000

RL 1.0

		-0.000	-0.014	0.234	0.344	-0.024	0.000		
		3.197	3.167	3.105	3.065	2.565	2.589		
	3.181	3.197	3.181	2.871	2.720	2.589	2.589	2.562	
	3.300	0.000	1.000	3.500	4.500	6.000	6.048	11.000	

1350.000

RL 1.0

		0.000	0.000	0.019	0.096	0.330	0.000		
		3.368	3.253	3.223	3.161	3.121	2.407		
	3.368	3.253	3.204	3.065	2.791	2.407		2.471	
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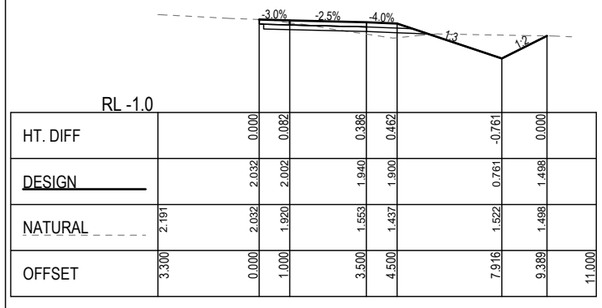
1550.000



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NATURAL	2.191	2.032	1.920	1.553	1.437	1.522	1.498	1.000	
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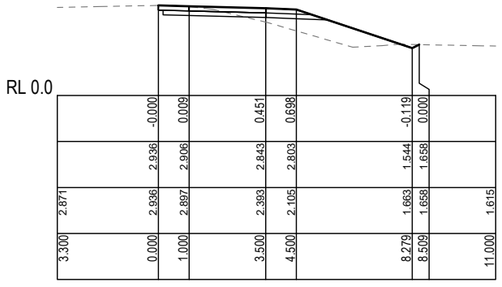
1050.000



RL 0.0

		-0.000	0.009	0.451	0.698	-0.119	0.000		
		2.936	2.906	2.843	2.803	1.544	1.658		
	2.871	2.936	2.897	2.393	2.105	1.663	1.658	1.615	
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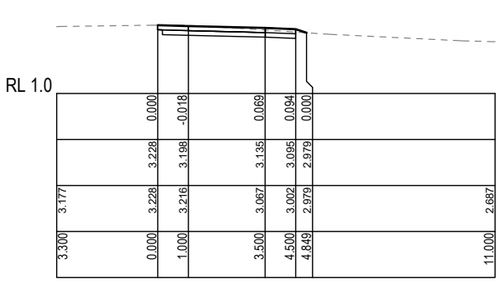
1200.000



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	3.177	3.228	3.216	3.067	3.002	2.979		2.687	
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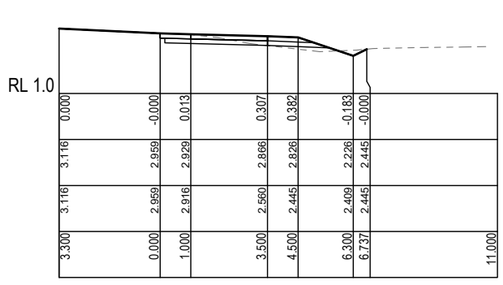

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		3.116	2.959	2.929	2.866	2.826	2.226		
	3.116	2.959	2.916	2.560	2.445	2.409	2.445	-0.000	
	3.300	0.000	1.000	3.500	4.500	6.300	6.737	11.000	

1500.000

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50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

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SCALES ON A3 SIZE DRAWING
0 2 4 6 8 10
SCALE 1:200m

CO-ORDINATE SYSTEM HEIGHT DATUM
MGA ZONE 56 (GDA2020) AHD

DRAWINGS / DESIGN PREPARED BY
BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME 19/01/2024-4:32 PM
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CLIENT
GeoLINK environment | engineering | planning | design

PREPARED FOR
Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
CROSS SECTIONS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS IFC | SHEET No. RW-037 OF 67 | ISSUE A

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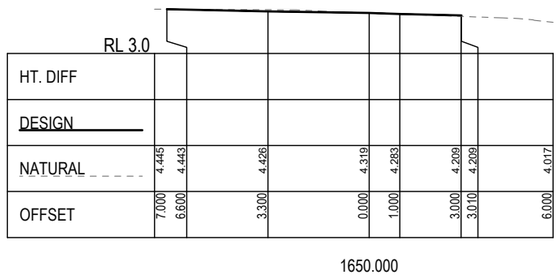

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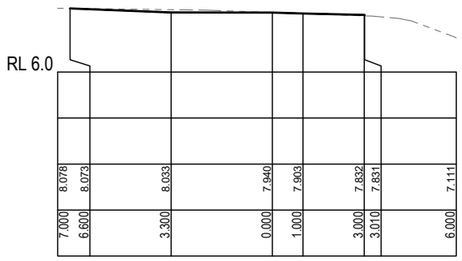

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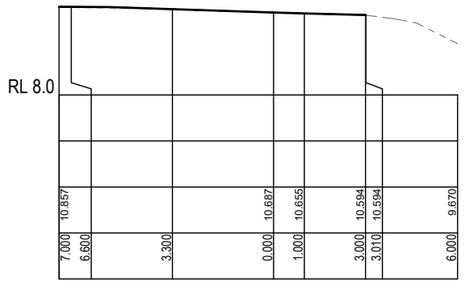

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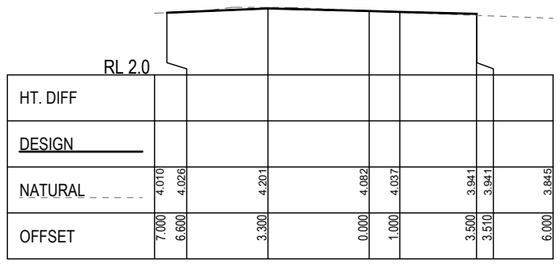

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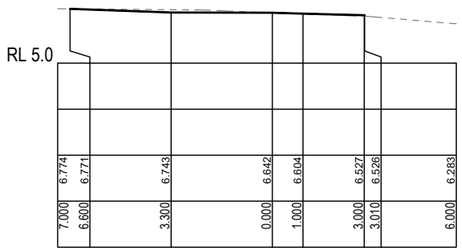

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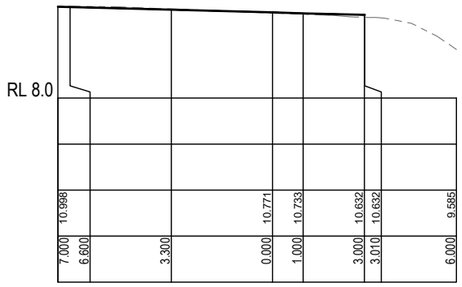

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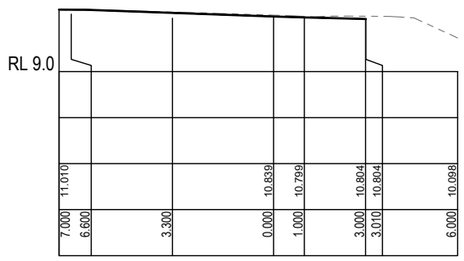

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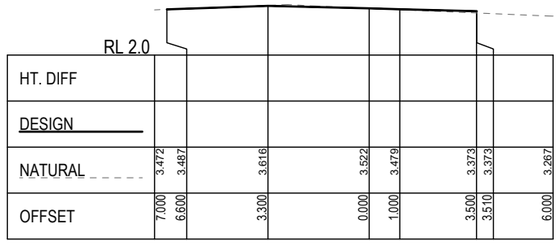

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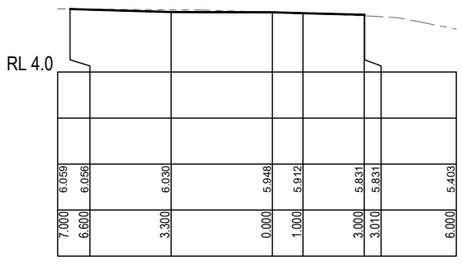

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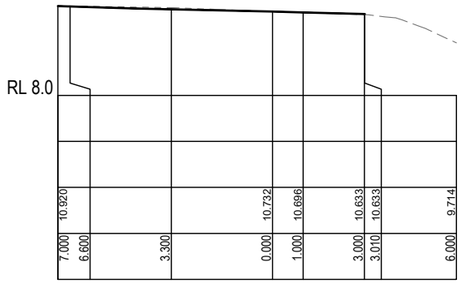

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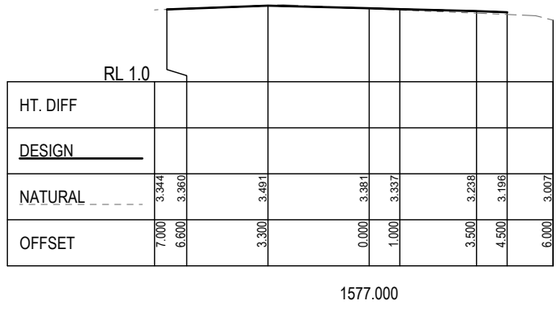

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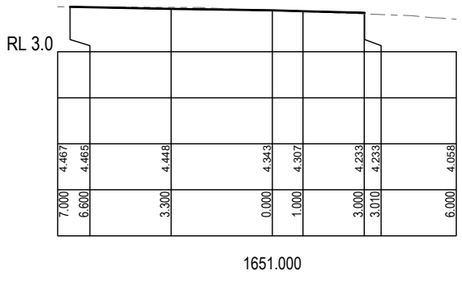

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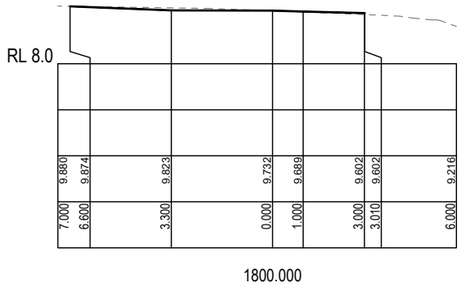

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ACCEPTED FOR CONSTRUCTION

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED
0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
TBC

SCALES ON A3 SIZE DRAWING
0 2 4 6 8 10
SCALE 1:200m

CO-ORDINATE SYSTEM HEIGHT DATUM
MGA ZONE 56 (GDA2020) AHD

DRAWINGS / DESIGN PREPARED BY
BRIDGE KNOWLEDGE PTY LTD
bk. bridge knowledge ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME 19/01/2024-4:32 PM
PLOT BY GM

	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT
GeoLINK environment | engineering | planning | design

PREPARED FOR
Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
CROSS SECTIONS

A3

BK PROJECT No. BKCD119A
GEOLINK PROJECT No.
PART 1
ISSUE STATUS IFC
SHEET No. RW-038 OF 67
ISSUE A

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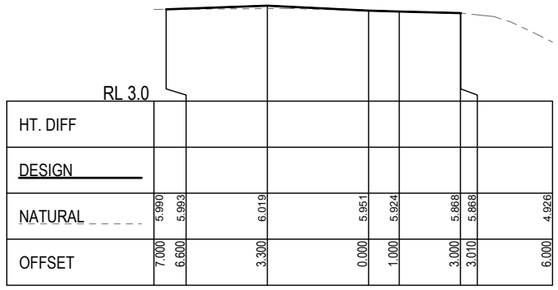

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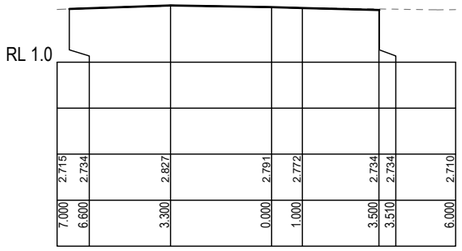

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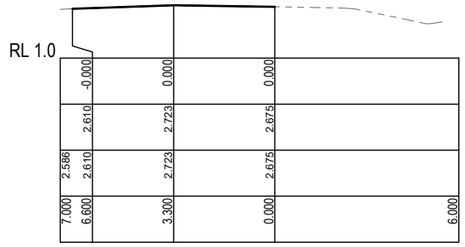

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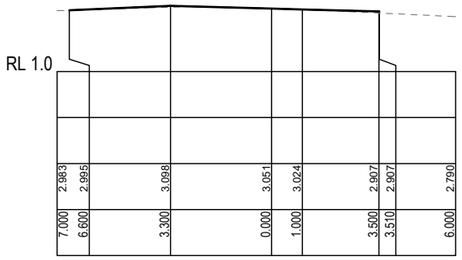

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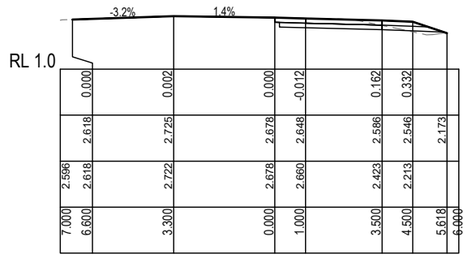

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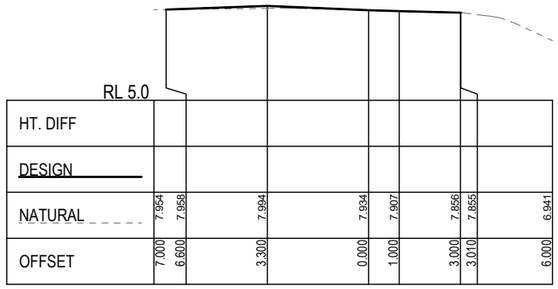

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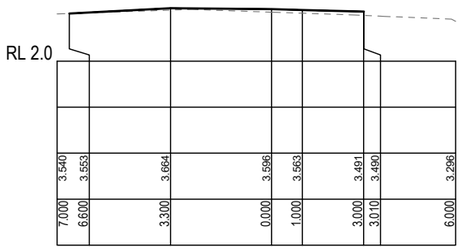

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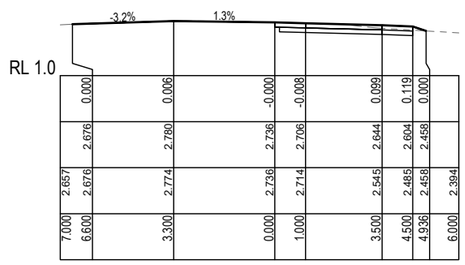

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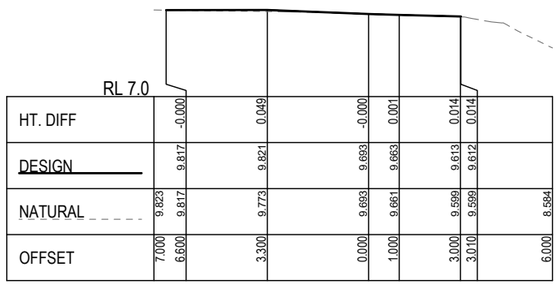

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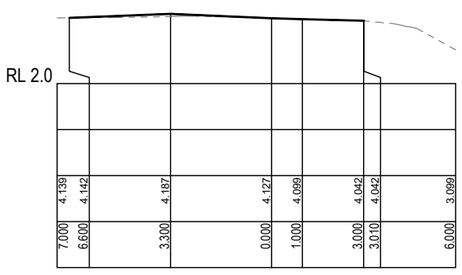

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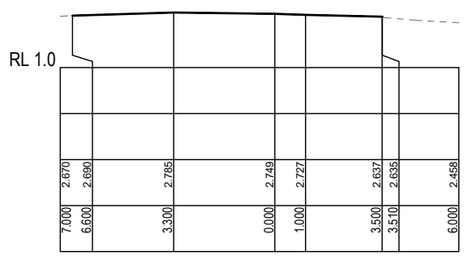

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ACCEPTED FOR CONSTRUCTION

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0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: 0 2 4 6 8 10 — SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

TITLE	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
CROSS SECTIONS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: RW-039 OF 67 | ISSUE: A

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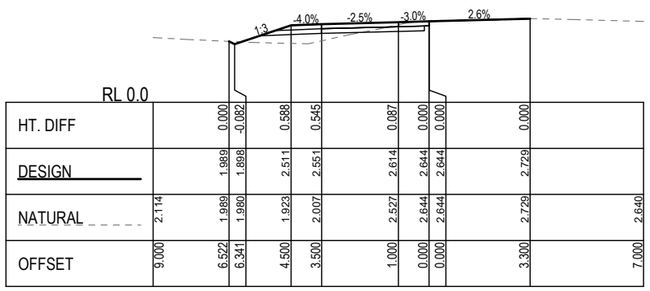
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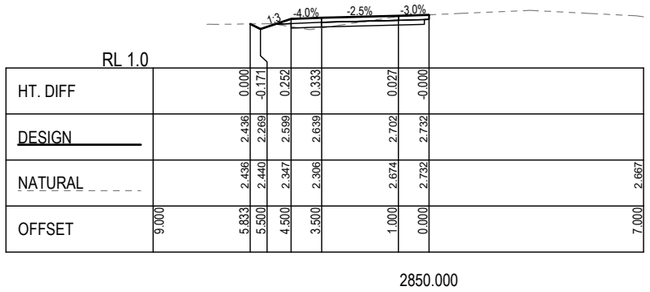

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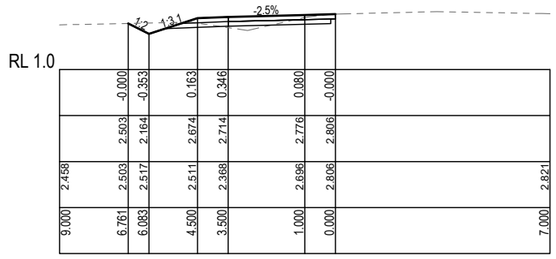

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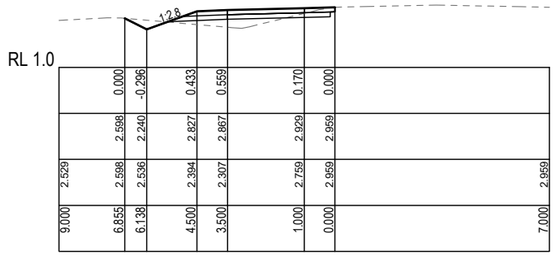

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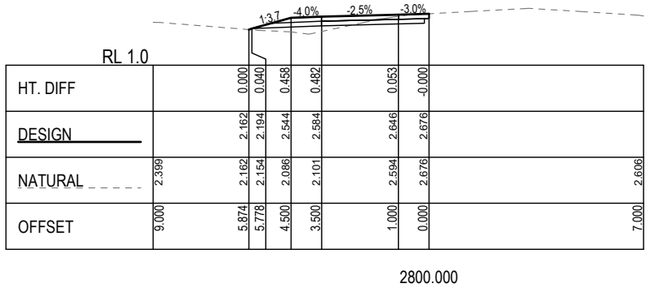

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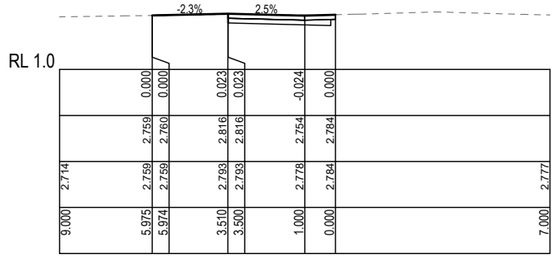

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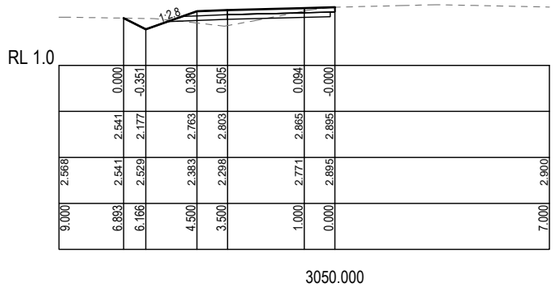

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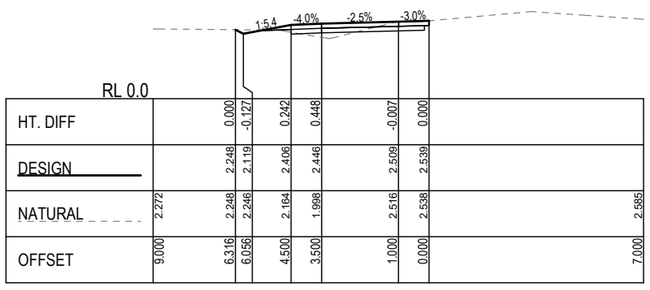

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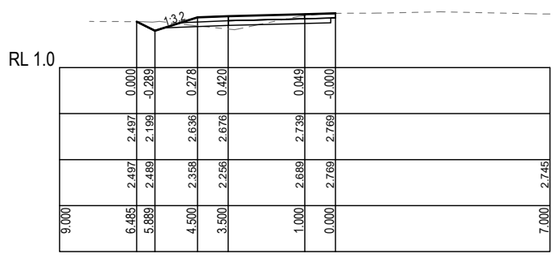

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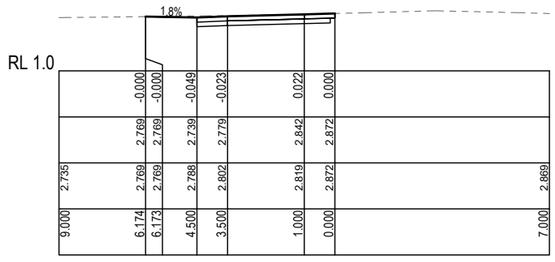

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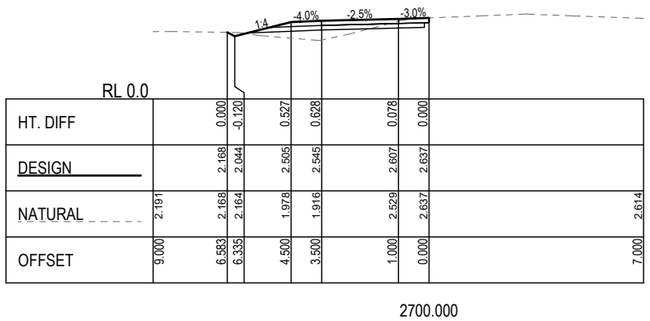

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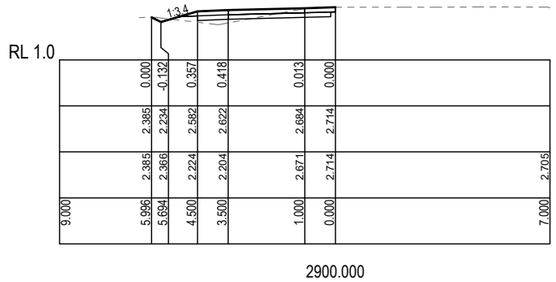

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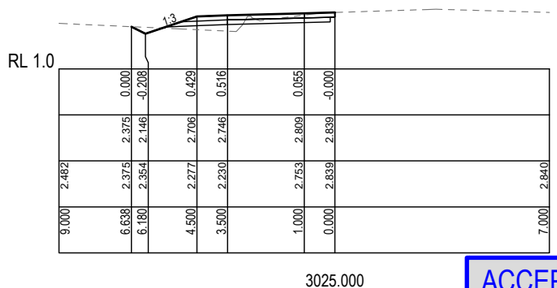

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ACCEPTED FOR CONSTRUCTION

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50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: 0 2 4 6 8 10 — SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

	TITLE	NAME	DATE
DRAWN		J. REN	16.1.24
DRG CHECK		J. ARMSTRONG	16.1.24
DESIGN		G. MULCAHY	16.1.24
DESIGN CHECK		J. ARMSTRONG	16.1.24
DESIGN MNGR		C. RILEY	16.1.24
PROJECT MNGR		M. ERWIN	

CLIENT: GeoLINK — environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
CROSS SECTIONS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: RW-041 OF 67 | ISSUE: A

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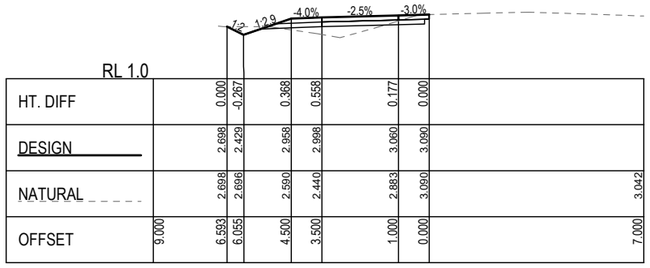

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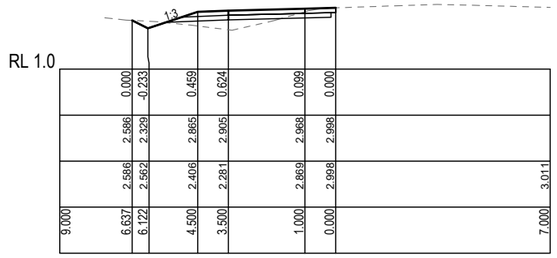

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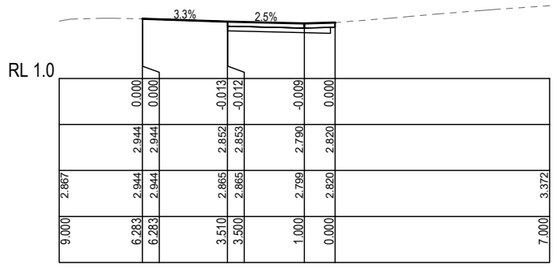

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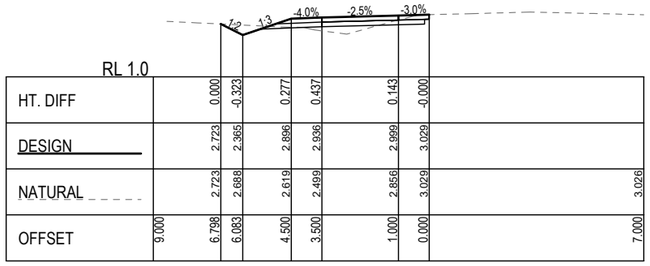

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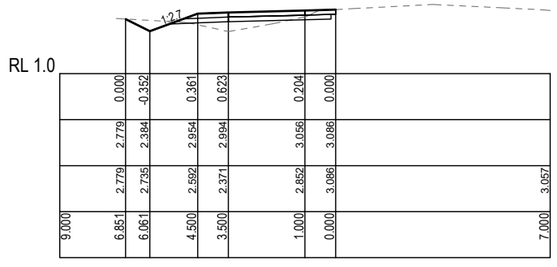

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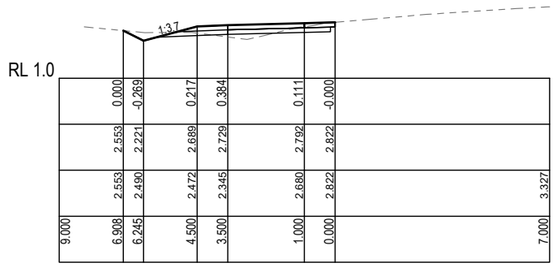

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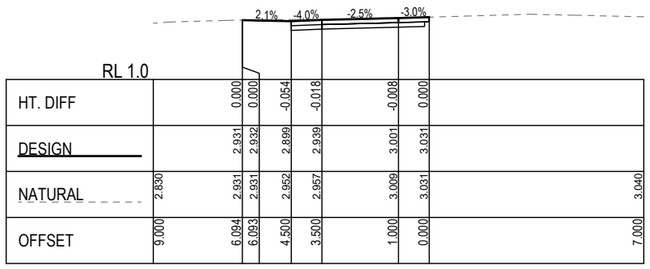

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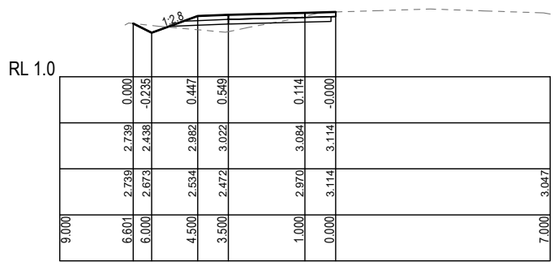

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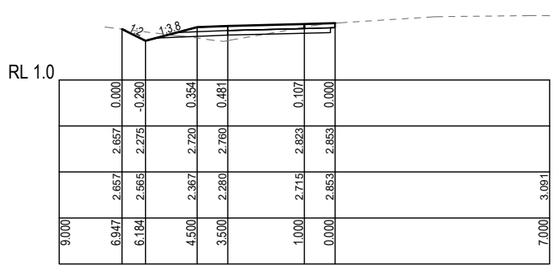

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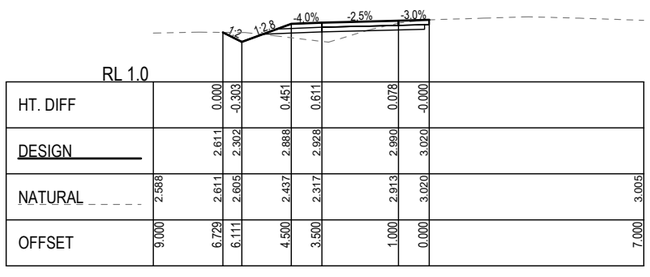

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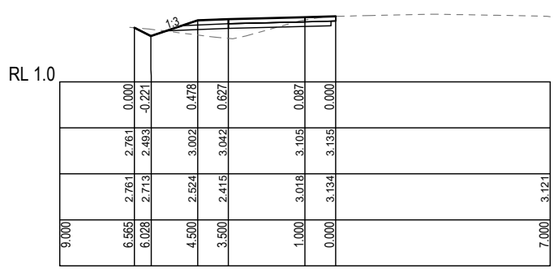

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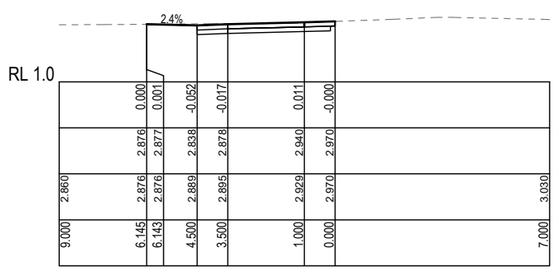

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ACCEPTED FOR CONSTRUCTION

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: 0 2 4 6 8 10 — SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

	TITLE	NAME	DATE
DRAWN		J. REN	16.1.24
DRG CHECK		J. ARMSTRONG	16.1.24
DESIGN		G. MULCAHY	16.1.24
DESIGN CHECK		J. ARMSTRONG	16.1.24
DESIGN MNGR		C. RILEY	16.1.24
PROJECT MNGR		M. ERWIN	

CLIENT: GeoLINK

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
CROSS SECTIONS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: RW-042 OF 67 | ISSUE: A

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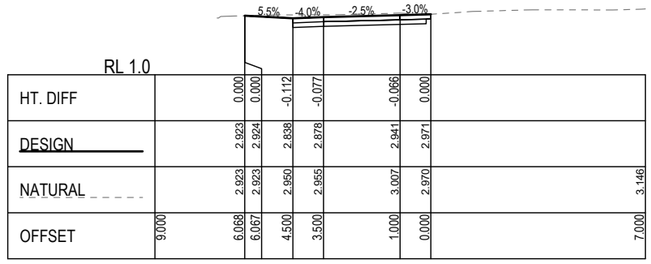

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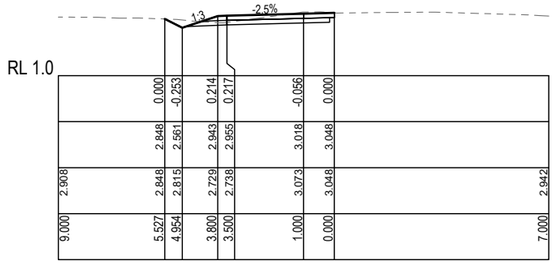

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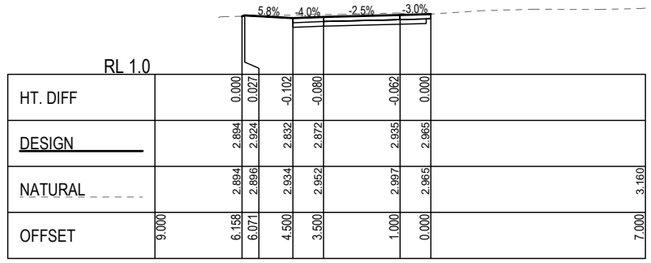

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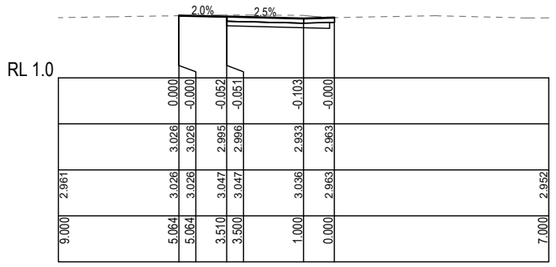

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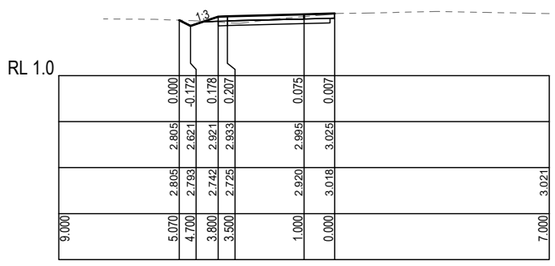

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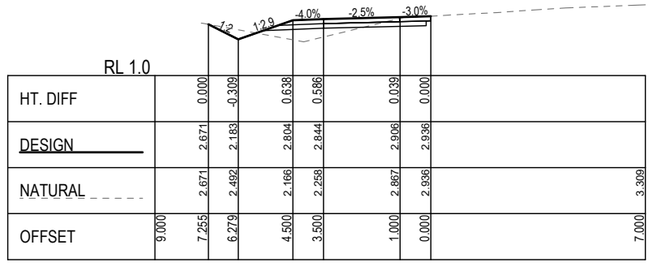

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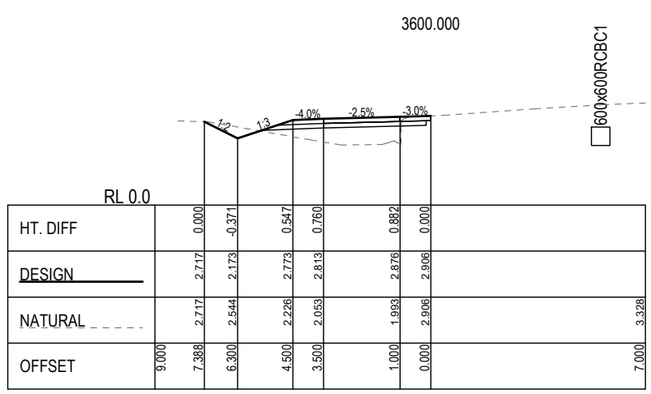

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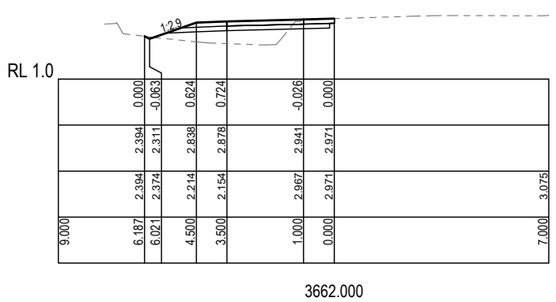

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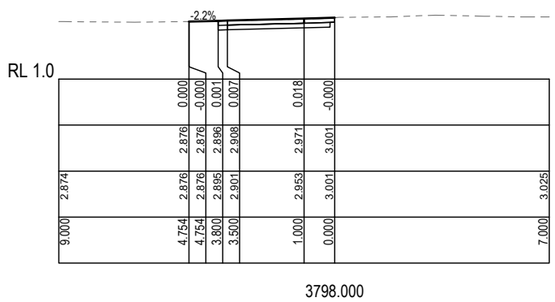

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ACCEPTED FOR CONSTRUCTION

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AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: 0 2 4 6 8 10 — SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
CROSS SECTIONS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-043 OF 67 | ISSUE A

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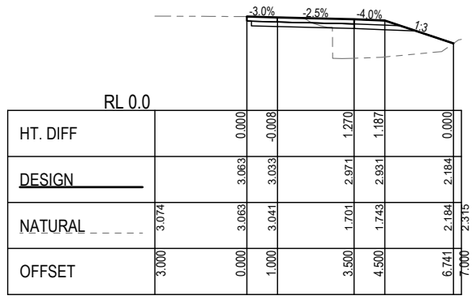

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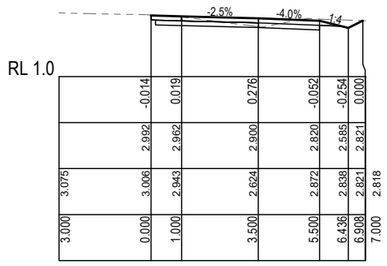

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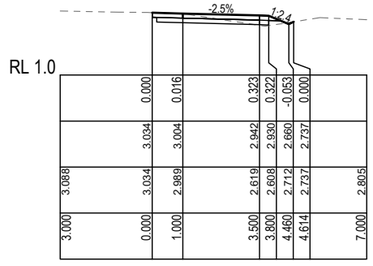

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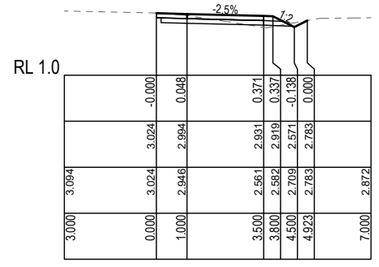

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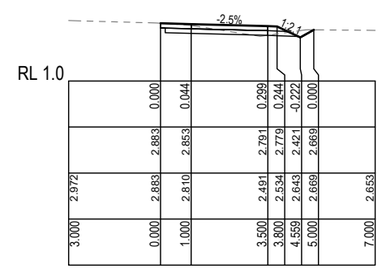

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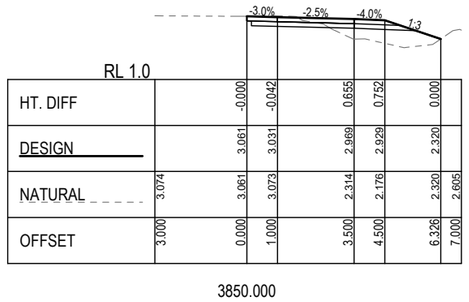

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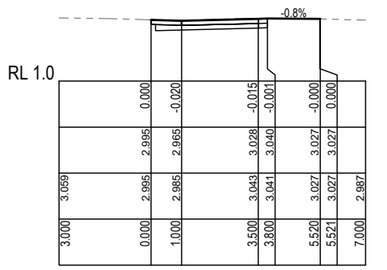

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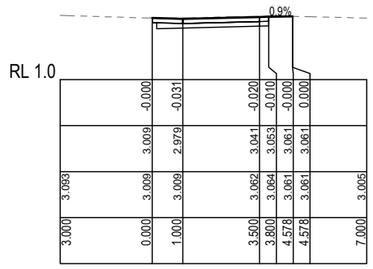

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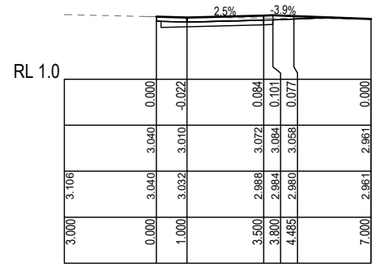

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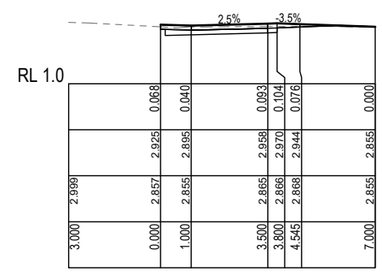

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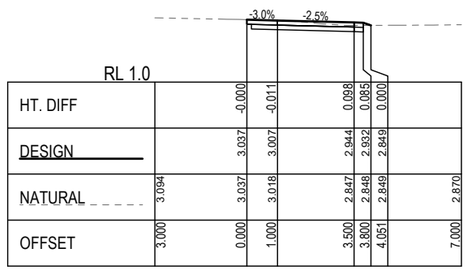

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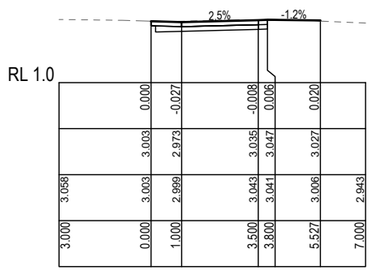

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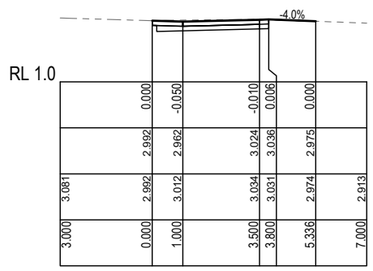

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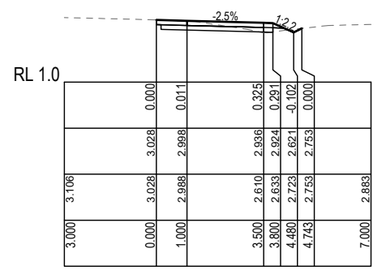

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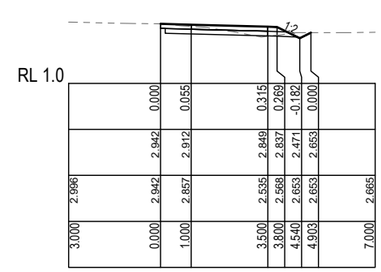

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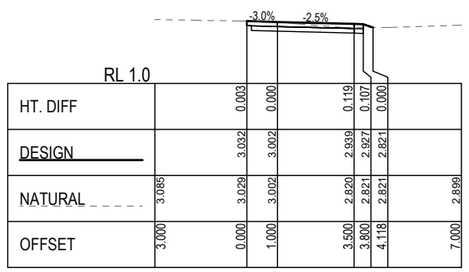

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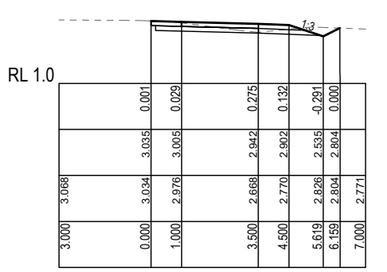

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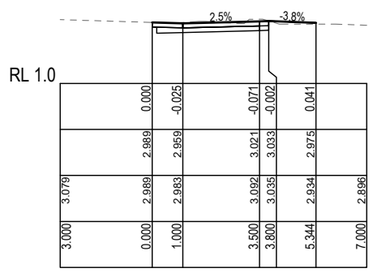

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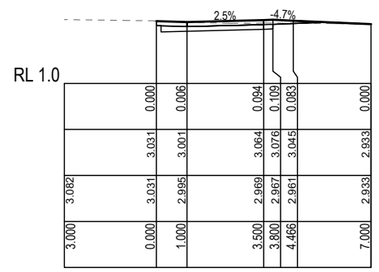

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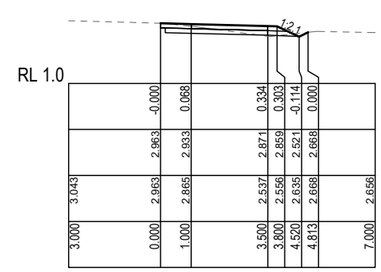

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50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: 0 2 4 6 8 10 — SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

	NAME	DATE
TITLE		
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
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DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK — environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
CROSS SECTIONS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-044 OF 67 | ISSUE A

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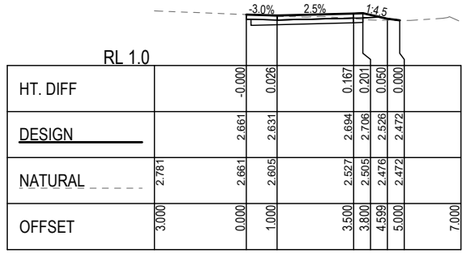

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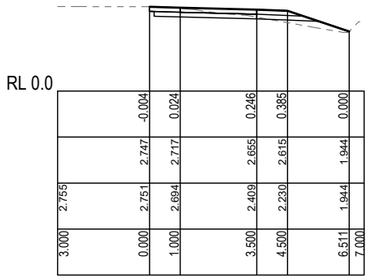

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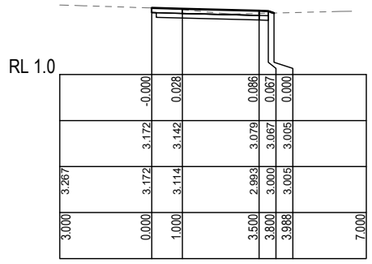

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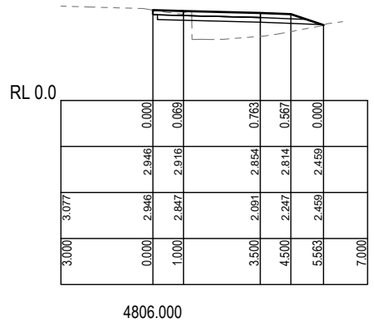

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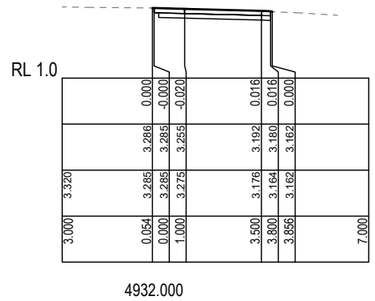

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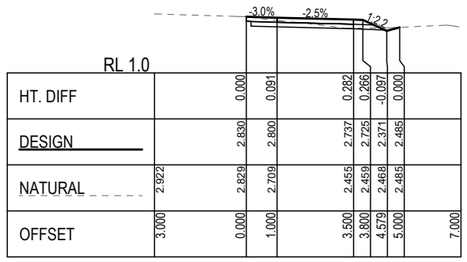

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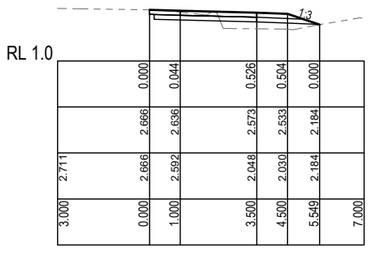

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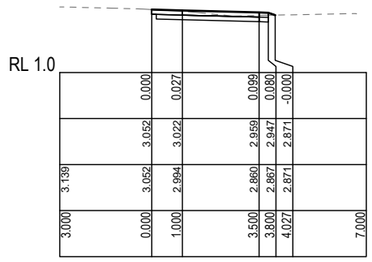

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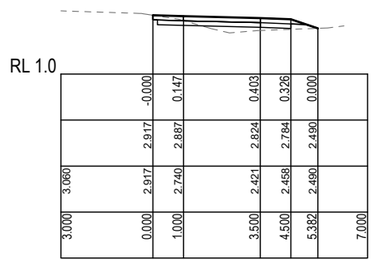

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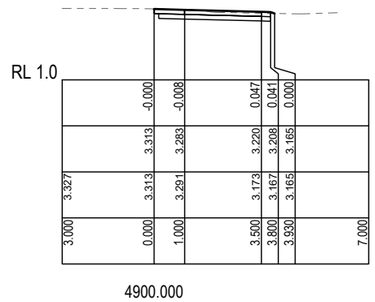

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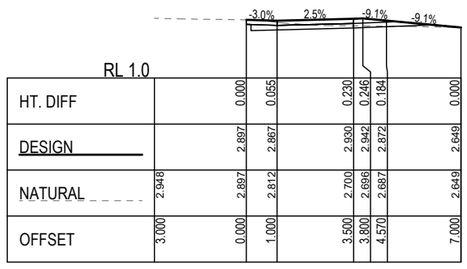

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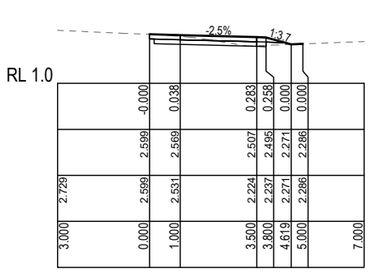

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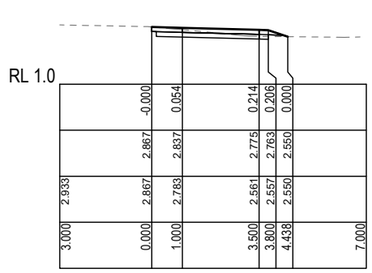

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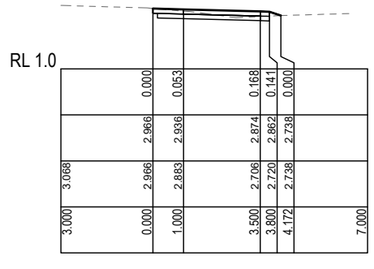

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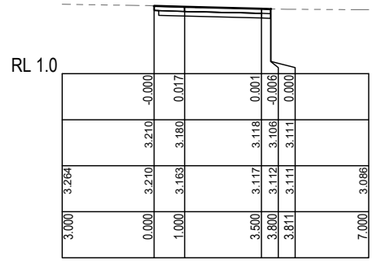

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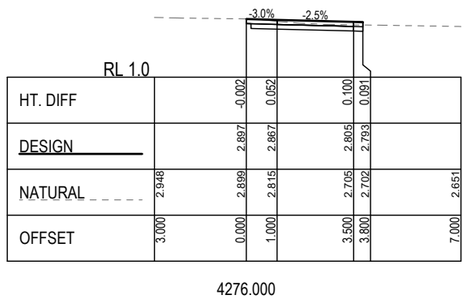

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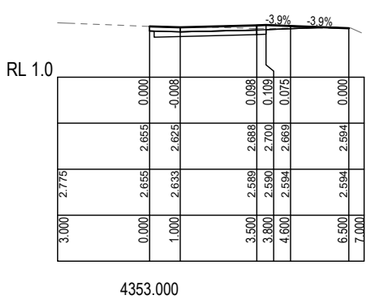

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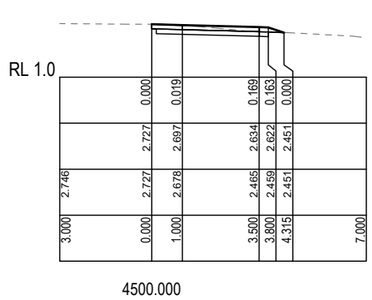

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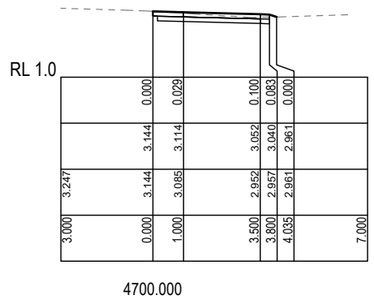

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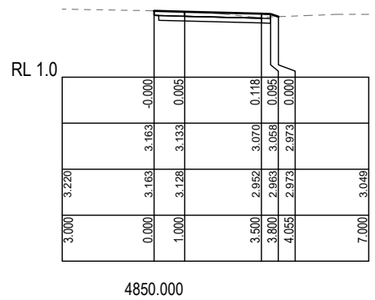

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0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
TBC

SCALES ON A3 SIZE DRAWING
0 2 4 6 8 10
SCALE 1:200m

CO-ORDINATE SYSTEM HEIGHT DATUM
MGA ZONE 56 (GDA2020) AHD

DRAWINGS / DESIGN PREPARED BY
BRIDGE KNOWLEDGE PTY LTD
bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME 19/01/2024-4:32 PM
PLOT BY GM

	TITLE	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT
GeoLINK environment | engineering | planning | design

PREPARED FOR
Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
CROSS SECTIONS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS IFC | SHEET No. RW-045 OF 67 | ISSUE A

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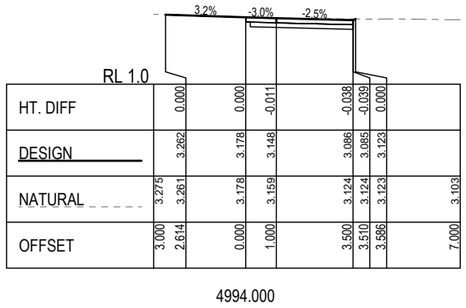

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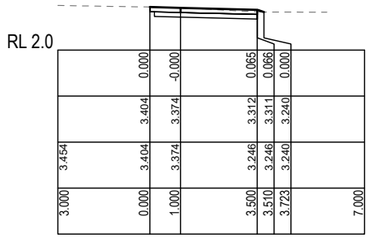

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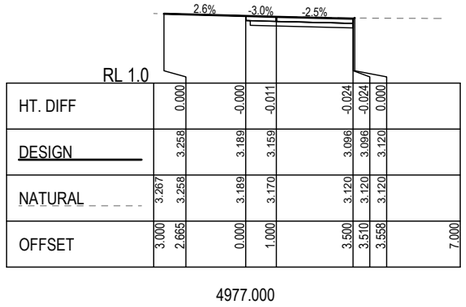

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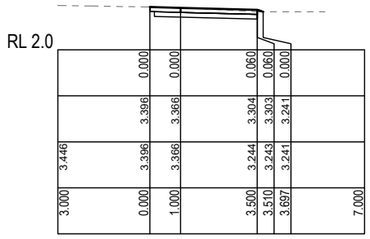

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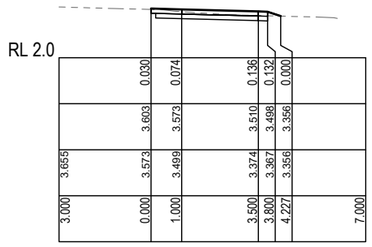

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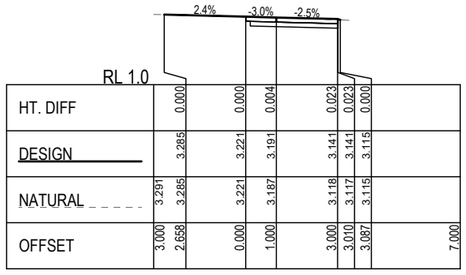

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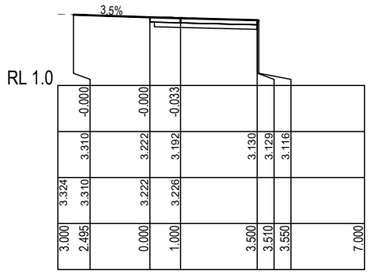

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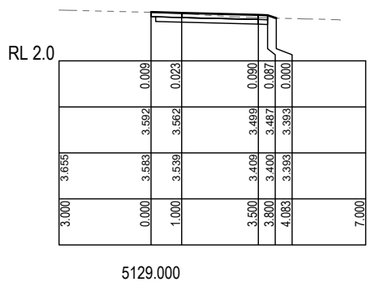

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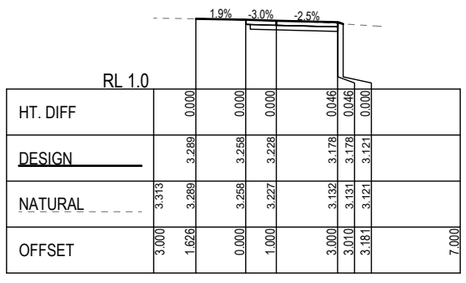

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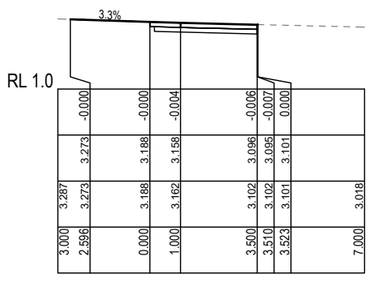

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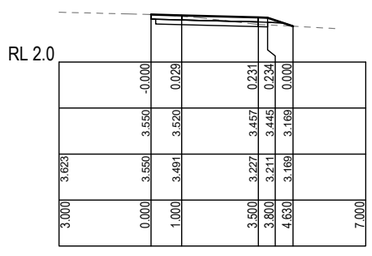

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0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: 0 2 4 6 8 10 — SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

	TITLE	NAME	DATE
	DRAWN	J. REN	16.1.24
	DRG CHECK	J. ARMSTRONG	16.1.24
	DESIGN	G. MULCAHY	16.1.24
	DESIGN CHECK	J. ARMSTRONG	16.1.24
	DESIGN MNGR	C. RILEY	16.1.24
	PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
CROSS SECTIONS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: RW-046 OF 67 | ISSUE: A

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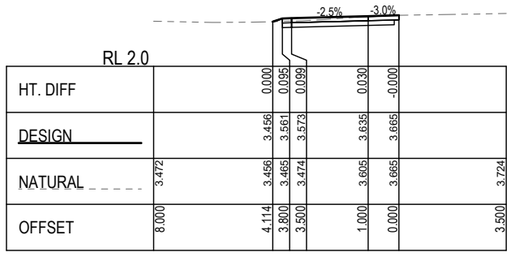

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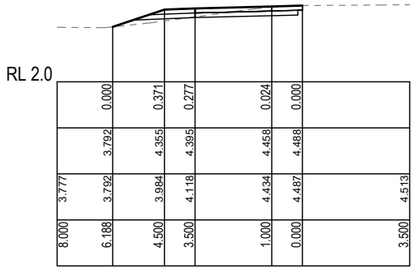

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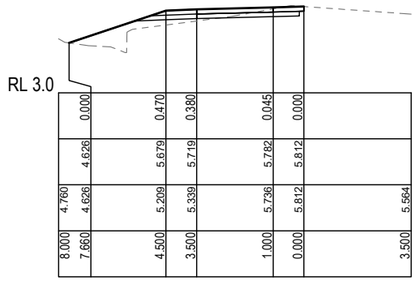

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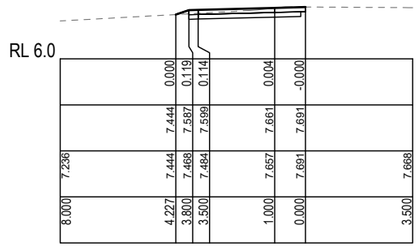

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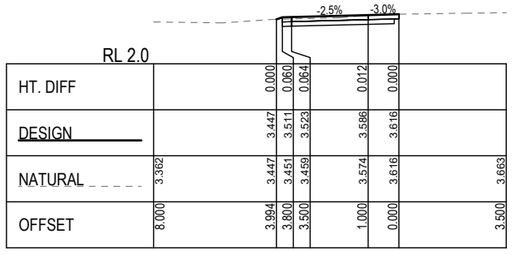

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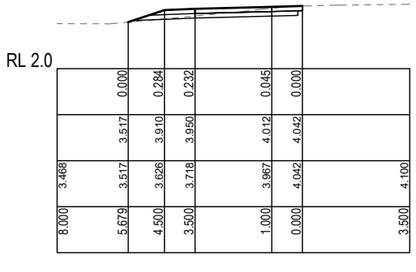

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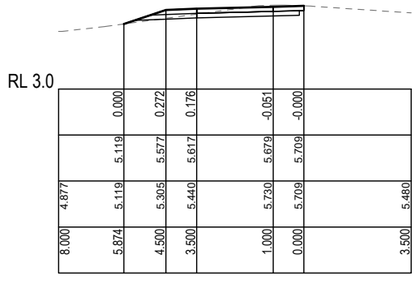

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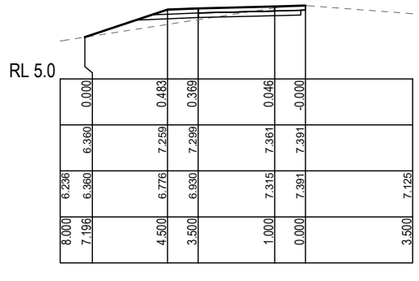

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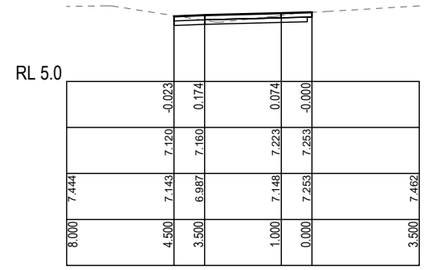

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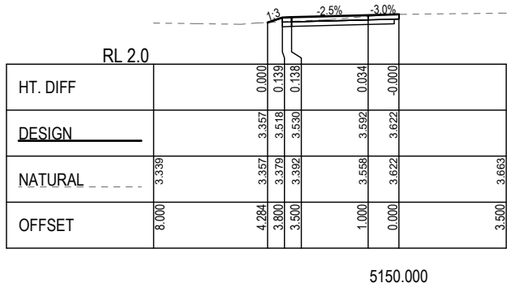

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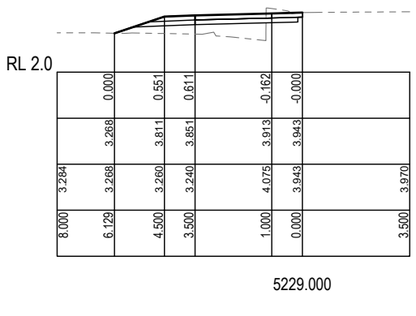

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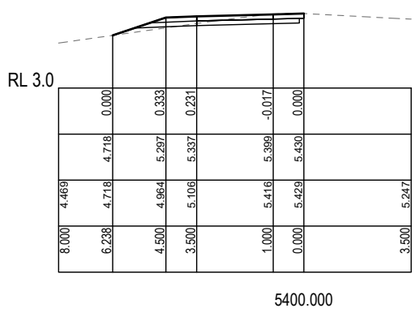

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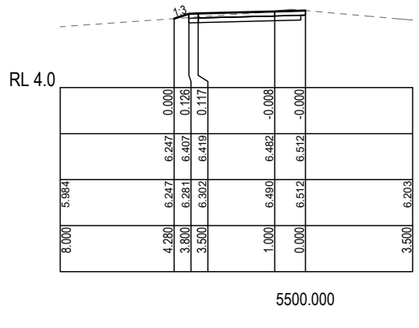

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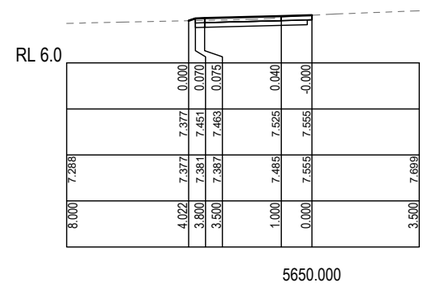

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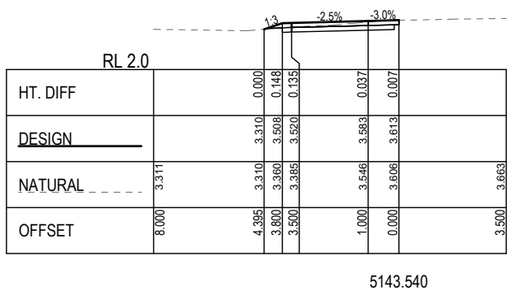

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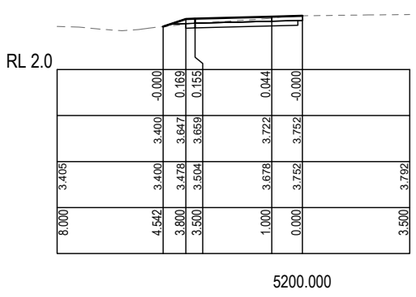

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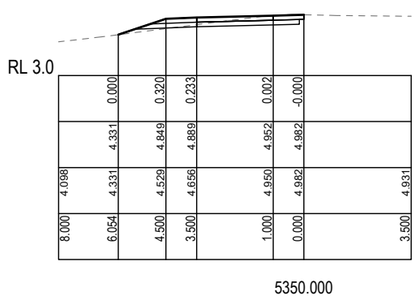

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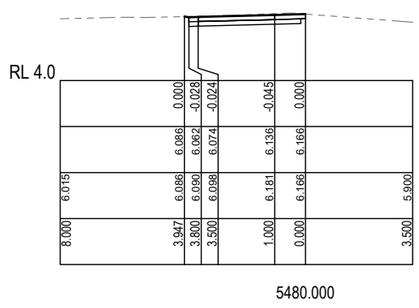

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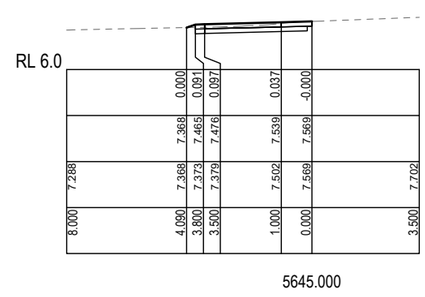

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AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: 0 2 4 6 8 10 — SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk | bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

	NAME	DATE
TITLE		
DRAWN	J. REN	16.1.24
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PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
CROSS SECTIONS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. RW-047 OF 67 | ISSUE A

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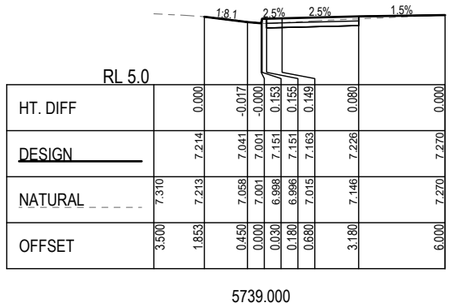

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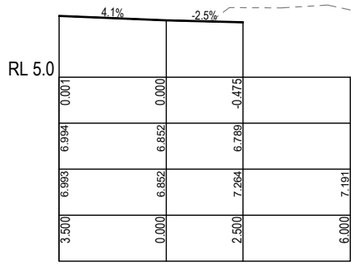

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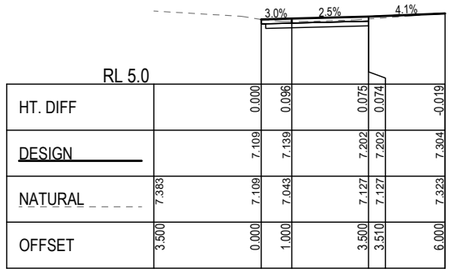

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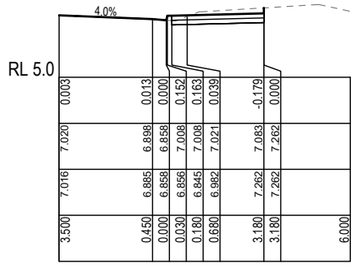

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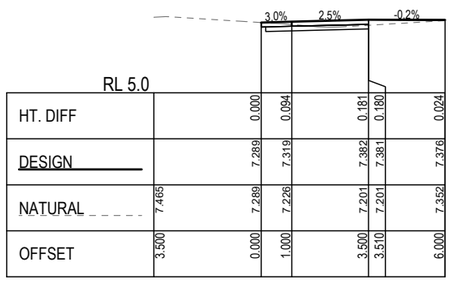

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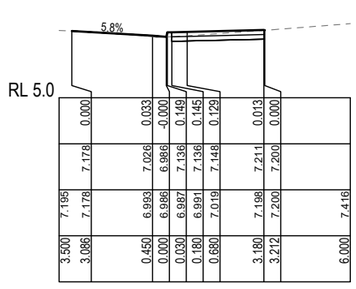

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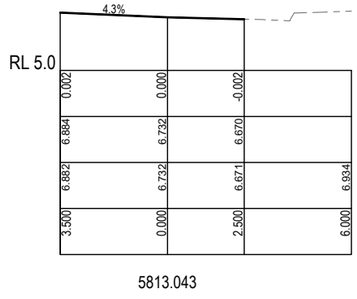

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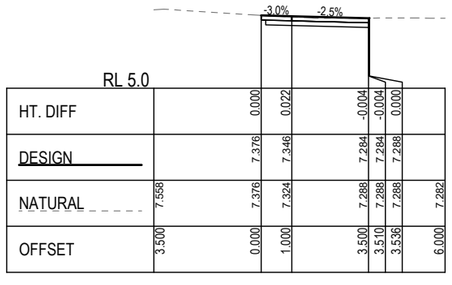

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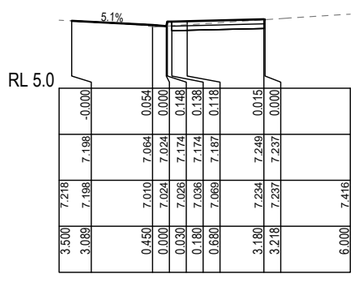

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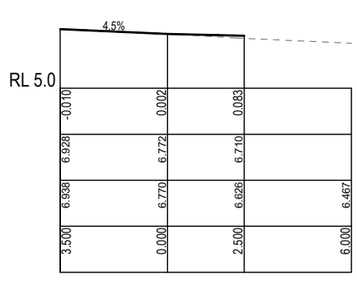

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50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

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SCALES ON A3 SIZE DRAWING: 0 2 4 6 8 10 — SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

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PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
CROSS SECTIONS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: RW-048 OF 67 | ISSUE: A

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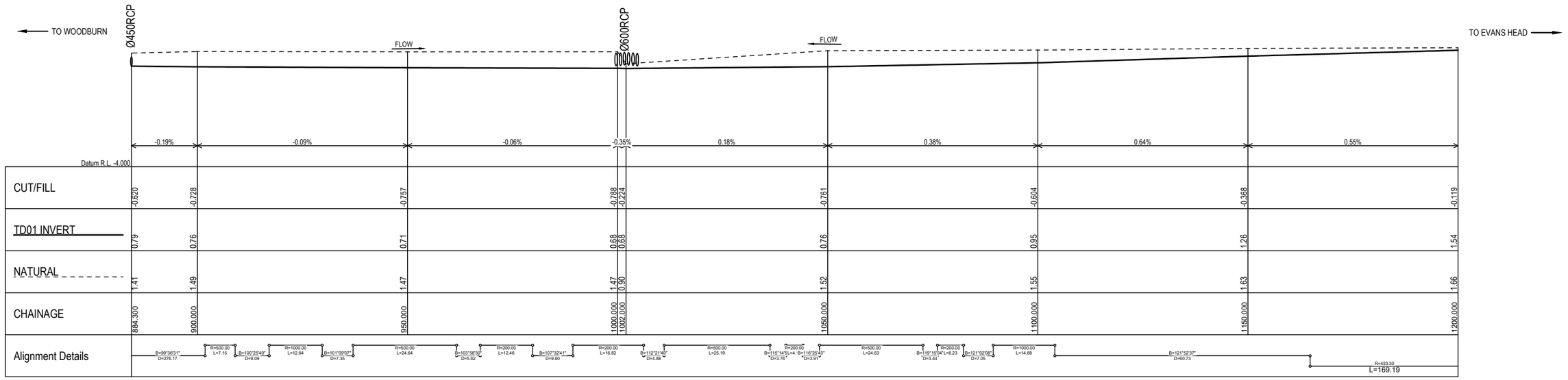

TABLE DRAIN TD01 LONGITUDINAL SECTION

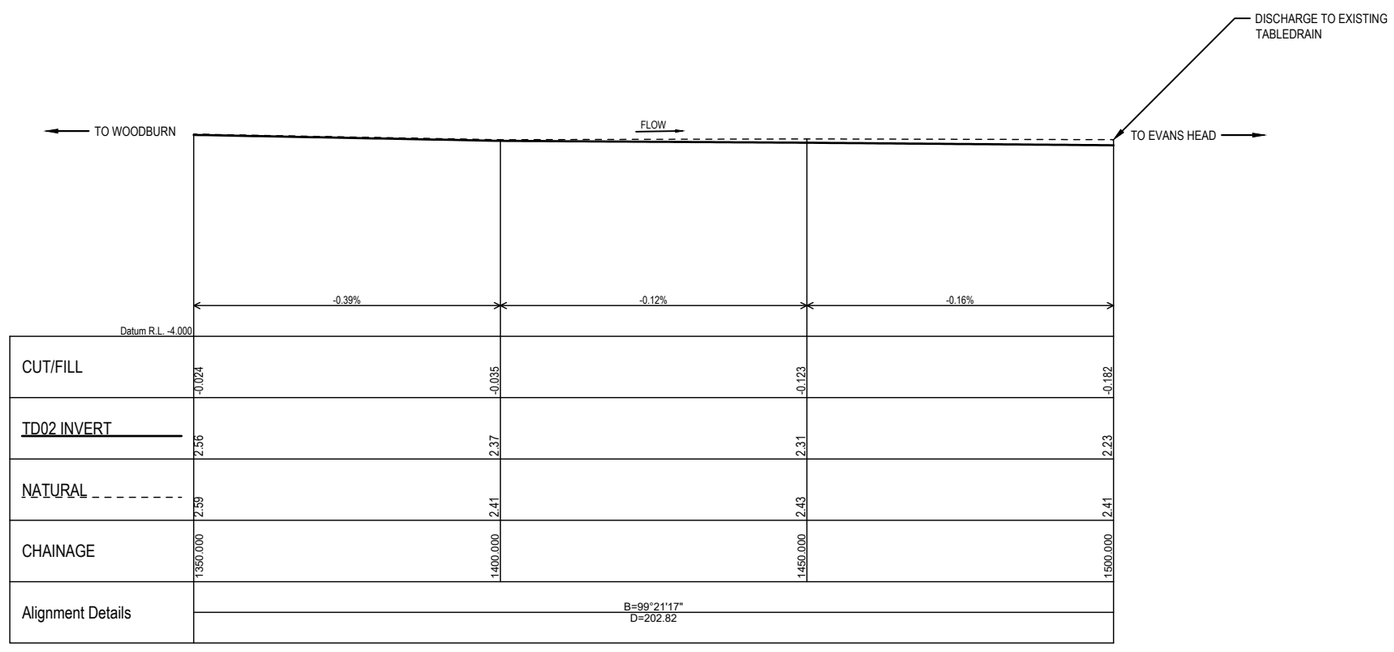

TABLE DRAIN TD02 LONGITUDINAL SECTION

ACCEPTED FOR CONSTRUCTION

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50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

SCALES ON A3 SIZE DRAWING
0 10 20 30 40 50
HORIZONTAL SCALE 1:1000m
0 2 4 6 8 10
VERTICAL SCALE 1:200m
CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020)
HEIGHT DATUM: AHD

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:32 PM
PLOT BY: GM

	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
DRAINAGE DETAILS

A3

BK PROJECT No. BKCD119A
GEOLINK PROJECT No.
PART 1
ISSUE STATUS: IFC
SHEET No.: SM-001 OF 67
ISSUE A

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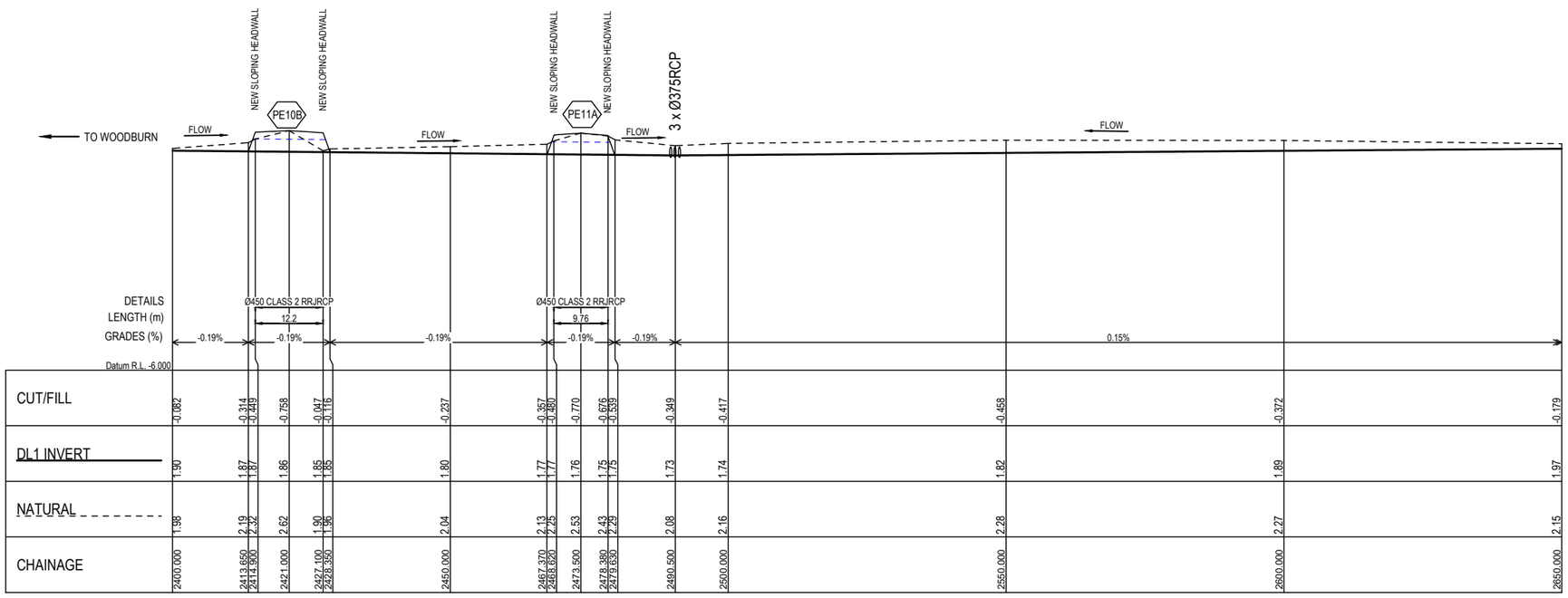
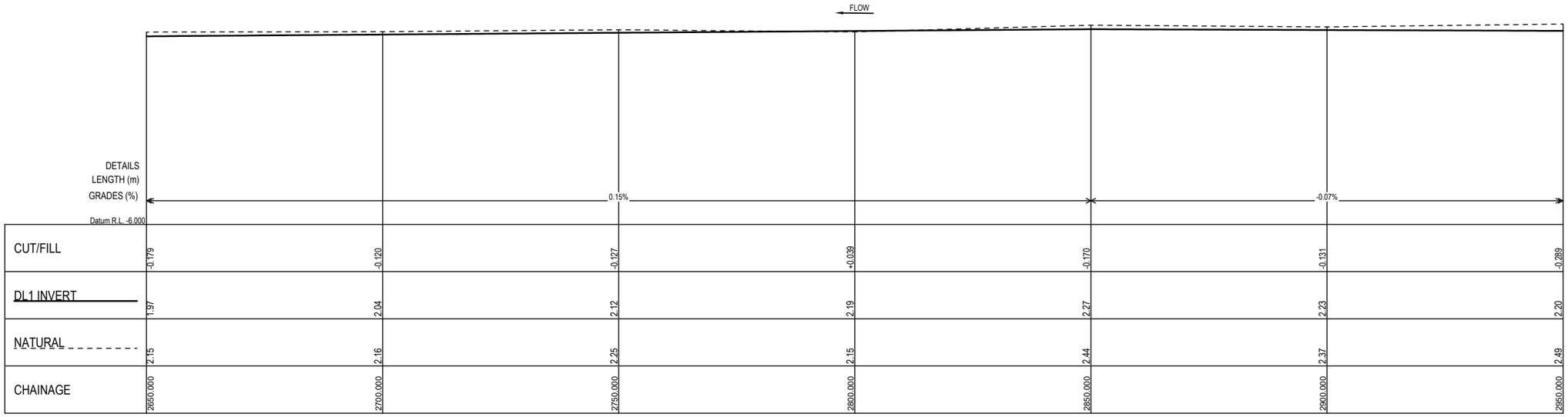


LEFT DRAINAGE LINE DL1 LONGITUDINAL SECTION

LEGEND

PE01 DRIVEWAY ID - REFER DRG 005-GN FOR SHARED P DRIVEWAY AND DRAINAGE TREATMENTS



LEFT DRAINAGE LINE DL1 LONGITUDINAL SECTION

ADJOINS SHEET No. SM-003

ACCEPTED FOR CONSTRUCTION

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED
0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

SCALES ON A3 SIZE DRAWING
0 10 20 30 40 50
HORIZONTAL SCALE 1:1000m
0 2 4 6 8 10
VERTICAL SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
DRAINAGE DETAILS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: SM-002 OF 67 | ISSUE: A

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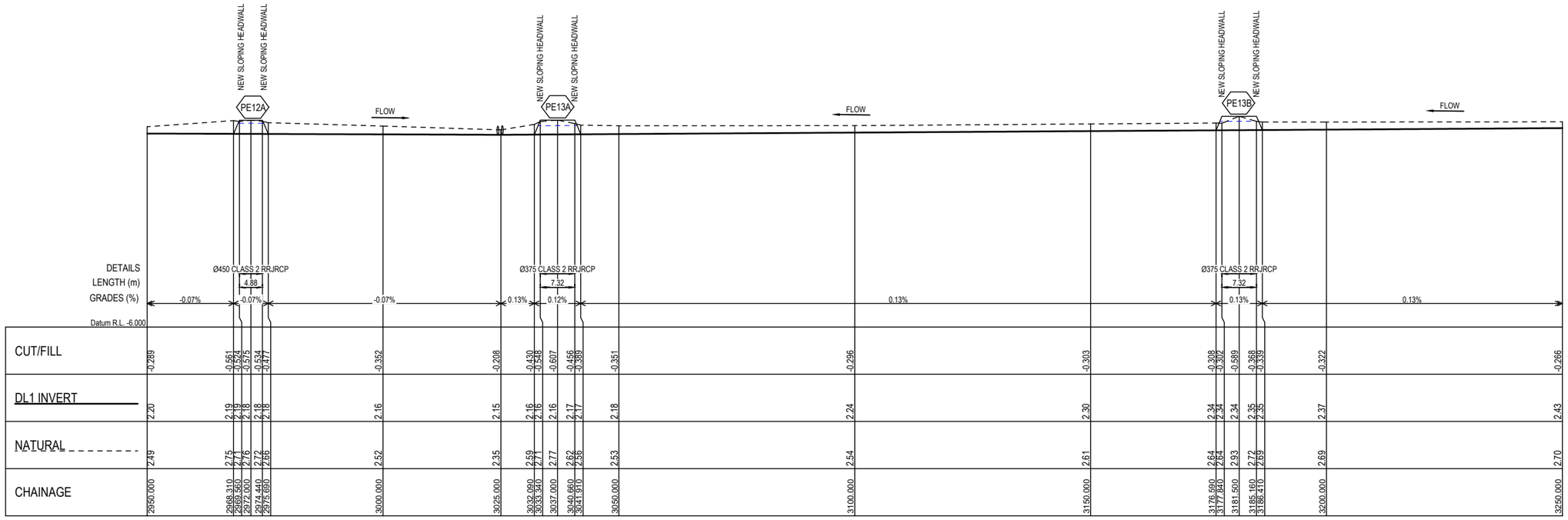
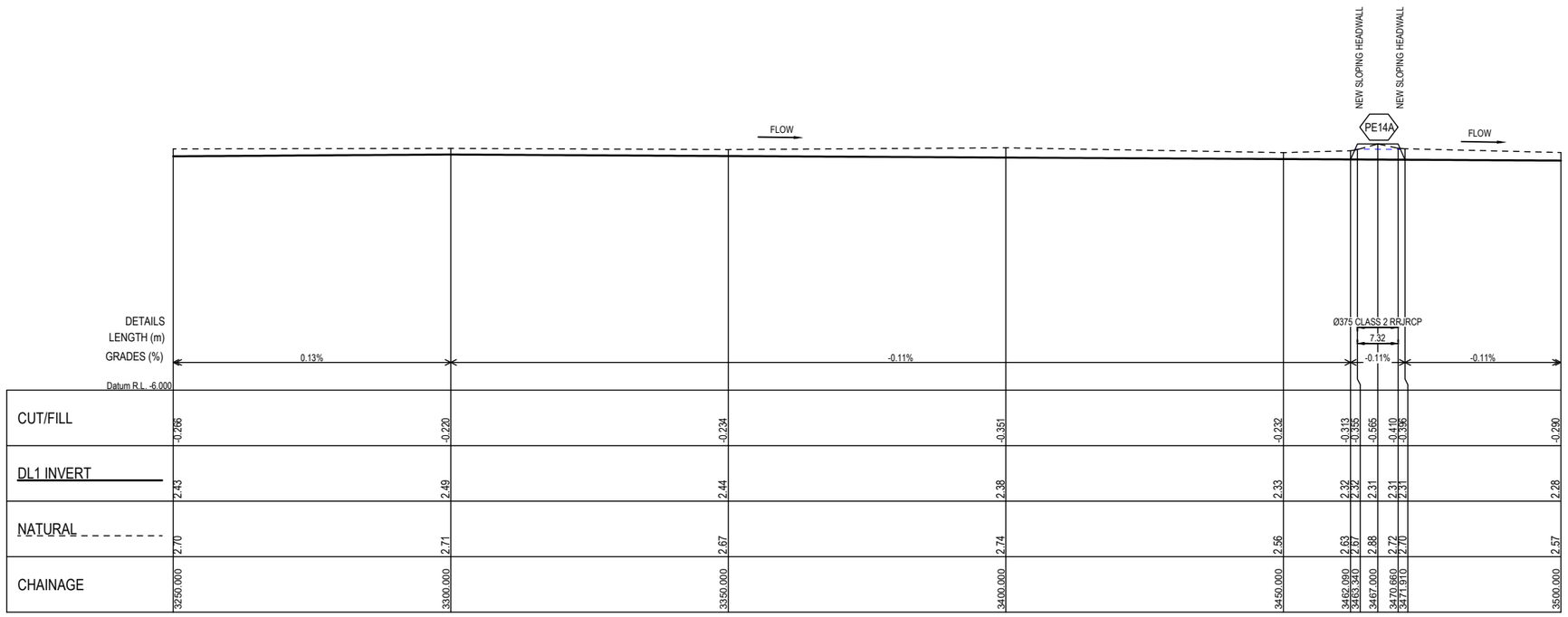
ADJOINS SHEET No. SM-002



LEFT DRAINAGE LINE DL1 LONGITUDINAL SECTION



LEFT DRAINAGE LINE DL1 LONGITUDINAL SECTION

ADJOINS SHEET No. SM-004

LEGEND

PE01 DRIVEWAY ID - REFER DRG 005-GN FOR SHARED P DRIVEWAY AND DRAINAGE TREATMENTS

ACCEPTED FOR CONSTRUCTION

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0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING
0 10 20 30 40 50
HORIZONTAL SCALE 1:1000m
0 2 4 6 8 10
VERTICAL SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
DRAINAGE DETAILS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No. SM-003 OF 67 | ISSUE A

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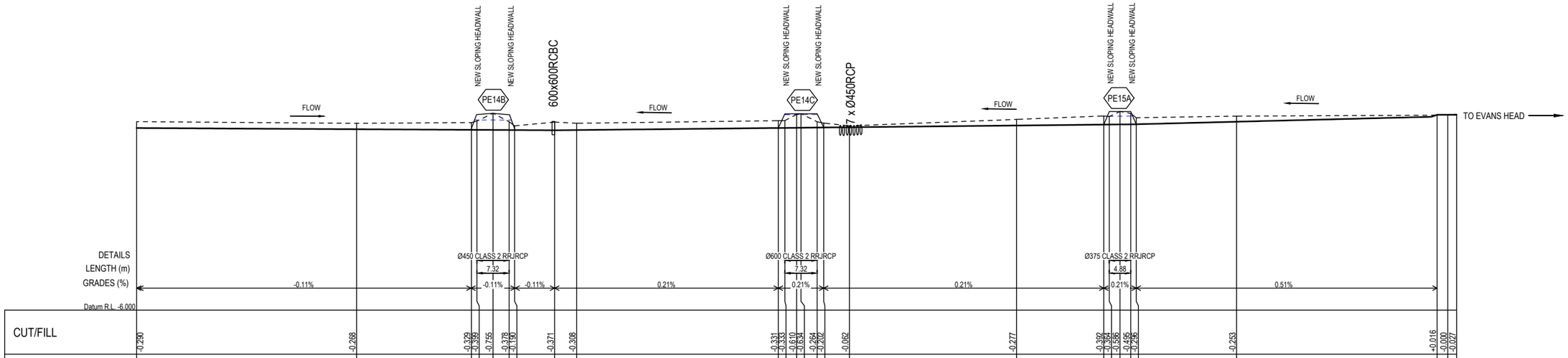
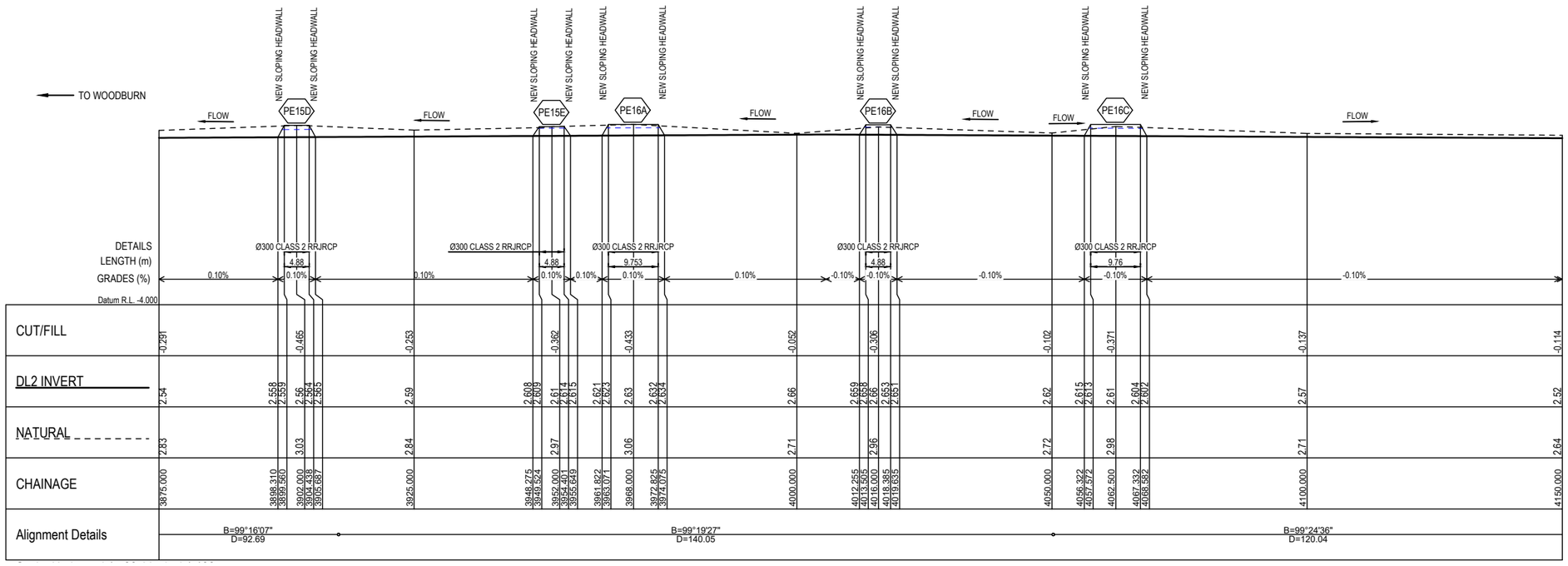
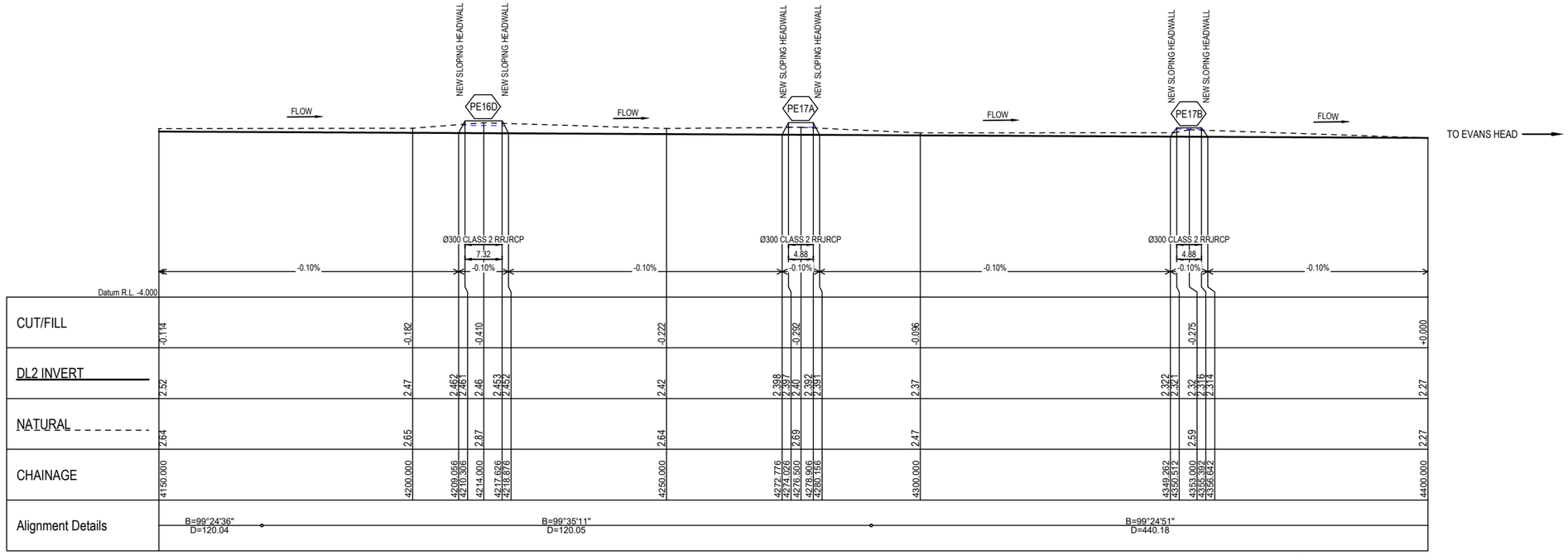
ADJOINS SHEET No. SM-003



| DETAILS | | |



RIGHT DRAINAGE LINE DL2 LONGITUDINAL SECTION



RIGHT DRAINAGE LINE DL2 LONGITUDINAL SECTION

LEGEND

PE01 DRIVEWAY ID - REFER DRG 005-GN FOR SHARED P DRIVEWAY AND DRAINAGE TREATMENTS

ACCEPTED FOR CONSTRUCTION

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0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

SCALES ON A3 SIZE DRAWING
0 10 20 30 40 50
HORIZONTAL SCALE 1:1000m
0 2 4 6 8 10
VERTICAL SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

bk | bridge knowledge ENGINEERING CONSULTING SERVICES

TITLE	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK environment | engineering | planning | design

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
DRAINAGE DETAILS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: SM-005 OF 67 | ISSUE: A

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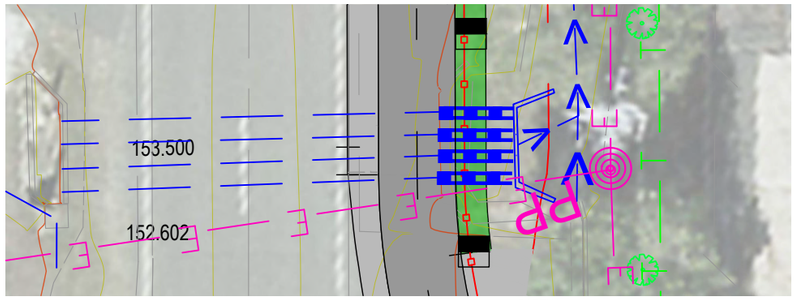
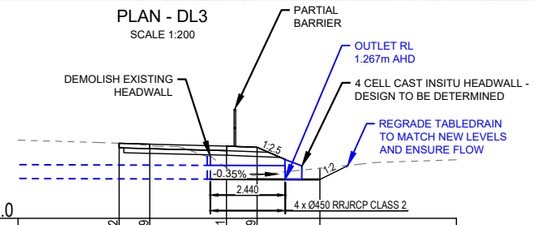


PLAN - DL3
SCALE 1:200

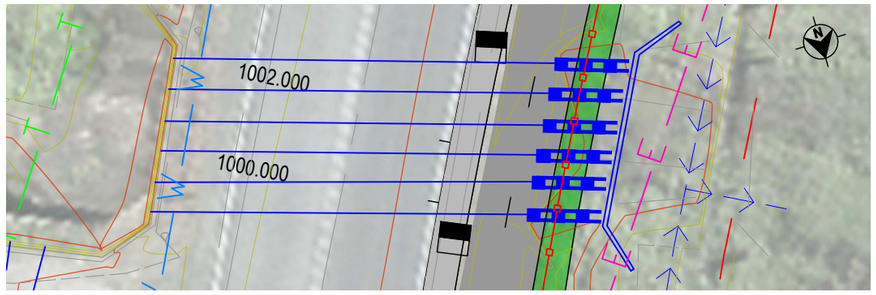


RL 0.0

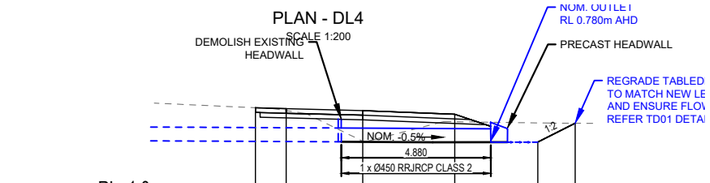
HT. DIFF		0.002	0.049	0.711	0.909		
PATH DESIGN		2.445	2.415	2.353	2.313		
NATURAL	2.543	2.444	2.367	1.641	1.404	1.630	1.906
OFFSET	3.300	0.000	1.000	3.500	4.500	6.549	11.000

SCALE: HORIZONTAL 1:200 VERTICAL 1:200

DL3 - CH 153.500



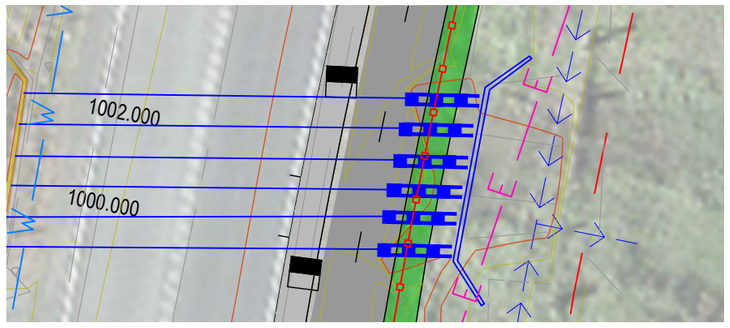
PLAN - DL4
SCALE 1:200



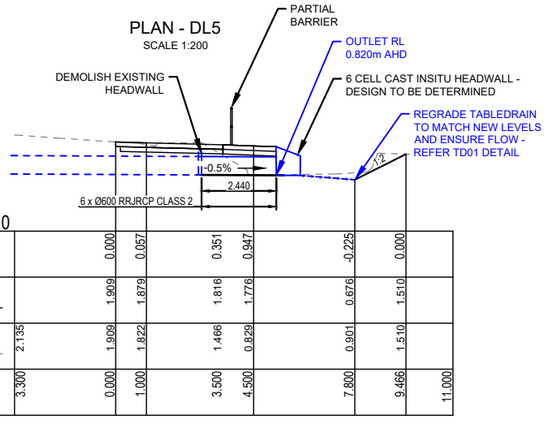
RL -1.0

HT. DIFF	-0.000	0.062	0.998	0.244	-0.621	0.000
PATH DESIGN	1.902	1.872	1.809	1.689	0.786	1.397
NATURAL	2.053	1.902	1.810	0.811	1.446	1.407	1.397	1.394
OFFSET	3.300	0.000	1.000	3.500	6.500	9.209	10.431	11.000

DL4 - CH 884.300



PLAN - DL5
SCALE 1:200

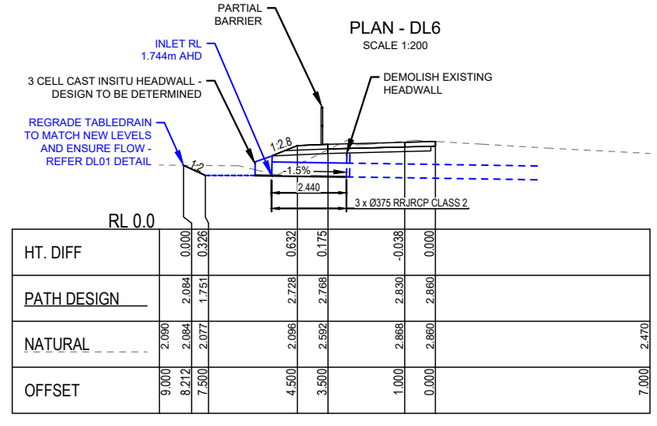


RL -1.0

HT. DIFF		0.000	0.057	0.351	0.947	-0.225	0.000	
PATH DESIGN		1.909	1.879	1.816	1.776	0.676	1.510	
NATURAL	2.135	1.909	1.822	1.466	0.829	0.901	1.510	
OFFSET	3.300	0.000	1.000	3.500	4.500	7.800	9.466	11.000

DL5 - CH 1002.000

PLAN - DL6
SCALE 1:200



RL 0.0

HT. DIFF	0.000	0.326	0.632	0.175	-0.038	0.000	
PATH DESIGN	2.084	1.751	2.728	2.768	2.830	2.860	
NATURAL	2.090	2.084	2.077	2.096	2.592	2.868	2.860	2.470
OFFSET	9.000	8.212	7.500	4.500	3.500	1.000	0.000	7.000

DL6 - CH 2490.500

LEGEND

- PROPERTY BOUNDARY
- EXISTING CENTRELINE
- MC00 CONTROL STRING LABEL
- CONTROL ALIGNMENT
- DRAINAGE LINE - EXISTING
- DRAINAGE LINE - DESIGN
- KERB & GUTTER - EXISTING
- DISH DRAIN - DESIGN
- EDGE OF BITUMEN - EXISTING
- TABLE DRAIN - EXISTING
- TABLEDRAIN - DESIGN
- TOP OF BANK - EXISTING
- BOTTOM OF BANK - EXISTING
- EDGE FORMATION - EXISTING
- FENCE - EXISTING
- GUARD FENCE - EXISTING
- GUARD FENCE - DESIGN
- TELSTRA
- OPTIC FIBRE
- OVERHEAD TELSTRA
- ELECTRICITY
- UNDERGROUND ELECTRICITY
- WATER
- SEWER
- GAS
- HANDRAIL FENCE - DESIGN
- SUB-SOIL DRAINAGE - EXISTING
- SUB-SOIL DRAINAGE - DESIGN
- NEW SERVICE CONDUIT
- VEGETATION LINE
- DESIGN BATTER EXTENT
- COMMS. CABLE MARKER
- COMMS. TWIN PIT
- COMMS. SINGLE PIT
- COMMS. PILLAR
- ENDANGERED, PROTECTED OR THREATENED SPECIES
- TREE TO RETAIN
- TREE TO BE PROTECTED
- TREE TO BE REMOVED
- PERMANENT MARK
- BENCH MARK
- STREET SIGN - EXISTING
- DRAINAGE PIT- EXISTING
- DRAINAGE PIT- DESIGN
- STOP VALVE
- HYDRANT
- WATER METER
- WATER MAIN MARKER POST
- AIR VALVE
- WATER PIT - ROUND
- SEWER PIT - ROUND
- SEWER PIT - SQUARE
- SEWER VALVE
- GUIDE POST - EXISTING
- POWER POLE
- POWER STAY ANCHOR
- STREET LIGHT POLE
- NEW CONCRETE
- NEW PAVEMENT
- NEW GRASSED VERGE

- DL## DRAINAGE LINE LABEL
- 12.2 DRAINAGE LINE FEATURE
- STANDARD HEADWALL (PROFILE)
- STANDARD HEADWALL (PLAN)
- SLOPINNG HEADWALL (PROFILE)
- SLOPING HEADWALL (PLAN)

ACCEPTED FOR CONSTRUCTION

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50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: 0 2 4 6 8 10 SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

PLOT DATE / TIME: 19/01/2024-4:32 PM PLOT BY: GM

	TITLE	NAME	DATE
DRAWN		J. REN	16.1.24
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DESIGN		G. MULCAHY	16.1.24
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DESIGN MNGR		C. RILEY	16.1.24
PROJECT MNGR		M. ERWIN	

CLIENT: GeoLINK

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
DRAINAGE DETAILS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: SM-006 OF 67 | ISSUE: A

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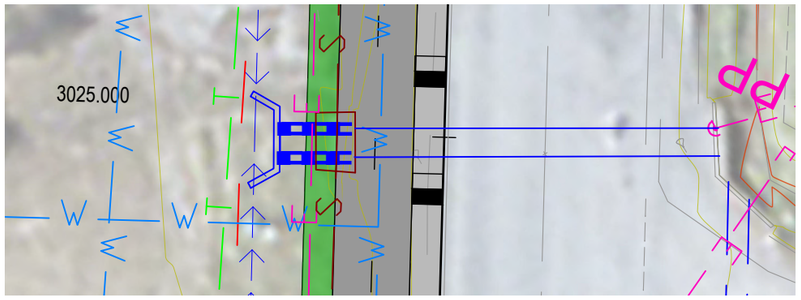
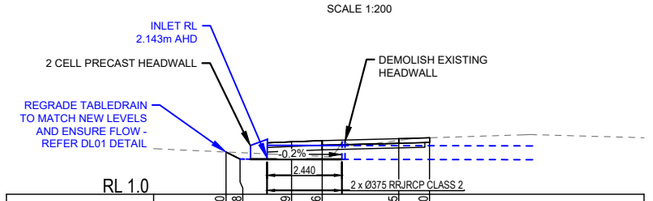
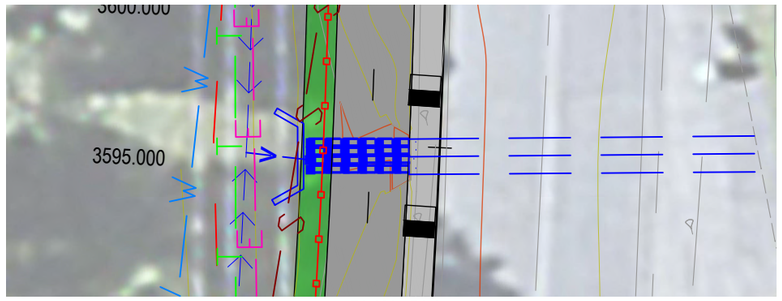


PLAN - DL7
SCALE 1:200

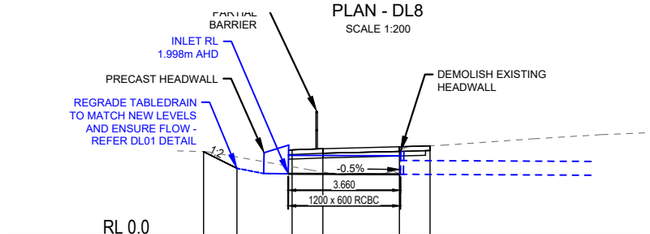


HT. DIFF	0.000	-0.208	0.429	0.516	0.055	-0.000		
PATH DESIGN	2.375	2.146	2.706	2.746	2.809	2.839		
NATURAL	2.482	2.375	2.354	2.277	2.230	2.753	2.839	2.840
OFFSET	9.000	6.638	6.180	4.500	3.500	1.000	0.000	7.000

DL7 - CH 3025.000

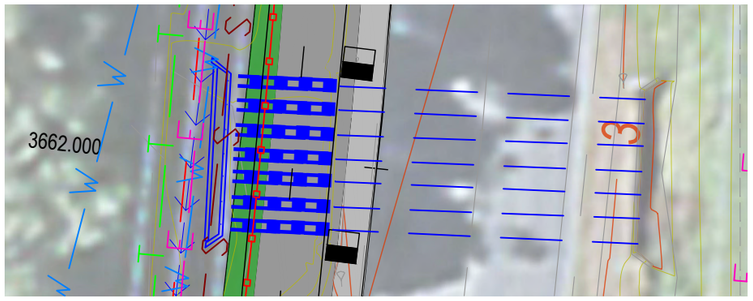


PLAN - DL8
SCALE 1:200

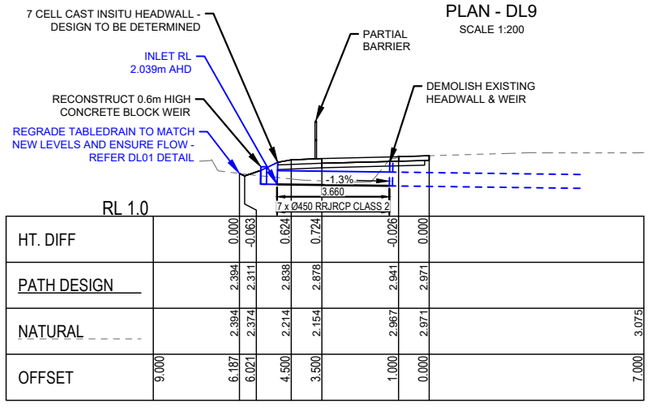


HT. DIFF	0.000	-0.371	0.547	0.760	0.882	0.000	
PATH DESIGN	2.717	2.173	2.773	2.813	2.876	2.906	
NATURAL	2.717	2.544	2.226	2.053	1.993	2.906	3.328
OFFSET	9.000	7.388	6.300	4.500	3.500	1.000	0.000	7.000

DL8 - CH 3595.000

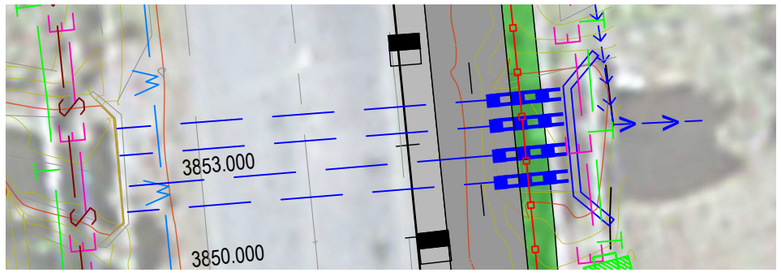


PLAN - DL9
SCALE 1:200

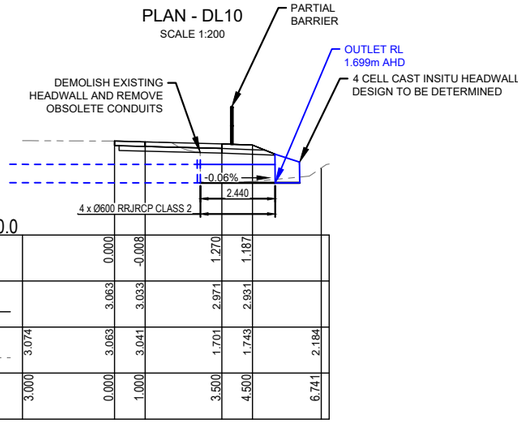


HT. DIFF	0.000	-0.063	0.624	0.724	-0.026	0.000		
PATH DESIGN	2.394	2.311	2.838	2.878	2.941	2.971		
NATURAL	2.394	2.374	2.214	2.154	2.967	2.971	3.075	
OFFSET	9.000	6.187	6.021	4.500	3.500	1.000	0.000	7.000

DL9 - CH 3662.000



PLAN - DL10
SCALE 1:200



HT. DIFF	0.000	-0.008	1.270	1.187		
PATH DESIGN	3.063	3.033	2.971	2.931		
NATURAL	3.074	3.063	3.041	1.701	1.743	2.184
OFFSET	3.000	0.000	1.000	3.500	4.500	6.741

DL10 - CH 3853.000

LEGEND

- PROPERTY BOUNDARY
- EXISTING CENTRELINE
- MC00 CONTROL STRING LABEL
- CONTROL ALIGNMENT
- DRAINAGE LINE - EXISTING
- DRAINAGE LINE - DESIGN
- KERB & GUTTER - EXISTING
- DISH DRAIN - DESIGN
- EDGE OF BITUMEN - EXISTING
- TABLE DRAIN - EXISTING
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- TOP OF BANK - EXISTING
- BOTTOM OF BANK - EXISTING
- EDGE FORMATION - EXISTING
- FENCE - EXISTING
- GUARD FENCE - EXISTING
- GUARD FENCE - DESIGN
- TELSTRA
- OPTIC FIBRE
- OVERHEAD TELSTRA
- ELECTRICITY
- UNDERGROUND ELECTRICITY
- WATER
- SEWER
- GAS
- HANDRAIL FENCE - DESIGN
- SUB-SOIL DRAINAGE - DESIGN
- NEW SERVICE CONDUIT
- VEGETATION LINE
- DESIGN BATTER EXTENT
- COMMS. CABLE MARKER
- COMMS. TWIN PIT
- COMMS. SINGLE PIT
- COMMS. PILLAR
- ENDANGERED, PROTECTED OR THREATENED SPECIES
- TREE TO RETAIN
- TREE TO BE PROTECTED
- TREE TO BE REMOVED
- PERMANENT MARK
- BENCH MARK
- STREET SIGN - EXISTING
- DRAINAGE PIT- EXISTING
- DRAINAGE PIT- DESIGN
- STOP VALVE
- HYDRANT
- WATER METER
- WATER MAIN MARKER POST
- AIR VALVE
- WATER PIT - ROUND
- SEWER PIT - ROUND
- SEWER PIT - SQUARE
- SEWER VALVE
- GUIDE POST - EXISTING
- POWER POLE
- POWER STAY ANCHOR
- STREET LIGHT POLE
- NEW CONCRETE
- NEW PAVEMENT
- NEW GRASSED VERGE

- DL## DRAINAGE LINE LABEL
- 12.2 DRAINAGE LINE FEATURE
- STANDARD HEADWALL (PROFILE)
- STANDARD HEADWALL (PLAN)
- SLOPINNG HEADWALL (PROFILE)
- SLOPING HEADWALL (PLAN)

ACCEPTED FOR CONSTRUCTION

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED
0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING: TBC

SCALES ON A3 SIZE DRAWING: 0 2 4 6 8 10 SCALE 1:200m

CO-ORDINATE SYSTEM: MGA ZONE 56 (GDA2020) HEIGHT DATUM: AHD

DRAWINGS / DESIGN PREPARED BY: BRIDGE KNOWLEDGE PTY LTD

PLOT DATE / TIME: 19/01/2024-4:33 PM PLOT BY: GM

	NAME	DATE
TITLE		
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT: GeoLINK

PREPARED FOR: Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
DRAINAGE DETAILS

A3

BK PROJECT No. BKCD119A | GEOLINK PROJECT No. | PART 1

ISSUE STATUS: IFC | SHEET No.: SM-007 OF 67 | ISSUE: A

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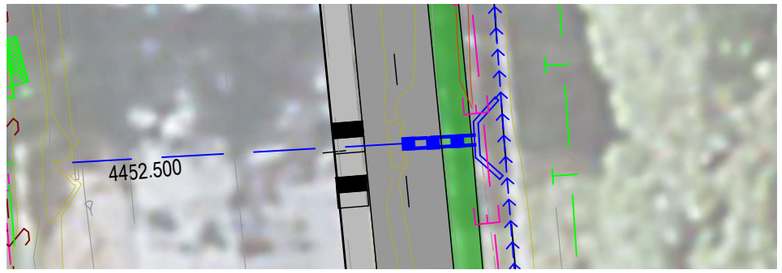

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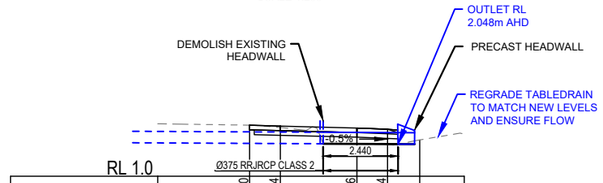
SCALE 1:200



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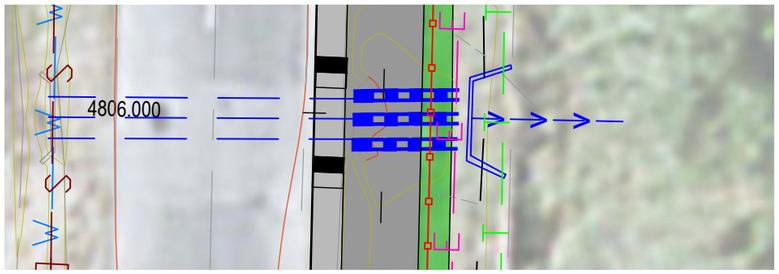
PATH DESIGN		2.666	2.636	2.573	2.533		
NATURAL	2.711	2.666	2.592	2.048	2.030	2.184	
OFFSET	3.000	0.000	1.000	3.500	4.500	5.549	7.000

DL11 - CH 4452.500



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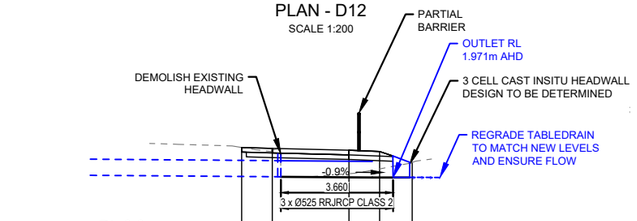
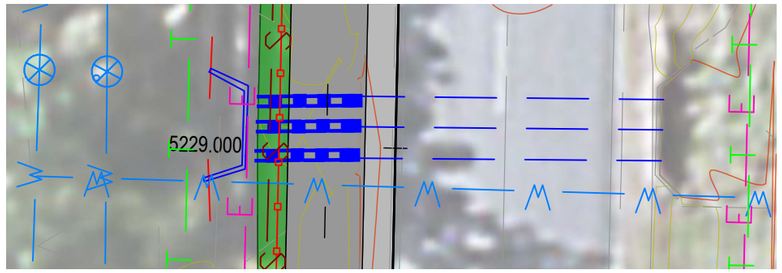
SCALE 1:200

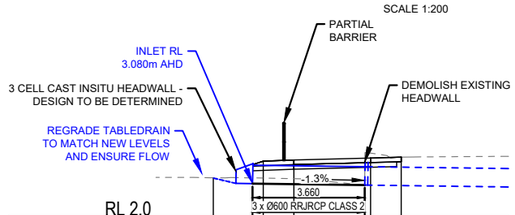


HT. DIFF		0.000	0.069	0.763	0.567		
PATH DESIGN		2.946	2.916	2.854	2.814		
NATURAL	3.077	2.946	2.847	2.091	2.247	2.459	
OFFSET	3.000	0.000	1.000	3.500	4.500	5.563	7.000

DL12 - CH 4806.000

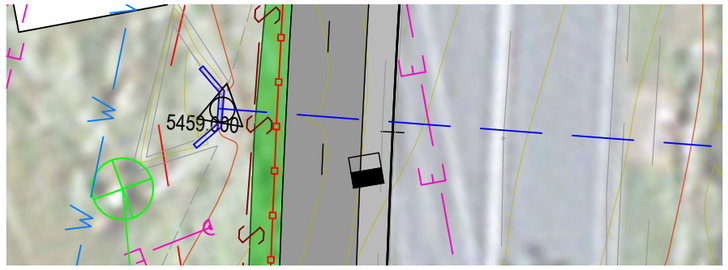


PLAN - DL13
SCALE 1:200



HT. DIFF			0.551	0.611	-0.162	-0.000	
PATH DESIGN			3.811	3.851	3.913	3.943	
NATURAL	3.284	3.268	3.260	3.240	4.075	3.943	3.970
OFFSET	8.000	6.129	4.500	3.500	1.000	0.000	3.500

DL13 - CH 5229.000



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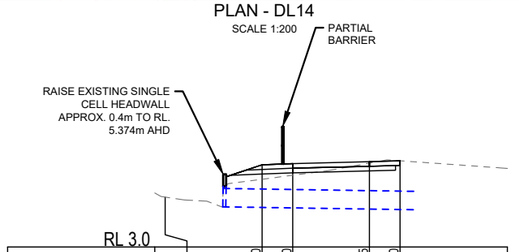
SCALE 1:200



HT. DIFF			0.470	0.380	0.045	0.000	
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NATURAL	4.760	4.626	5.209	5.339	5.736	5.812	5.564
OFFSET	8.000	7.660	4.500	3.500	1.000	0.000	3.500

DL14 - CH 5459.000

LEGEND

- PROPERTY BOUNDARY
- EXISTING CENTRELINE
- MC00 CONTROL STRING LABEL
- CONTROL ALIGNMENT
- DRAINAGE LINE - EXISTING
- DRAINAGE LINE - DESIGN
- KERB & GUTTER - EXISTING
- DISH DRAIN - DESIGN
- EDGE OF BITUMEN - EXISTING
- TABLE DRAIN - EXISTING
- TABLEDRAIN - DESIGN
- TOP OF BANK - EXISTING
- BOTTOM OF BANK - EXISTING
- EDGE FORMATION - EXISTING
- FENCE - EXISTING
- GUARD FENCE - EXISTING
- GUARD FENCE - DESIGN
- TELSTRA
- OPTIC FIBRE
- OVERHEAD TELSTRA
- ELECTRICITY
- UNDERGROUND ELECTRICITY
- WATER
- SEWER
- GAS
- HANDRAIL FENCE - DESIGN
- SUB-SOIL DRAINAGE - DESIGN
- NEW SERVICE CONDUIT
- VEGETATION LINE
- DESIGN BATTER EXTENT
- COMMS. CABLE MARKER
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0 5 10 15 20 25 30 35 40 45 50mm ON A3 SIZE ORIGINAL

AMENDMENT / REVISION DESCRIPTION	INITIALS	APPROVAL

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING
TBC

SCALES ON A3 SIZE DRAWING
0 2 4 6 8 10
SCALE 1:200m

CO-ORDINATE SYSTEM HEIGHT DATUM
MGA ZONE 56 (GDA2020) AHD

DRAWINGS / DESIGN PREPARED BY
BRIDGE KNOWLEDGE PTY LTD
bk. bridge knowledge. ENGINEERING CONSULTING SERVICES

PLOT DATE / TIME PLOT BY
19/01/2024-4:33 PM GM

TITLE	NAME	DATE
DRAWN	J. REN	16.1.24
DRG CHECK	J. ARMSTRONG	16.1.24
DESIGN	G. MULCAHY	16.1.24
DESIGN CHECK	J. ARMSTRONG	16.1.24
DESIGN MNGR	C. RILEY	16.1.24
PROJECT MNGR	M. ERWIN	

CLIENT
GeoLINK environment | engineering | planning | design

PREPARED FOR
Richmond Valley Council

GEOLINK
WOODBURN TO EVANS HEAD ROAD
SHARED BICYCLE/PEDESTRIAN PATH DESIGN
DRAINAGE DETAILS

A3

BK PROJECT No. BKCD119A
GEOLINK PROJECT No.
PART 1
ISSUE STATUS IFC
SHEET No. SM-008 OF 67
ISSUE A

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Appendix B

Contaminated Land and Cattle Dip Site Search

LEGEND

- Extent of works
- Cattle dip

0 600 Metres

Cattle Dip Site

Information shown is for illustrative purposes only
Drawn by: AB Checked by: ECF Reviewed by: MVE
Source of base data: ESRI World Imagery
Date: 22/11/2023

Department of Primary Industries

Cattle dip site locator

Dip site location

Dip name	EVANS HEAD ROAD	Note: Map references are for 25,000 series topographic and co-ordinates are in AGD66 AMG zone 56	
Road	EVANS HEAD ROAD	**Mapsheet**	9539-I-N
Town/Locality	VIA WOODBURN	**Easting**	535610
Council	RICHMOND VALLEY	**Northing**	6782660
Parish	RILEY	**County**	

Dip site status

IMPORTANT NOTE: *Cattle dip site information provided by NSW DPI is based on our own hard copy files representing currently known data. NSW DPI is not a public consent authority for the development of land containing cattle dip sites. It is possible that the physical conditions of a cattle dip site - including soil, structures, access and usage - may have been changed due to extreme natural events or landowner and developer actions that NSW DPI cannot be aware of. For more specific and accurate status information a physical inspection should be made and enquiries should always be directed to the appropriate Shire Council.*

Dip Status	DECOMMISSION	**Licence/Leas Status**	
Land Type	LEASE	**Licence/Leas Expiry Date**	

Explanation of status terms (https://www.dpi.nsw.gov.au/animals-and-livestock/beef-cattle/health-and-disease/parasitic-and-protozoal-diseases/ticks/cattle-dip-site-locator?sq_content_src=%2BdXJsPWh0dHBzJTNBJTJGJTJGYnRjLmRwaS5uc3cuZ292LmF1JTJGRGlwJTJGRXhwbGFpbiZhbGw9MQ%3D%3D)

Chemical Details

IMPORTANT NOTE: *Chemical history has been retrieved from a copied laboratory log. In some cases it may be confirmed by entries in the hard copy lease folder but generally the chemical record is based on this single lab document. It is possible that there are inaccuracies as well as errors made*

Chemicals used in dip bath	Date first used
ARSENIC	3/45
DDT	12/60
DIOXATHION	10/62
DIOXATHION ETHION	9/72
ETHION	11/73
ETHION PROMACYL	12/78
PROMACYL	1/79
AMITRAZ	11/88

Current Details

Current Chemical	NONE
Dip bath status/contents	CAPPED

New search (https://www.dpi.nsw.gov.au/animals-and-livestock/beef-cattle/health-and-disease/parasitic-and-protozoal-diseases/ticks/cattle-dip-site-locator?sq_content_src=%2BdXJsPWh0dHBzJTNBJTJGJTJGYnRjLmRwaS5uc3cuZ292LmF1JTJGJmFsbD0x) | Back

The information contained in this web page is based on knowledge and understanding at the time of writing. However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of Industry& Investment NSW or the user's independent adviser.

Search results

Your search for:LGA: RICHMOND VALLEY COUNCIL

Matched 4 notices relating to 1 site.

Search Again

Refine Search

Suburb	Address	Site Name	Notices related to this site
CASINO	86 Johnston STREET	Casino Roadhouse	4 former

Page 1 of 1

20 September 2023

Appendix C

AHIMS Search

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : Woodburn to Evans Head

Client Service ID : 828184

Edwina Flower

2/44 Alison Avenue
Lennox Head New South Wales 2478

Attention: Edwina Flower

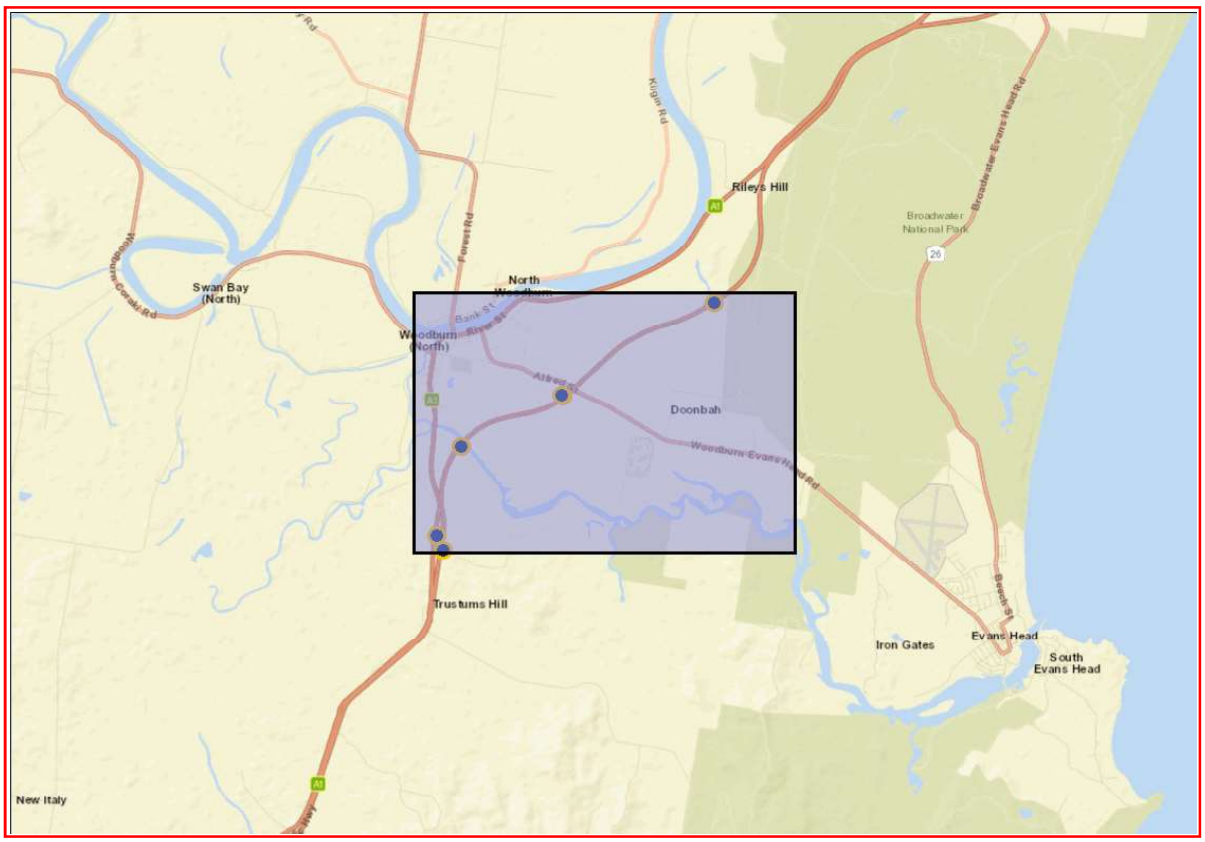
Email: edwinaflower@gmail.com

Date: 12 October 2023

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -29.103, 153.3354 - Lat, Long To : -29.0655, 153.3972, conducted by Edwina Flower on 12 October 2023.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

6	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (https://www.legislation.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Heritage NSW upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Heritage NSW and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

Level 6, 10 Valentine Ave, Parramatta 2150
Locked Bag 5020 Parramatta NSW 2124
Tel: (02) 9585 6345

ABN 34 945 244 274
Email: ahims@environment.nsw.gov.au
Web: www.heritage.nsw.gov.au

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Woodburn Evans Head Road

Client Service ID : 835233

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
13-1-0220	Woodburn Stone Axe Unexpected Find 01	GDA	56	535001	6783055	Open site	Valid	Artefact : -		
Contact	Recorders	Everick Heritage Pty Ltd,Mr.Tim Hill						Permits		
13-1-0221	Woodburn Stone Axe Unexpected Find 01 Reburial Site	GDA	56	534984	6783066	Closed site	Valid	Artefact : -		
Contact	Recorders	Everick Heritage Pty Ltd,Mr.Tim Hill						Permits		

**** Site Status**

Valid - The site has been recorded and accepted onto the system as valid

Destroyed - The site has been completely impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There is nothing left of the site on the ground but proponents should proceed with caution.

Partially Destroyed - The site has been only partially impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There might be parts or sections of the original site still present on the ground

Not a site - The site has been originally entered and accepted onto AHIMS as a valid site but after further investigations it was decided it is NOT an aboriginal site. Impact of this type of site does not require permit but Heritage NSW should be notified

Report generated by AHIMS Web Service on 01/11/2023 for Edwina Flower for the following area at Lat, Long From : -29.0884, 153.3441 - Lat, Long To : -29.0697, 153.375. Number of Aboriginal sites and Aboriginal objects found is 2

This information is not guaranteed to be free from error omission. Heritage NSW and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Appendix D

Biodiversity Database Searches

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 24-May-2023

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	1
Listed Threatened Ecological Communities:	4
Listed Threatened Species:	100
Listed Migratory Species:	60

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	4
Commonwealth Heritage Places:	None
Listed Marine Species:	89
Whales and Other Cetaceans:	12
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	4
Regional Forest Agreements:	1
Nationally Important Wetlands:	2
EPBC Act Referrals:	6
Key Ecological Features (Marine):	None
Biologically Important Areas:	6
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Commonwealth Marine Area [Resource Information]

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

Feature Name	Buffer Status
EEZ and Territorial Sea	In buffer area only

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community likely to occur within area	In feature area
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community likely to occur within area	In feature area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community likely to occur within area	In feature area
Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions	Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
null			
Mordacia praecox			
Non-parasitic Lamprey, Precocious Lamprey [81530]	Endangered	Species or species habitat likely to occur within area	In feature area
BIRD			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat known to occur within area	In feature area
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Critically Endangered	Species or species habitat may occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area	In feature area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Fregetta grallaria grallaria White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Pterodroma leucoptera leucoptera Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area	In buffer area only
Pterodroma neglecta neglecta Kermadec Petrel (western) [64450]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In buffer area only
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat may occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat may occur within area	In buffer area only
FISH			
Epinephelus daemelii Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hippocampus whitei White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Nannoperca oxleyana Oxleyan Pygmy Perch [64468]	Endangered	Species or species habitat known to occur within area	In feature area
Seriolella brama Blue Warehou [69374]	Conservation Dependent	Species or species habitat known to occur within area	In buffer area only
Thunnus maccoyii Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area	In feature area
FROG			
Litoria olongburensis Wallum Sedge Frog [1821]	Vulnerable	Species or species habitat known to occur within area	In feature area
Mixophyes fleayi Fleay's Frog [25960]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Mixophyes iteratus			
Giant Barred Frog, Southern Barred Frog [1944]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
INSECT			
Argynnis hyperbius inconstans			
Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area	In feature area
MAMMAL			
Balaenoptera musculus			
Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
Chalinolobus dwyeri			
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat known to occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population)			
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area	In feature area
Eubalaena australis			
Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Petauroides volans			
Greater Glider (southern and central) [254]	Endangered	Species or species habitat known to occur within area	In feature area
Petaurus australis australis			
Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat known to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
Potorous tridactylus tridactylus			
Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pseudomys novaehollandiae			
New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area	In feature area
Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat may occur within area	In feature area
PLANT			
Acronychia littoralis Scented Acronychia [8582]	Endangered	Species or species habitat likely to occur within area	In feature area
Allocasuarina thalassoscopica [21927]	Endangered	Species or species habitat known to occur within area	In feature area
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat known to occur within area	In feature area
Baloghia marmorata Marbled Balogia, Jointed Baloghia [8463]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Bosistoa transversa Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Cryptocarya foetida Stinking Cryptocarya, Stinking Laurel [11976]	Vulnerable	Species or species habitat known to occur within area	In feature area
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area	In feature area
Cynanchum elegans White-flowered Wax Plant [12533]	Endangered	Species or species habitat likely to occur within area	In feature area
Desmodium acanthocladum Thorny Pea [17972]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Endiandra floydii Floyd's Walnut, Crystal Creek Walnut [52955]	Endangered	Species or species habitat may occur within area	In buffer area only
Endiandra hayesii Rusty Rose Walnut, Velvet Laurel [13866]	Vulnerable	Species or species habitat known to occur within area	In feature area
Floydia praealta Ball Nut, Possum Nut, Big Nut, Beefwood [15762]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Gossia fragrantissima Sweet Myrtle, Small-leaved Myrtle [78867]	Endangered	Species or species habitat known to occur within area	In feature area
Hibbertia marginata [21970]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Leichhardtia longiloba listed as Marsdenia longiloba Clear Milkvine [91911]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat may occur within area	In feature area
Macadamia tetraphylla Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat known to occur within area	In feature area
Myrsine richmondensis Purple-leaf Muttonwood, Lismore Muttonwood [83888]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Ochrosia moorei Southern Ochrosia [11350]	Endangered	Species or species habitat known to occur within area	In buffer area only
Olax angulata Minnie Waters Olax [10666]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Owenia cepiodora Onionwood, Bog Onion, Onion Cedar [11344]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Paspalidium grandispiculatum a grass [10838]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat known to occur within area	In feature area
Prostanthera palustris Swamp Mint-bush [66703]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Rutidosis heterogama Heath Wrinklewort [13132]	Vulnerable	Species or species habitat known to occur within area	In feature area
Syzygium hodgkinsoniae Smooth-bark Rose Apple, Red Lilly Pilly [3539]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Vincetoxicum woollsii listed as Tylophora woollsii [40080]	Endangered	Species or species habitat may occur within area	In feature area
REPTILE			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In feature area
Coeranoscincus reticulatus Three-toed Snake-tooth Skink [59628]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Congregation or aggregation known to occur within area	In feature area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In feature area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area	In feature area
SHARK			
Carcharias taurus (east coast population) Grey Nurse Shark (east coast population) [68751]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Galeorhinus galeus School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area	In buffer area only
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Ardenna grisea Sooty Shearwater [82651]		Species or species habitat likely to occur within area	In feature area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat may occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area	In feature area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area	In feature area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In feature area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Sternula albifrons Little Tern [82849]		Species or species habitat may occur within area	In buffer area only
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
Migratory Marine Species			
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area	In buffer area only
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Congregation or aggregation known to occur within area	In feature area
Dugong dugon Dugong [28]		Species or species habitat may occur within area	In buffer area only
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In feature area
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area	In feature area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area	In feature area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat may occur within area	In feature area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area	In feature area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area	In buffer area only
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Sousa sahulensis as Sousa chinensis Australian Humpback Dolphin [87942]		Species or species habitat may occur within area	In buffer area only
Migratory Terrestrial Species			
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area	In feature area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area	In buffer area only
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Limosa lapponica			
Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
Numenius madagascariensis			
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius minutus			
Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area	In buffer area only
Pandion haliaetus			
Osprey [952]		Breeding known to occur within area	In feature area
Tringa nebularia			
Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Telstra Corporation Limited [11325]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [13294]	NSW	In buffer area only
Defence - Defence Housing Authority		
Commonwealth Land - Defence Housing Authority [11324]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [11323]	NSW	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area	In feature area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]		Species or species habitat likely to occur within area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Breeding likely to occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat may occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea antipodensis gibsoni as Diomedea gibsoni Gibson's Albatross [82270]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area	In feature area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area	In feature area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat known to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area overfly marine area	In feature area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area	In buffer area only
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area	In buffer area only
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area overfly marine area	In buffer area only
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area	In feature area
Pandion haliaetus Osprey [952]		Breeding known to occur within area	In feature area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Stercorarius skua as Catharacta skua Great Skua [823]		Species or species habitat may occur within area	In buffer area only
Sternula albifrons as Sterna albifrons Little Tern [82849]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Symposiachrus trivirgatus as Monarcha trivirgatus			
Spectacled Monarch [83946]		Species or species habitat known to occur within area overfly marine area	In feature area
Thalassarche carteri			
Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche cauta			
Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In feature area
Thalassarche impavida			
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris			
Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche salvini			
Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi			
White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
Tringa nebularia			
Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area	In feature area
Fish			
Acentronura tentaculata			
Shortpouch Pygmy Pipehorse [66187]		Species or species habitat may occur within area	In buffer area only
Campichthys tryoni			
Tryon's Pipefish [66193]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Corythoichthys amplexus Fijian Banded Pipefish, Brown-banded Pipefish [66199]		Species or species habitat may occur within area	In buffer area only
Corythoichthys ocellatus Orange-spotted Pipefish, Ocellated Pipefish [66203]		Species or species habitat may occur within area	In buffer area only
Festucalex cinctus Girdled Pipefish [66214]		Species or species habitat may occur within area	In buffer area only
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area	In buffer area only
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area	In buffer area only
Hippichthys cyanospilos Blue-speckled Pipefish, Blue-spotted Pipefish [66228]		Species or species habitat may occur within area	In buffer area only
Hippichthys heptagonus Madura Pipefish, Reticulated Freshwater Pipefish [66229]		Species or species habitat may occur within area	In buffer area only
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area	In buffer area only
Hippocampus kelloggi Kellogg's Seahorse, Great Seahorse [66723]		Species or species habitat may occur within area	In buffer area only
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area	In buffer area only
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area	In buffer area only
Hippocampus whitei White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area	In buffer area only
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In buffer area only
Micrognathus andersonii Anderson's Pipefish, Shortnose Pipefish [66253]		Species or species habitat may occur within area	In buffer area only
Micrognathus brevirostris thorntail Pipefish, Thorn-tailed Pipefish [66254]		Species or species habitat may occur within area	In buffer area only
Microphis manadensis Manado Pipefish, Manado River Pipefish [66258]		Species or species habitat may occur within area	In buffer area only
Solegnathus dunckeri Duncker's Pipehorse [66271]		Species or species habitat may occur within area	In buffer area only
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area	In buffer area only
Solegnathus spinosissimus Spiny Pipehorse, Australian Spiny Pipehorse [66275]		Species or species habitat may occur within area	In buffer area only
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Solenostomus paradoxus Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish [66184]		Species or species habitat may occur within area	In buffer area only
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In buffer area only
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area	In buffer area only
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area	In buffer area only
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area	In buffer area only
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In buffer area only
Mammal			
Dugong dugon Dugong [28]		Species or species habitat may occur within area	In buffer area only
Reptile			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Congregation or aggregation known to occur within area	In feature area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hydrophis elegans Elegant Seasnake [1104]		Species or species habitat may occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area	In feature area
Pelamis platurus Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area	In buffer area only

Whales and Other Cetaceans [Resource Information]

Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area	In buffer area only
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat known to occur within area	In buffer area only
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area	In buffer area only

Current Scientific Name	Status	Type of Presence	Buffer Status
Sousa sahulensis as Sousa chinensis Australian Humpback Dolphin [87942]		Species or species habitat may occur within area	In buffer area only
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area	In buffer area only
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In buffer area only
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In buffer area only

Extra Information

State and Territory Reserves [Resource Information]

Protected Area Name	Reserve Type	State	Buffer Status
Broadwater	National Park	NSW	In feature area
Bundjalung	National Park	NSW	In feature area
Minyumai	Indigenous Protected Area	NSW	In buffer area only
Tuckean	Nature Reserve	NSW	In buffer area only

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included.

RFA Name	State	Buffer Status
North East NSW RFA	New South Wales	In feature area

Nationally Important Wetlands [Resource Information]

Wetland Name	State	Buffer Status
Bundjalung National Park	NSW	In buffer area only
Tuckean Swamp	NSW	In buffer area only

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Upgrading the Pacific Highway - Woolgoolga to Ballina Upgrade, NSW	2012/6394	Controlled Action	Post-Approval	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Proposed biomass fuel stockpile	2001/514	Not Controlled Action	Completed	In buffer area only
Salty Lagoon Rehabilitation	2010/5716	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
Navy Mine Countermeasures Training	2002/812	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Referral decision				
Breeding program for Grey Nurse Sharks	2007/3245	Referral Decision	Completed	In buffer area only

Biologically Important Areas

Scientific Name	Behaviour	Presence	Buffer Status
Dolphins			
Tursiops aduncus			
Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Breeding	Likely to occur	In buffer area only
Marine Turtles			
Caretta caretta			
Loggerhead Turtle [1763]	Internesting	Likely to occur	In buffer area only
Seabirds			
Ardenna carneipes			
Flesh-footed Shearwater [82404]	Foraging	Known to occur	In buffer area only
Procellaria parkinsoni			
Black Petrel [1048]	Foraging	Likely to occur	In buffer area only
Sharks			
Carcharias taurus			
Grey Nurse Shark [64469]	Foraging	Known to occur	In buffer area only
Whales			
Megaptera novaeangliae			
Humpback Whale [38]	Foraging	Known to occur	In buffer area only

Bioregional Assessments

SubRegion	BioRegion	Website	Buffer Status
Clarence-Moreton	Clarence-Moreton	BA website	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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Report generated on 22/05/2023 1:45 PM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Animalia	Amphibia	Myobatrachidae	3137	*Crinia tinnula*		Wallum Froglet	V,P		108	
Animalia	Amphibia	Hylidae	3202	*Litoria olongburensis*		Olongburra Frog	V,P	V	27	
Animalia	Reptilia	Cheloniidae	2007	*Chelonia mydas*		Green Turtle	V,P	V	1	
Animalia	Reptilia	Elapidae	2677	*Hoplocephalus stephensii*		Stephens' Banded Snake	V,P		1	
Animalia	Aves	Casuariidae	0001	*Dromaius novaehollandiae*		Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area	E2,P		2	
Animalia	Aves	Anseranatidae	0199	*Anseranas semipalmata*		Magpie Goose	V,P		1	
Animalia	Aves	Columbidae	0025	*Ptilinopus magnificus*		Wompoo Fruit-Dove	V,P		3	
Animalia	Aves	Columbidae	0021	*Ptilinopus regina*		Rose-crowned Fruit-Dove	V,P		1	
Animalia	Aves	Apodidae	0334	*Hirundapus caudacutus*		White-throated Needletail	P	V,C,J,K	10	
Animalia	Aves	Procellariidae	0072	*Ardenna carneipes*		Flesh-footed Shearwater	V,P	J,K	1	
Animalia	Aves	Ciconiidae	0183	*Ephippiorhynchus asiaticus*		Black-necked Stork	E1,P		21	
Animalia	Aves	Ardeidae	0197	*Botaurus poiciloptilus*		Australasian Bittern	E1,P	E	3	
Animalia	Aves	Ardeidae	0196	*Ixobrychus flavicollis*		Black Bittern	V,P		3	
Animalia	Aves	Accipitridae	0218	*Circus assimilis*		Spotted Harrier	V,P		4	
Animalia	Aves	Accipitridae	0223	^^*Erythrotriorchis radiatus*		Red Goshawk	E4A,P,2	V	2	
Animalia	Aves	Accipitridae	0226	*Haliaeetus leucogaster*		White-bellied Sea-Eagle	V,P		44	
Animalia	Aves	Accipitridae	0225	*Hieraaetus morphnoides*		Little Eagle	V,P		3	
Animalia	Aves	Accipitridae	0230	*Lophoictinia isura*		Square-tailed Kite	V,P,3		2	
Animalia	Aves	Accipitridae	8739	*Pandion cristatus*		Eastern Osprey	V,P,3		61	
Animalia	Aves	Gruidae	0177	*Grus rubicunda*		Brolga	V,P		9	
Animalia	Aves	Rallidae	0053	*Amaurornis moluccana*		Pale-vented Bush-hen	V,P		1	
Animalia	Aves	Burhinidae	0175	*Esacus magnirostris*		Beach Stone-curlew	E4A,P		4	
Animalia	Aves	Haematopodidae	0131	*Haematopus fuliginosus*		Sooty Oystercatcher	V,P		3	
Animalia	Aves	Haematopodidae	0130	*Haematopus longirostris*		Pied Oystercatcher	E1,P		38	
Animalia	Aves	Scolopacidae	0167	*Limicola falcinellus*		Broad-billed Sandpiper	V,P	C,J,K	1	
Animalia	Aves	Scolopacidae	0149	*Numenius madagascariensis*		Eastern Curlew	P	CE,C,J,K	56	
Animalia	Aves	Laridae	0117	*Sternula albifrons*		Little Tern	E1,P	C,J,K	10	
Animalia	Aves	Cacatuidae	0265	^^*Calyptorhynchus lathami*		Glossy Black-Cockatoo	V,P,2	V	9	
Animalia	Aves	Psittacidae	0260	*Glossopsitta pusilla*		Little Lorikeet	V,P		4	

Animalia	Aves	Psittacidae	8913	*Pezoporus wallicus wallicus*	Eastern Ground Parrot	V,P,3		35
Animalia	Aves	Strigidae	0246	*Ninox connivens*	Barking Owl	V,P,3		3
Animalia	Aves	Tytonidae	0252	*Tyto longimembris*	Eastern Grass Owl	V,P,3		17
Animalia	Aves	Tytonidae	0250	*Tyto novaehollandiae*	Masked Owl	V,P,3		4
Animalia	Aves	Climacteridae	8127	*Climacteris picumnus victoriae*	Brown Treecreeper (eastern subspecies)	V,P		2
Animalia	Aves	Acanthizidae	0504	*Chthonicola sagittata*	Speckled Warbler	V,P		2
Animalia	Aves	Meliphagidae	0603	*Anthochaera phrygia*	Regent Honeyeater	E4A,P	CE	2
Animalia	Aves	Meliphagidae	0610	*Lichenostomus fasciogularis*	Mangrove Honeyeater	V,P		1
Animalia	Aves	Pomatostomidae	8388	*Pomatostomus temporalis temporalis*	Grey-crowned Babbler (eastern subspecies)	V,P		7
Animalia	Aves	Neosittidae	0549	*Daphoenositta chrysoptera*	Varied Sittella	V,P		1
Animalia	Aves	Campephagidae	0428	*Coracina lineata*	Barred Cuckoo-shrike	V,P		1
Animalia	Aves	Artamidae	8519	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	V,P		4
Animalia	Aves	Monarchidae	0376	*Carterornis leucotis*	White-eared Monarch	V,P		1
Animalia	Mammalia	Dasyuridae	1008	*Dasyurus maculatus*	Spotted-tailed Quoll	V,P	E	5
Animalia	Mammalia	Dasyuridae	1017	*Phascogale tapoatafa*	Brush-tailed Phascogale	V,P		16
Animalia	Mammalia	Dasyuridae	1045	*Planigale maculata*	Common Planigale	V,P		4
Animalia	Mammalia	Phascolarctidae	1162	*Phascolarctos cinereus*	Koala	E1,P	E	104
Animalia	Mammalia	Petauridae	1136	*Petaurus australis*	Yellow-bellied Glider	V,P	V	2
Animalia	Mammalia	Petauridae	1137	*Petaurus norfolcensis*	Squirrel Glider	V,P		8
Animalia	Mammalia	Pseudocheiridae	1133	*Petauroides volans*	Southern Greater Glider	E1,P	E	2
Animalia	Mammalia	Pteropodidae	1280	*Pteropus poliocephalus*	Grey-headed Flying-fox	V,P	V	25
Animalia	Mammalia	Pteropodidae	1294	*Syconycteris australis*	Common Blossom-bat	V,P		10
Animalia	Mammalia	Emballonuridae	1321	*Saccolaimus flaviventris*	Yellow-bellied Sheathtail-bat	V,P		3
Animalia	Mammalia	Vespertilionidae	1353	*Chalinolobus dwyeri*	Large-eared Pied Bat	V,P	V	1
Animalia	Mammalia	Vespertilionidae	1354	*Chalinolobus nigrogriseus*	Hoary Wattled Bat	V,P		5
Animalia	Mammalia	Vespertilionidae	1357	*Myotis macropus*	Southern Myotis	V,P		72
Animalia	Mammalia	Vespertilionidae	1336	*Nyctophilus bifax*	Eastern Long-eared Bat	V,P		9
Animalia	Mammalia	Vespertilionidae	1361	*Scoteanax rueppellii*	Greater Broad-nosed Bat	V,P		2
Animalia	Mammalia	Miniopteridae	1346	*Miniopterus australis*	Little Bent-winged Bat	V,P		18
Animalia	Mammalia	Miniopteridae	3330	*Miniopterus orianae oceanensis*	Large Bent-winged Bat	V,P		1
Animalia	Mammalia	Muridae	1455	*Pseudomys novaehollandiae*	New Holland Mouse	P	V	3

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Kingdom	Class	Family	Species Code	Scientific Name	Common Name	NSW status	Comm. status	Records	Info
Plantae	Flora	Asteraceae	1643	*Rutidosis heterogama*	Heath Wrinklewort	V	V	1	
Plantae	Flora	Cyperaceae	7013	*Cyperus aquatilis*	Water Nutgrass	E1		1	
Plantae	Flora	Fabaceae (Faboideae)	2833	*Desmodium acanthocladum*	Thorny Pea	V	V	4	
Plantae	Flora	Juncaginaceae	3363	*Maundia triglochinoides*		V		1	
Plantae	Flora	Myrtaceae	11894	*Gossia fragrantissima*	Sweet Myrtle	E1	E	3	
Plantae	Flora	Myrtaceae	4282	*Rhodamnia maideniana*	Smooth Scrub Turpentine	E4A		1	
Plantae	Flora	Myrtaceae	4283	*Rhodamnia rubescens*	Scrub Turpentine	E4A	CE	1	
Plantae	Flora	Myrtaceae	4284	*Rhodomyrtus psidioides*	Native Guava	E4A	CE	11	
Plantae	Flora	Myrtaceae	4290	*Syzygium hodgkinsoniae*	Red Lilly Pilly	V	V	2	
Plantae	Flora	Orchidaceae	6630	^^*Dendrobium melaleucaphilum*	Spider orchid	E1,P,2		1	
Plantae	Flora	Orchidaceae	6990	^^*Oberonia complanata*	Yellow-flowered King of the Fairies	E1,P,2		4	
Plantae	Flora	Orchidaceae	7077	^^*Oberonia titania*	Red-flowered King of the Fairies	V,P,2		5	
Plantae	Flora	Orchidaceae	4479	^^*Peristeranthus hillii*	Brown Fairy-chain Orchid	V,P,2		1	
Plantae	Flora	Orchidaceae	4480	^^*Phaius australis*	Southern Swamp Orchid	E1,P,2	E	1	
Plantae	Flora	Poaceae	4776	*Arthraxon hispidus*	Hairy Jointgrass	V	V	61	
Plantae	Flora	Polypodiaceae	8154	*Belvisia mucronata*	Needle-leaf Fern	E1		4	
Plantae	Flora	Proteaceae	5446	*Macadamia tetraphylla*	Rough-shelled Bush Nut	V	V	4	

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Kingdom	Scientific Name	Common Name	NSW status	Comm. status	Records	Info
Community	*Coastal Cypress Pine Forest in the New South Wales North Coast Bioregion*	Coastal Cypress Pine Forest in the New South Wales North Coast Bioregion	E3		K	
Community	*Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*	Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		K	
Community	*Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community*	Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community		E	K	
Community	*Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*	Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		K	
Community	*Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*	Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		K	
Community	*Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions*	Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions	E3		K	

Community	*Lowland Rainforest of Subtropical Australia*	Lowland Rainforest of Subtropical Australia		CE	K	
Community	*Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion*	Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion	E3		K	
Community	*Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion*	Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion	E3		K	
Community	*Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		K	
Community	*Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*	Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		K	
Community	*Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions*	Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions	E3		K	

Appendix E

Threatened Species Potential Occurrence Assessment

Potential of Occurrence Assessment

A potential of occurrence assessment was completed to assess the likelihood of occurrence of each threatened species or population identified with the in the subject site. All threatened biodiversity identified in background research were considered. The assessment is based on the habitat profile for the species and other habitat information in the Threatened Species Profile Database (Environment Energy and Science Group). The assessment also takes into consideration the dates and locations of nearby records and information about species populations in the locality.

Threatened Flora Potential Occurrence Assessment

For this proposed activity, the likelihood of occurrence of threatened flora species was determined based on the criteria shown in **Table F.1.**

Table F.1 Potential of Occurrence Criteria for Threatened Species and Populations of Flora

Potential of Occurrence	Criteria
Known	The species was observed in the subject site either during the current survey or during another survey less than one year prior.
High	A species has a high likelihood of occurrence if: • the subject site contains or forms part of a large area of high-quality suitable habitat that has not been subject to recent disturbance (e.g. fire), the species is known to form a persistent soil seedbank and the species has been recorded recently (within 10 years) in the locality • the species is a cryptic flowering species that has been recorded recently (within 10 years) in the locality and has a large area of high-quality potential habitat within the construction footprint that was not seasonally targeted by surveys.
Moderate	A species has a moderate likelihood of occurrence if: • the species: o has a large area of high-quality suitable habitat in the subject site that has not been subject to recent disturbance (e.g. fire) o the species is known to form a persistent soil seedbank, but o the species has not been recorded recently (within 10 years) in the locality • the species: o has a small area of high-quality suitable habitat or a large area of marginal habitat in the subject site That has not been subject to recent disturbance (e.g. fire) o the species is known to form a persistent soil seedbank o the species has been recorded recently (within 10 years) in the locality o the species is a cryptic flowering species, with a small area of high-quality potential habitat or a large area of marginal habitat within the Activity footprint, that was not seasonally targeted by surveys.
Low	A species has a low likelihood of occurrence if: • it is not a cryptic species, nor a species known to have a persistent soil seedbank species and was not detected despite targeted searches • the species is a cryptic flowering species, with a small area of high-quality potential habitat or a large area of marginal habitat within the Activity footprint, that was not seasonally targeted by surveys as the species has not been recorded within 50 years in the locality.
None	Suitable habitat is absent from the subject site.

Table G.2 Threatened Flora Potential Occurrence Assessment

Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPIE/EES Threatened Species Profiles websites)	Potential of Occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
Acronychia littoralis	Scented Acronychia	E	E	Littoral rainforest on sand.	Low	Poor quality habitat occurs at the site. Not recorded during site inspection. No BioNet records within the locality.
Arthraxon hispidus	Hairy Jointgrass	V	V	Moist shady places in or on the edges of rainforest and wet eucalypt forest, often near creeks or swamps.	Low	Poor quality habitat occurs at the site. Not recorded during site inspection.
Baloghia marmorata	Jointed Baloghia	V	V	Subtropical rainforest on soils derived from basalt.	Low	Poor quality habitat occurs at the site. Not recorded during site inspection. No BioNet records within the locality.
Belvisia mucronata	Narrow-Leaf Fern	E	-	Forms small clumps on trees or rocks in dry rainforest or along creeks in moist open forest.	None	No suitable habitat occurs at the site.
Bosistoa transversa	Yellow Satinheart	V	V	Lowland subtropical rainforest up to 300 m in altitude, from Maryborough in Queensland to Nightcap Range (north of Lismore) in NSW.	Low	Poor quality habitat occurs at the site. Not recorded during site inspection. No BioNet records within the locality.
Cryptocarya foetida	Stinking Cryptocarya	V	V	Littoral rainforest in sandy soils, mature trees known on basalt soils.	Low	Poor quality habitat occurs at the site. Not recorded during site inspection. No BioNet records within the locality.
Cryptostylis hunteriana	Leafless Tongue-orchid	V	V	Does not have well defined habitat and is known from a range of communities, including swamp-heath and woodland.	Low	Poor quality habitat occurs at the site. Not recorded during site inspection. No BioNet records within the locality.
Cynanchum elegans	White-flowered Wax Plant	E	E	Dry, littoral or subtropical rainforest, and occasionally in scrub or woodland.	Low	Poor quality habitat occurs at the site. Not recorded during site inspection. No BioNet records within the locality.
Cyperus aquatilis	Water Nutgrass	E	-	In NSW, known only from a few sites north from Grafton. Grows in ephemerally wet sites, such as roadside ditches and seepage areas from small cliffs, in sandstone areas.	Low	Poor quality habitat occurs at the site. Not recorded during site inspection.
Dendrobium melaleucaphilum	Spider Orchid	E	-	Grows frequently on *Melaleuca styphelioides*, less commonly on rainforest trees or on rocks in coastal districts. Occurs in coastal districts and	Low	Poor quality habitat occurs at the site. Not recorded during site inspection.

Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPIE/EES Threatened Species Profiles websites)	Potential of Occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
				nearby ranges, extending from Queensland to lower Blue Mountains.		
Desmodium acanthocladum	Thorny Pea	V	V	Fringes of riverine subtropical and dry rainforest on basalt-derived soils at low elevations.	Low	Poor quality habitat occurs at the site. Not recorded during site inspection.
Endiandra floydii	Crystal Creek Walnut	E	E	Warm temperate or subtropical rainforest with Brush Box overstorey, and in regrowth rainforest and Camphor Laurel forest.	Low	Poor quality habitat occurs at the site. Not recorded during site inspection. No BioNet records within the locality.
Endiandra hayesii	Rusty Rose Walnut	V	V	Sheltered moist gullies in subtropical and warm temperate rainforest on alluvium or basalt.	Low	Poor quality habitat occurs at the site. Not recorded during site inspection. No BioNet records within the locality.
Floydia praealta	Ball Nut	V	V	Riverine and subtropical rainforest, usually soils derived from basalt.	Low	Poor quality habitat occurs at the site. Not recorded during site inspection. No BioNet records within the locality.
Gossia fragrantissima	Sweet Myrtle	E	E	Dry subtropical and riverine rainforest, isolated plants can be found in paddocks from regrowth mostly on basalt-derived soils. Occurs in south-east Queensland and in north-east NSW south to the Richmond River.	Low	Poor quality habitat occurs at the site. Not recorded during site inspection.
Hibbertia marginata	Bordered Guinea Flower	V	V	Grassy or shrubby dry open eucalypt forest at low altitudes on sandstone, only found between Casino and Grafton.	Low	Poor quality habitat occurs at the site. Not recorded during site inspection. No BioNet records within the locality.
Macadamia integrifolia	Macadamia Nut	-	V	While specimens have been collected from the North Coast of NSW (e.g. Lismore, Gross 1995), this species is not known to occur naturally in NSW (Harden 1991). The Macadamia Nut grows in remnant rainforest.	Low	Poor quality habitat occurs at the site. Not recorded during site inspection. No BioNet records within the locality.
Macadamia tetraphylla	Rough-shelled Bush Nut	V	V	Subtropical rainforest usually near the coast.	Low	Poor quality habitat occurs at the site. Not recorded during site inspection.
Maundia triglochinoides	-	V	-	Swamps, lagoons, dams, channels, creeks or shallow freshwater 30 - 60 cm deep on heavy clay, low nutrients. Associated with wetland species e.g. *Cycnogeton procerum*.	None	No suitable habitat occurs at the site.

Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPIE/EES Threatened Species Profiles websites)	Potential of Occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
Myrsine richmondensis	Ripple-leaf Muttonwood	E	E	Subtropical and dry rainforest and swamp forest on creek flats and slopes on basalt derived soil.	Low	Poor quality habitat occurs at the site. Not recorded during site inspection. No BioNet records within the locality.
Oberonia complanata	Yellow-flowered King of the Fairies	E	-	Grows on trees and rocks in littoral rainforest, subtropical rainforest, dry rainforest, wet or dry eucalypt forests, dunes (including stabilised sands), stream-side areas, swampy forests and mangroves.	Low	Poor quality habitat occurs at the site. Not recorded during site inspection.
Oberonia titania	Red-flowered King of the Fairies	V	-	Occurs in littoral and subtropical rainforest and paperbark swamps, but it can also occur in eucalypt-forested gorges and in mangroves.	Low	Poor quality habitat occurs at the site. Not recorded during site inspection.

V = Vulnerable; E = Endangered; CE = Critically Endangered

Threatened Fauna Potential Occurrence Assessment

For this proposed activity, the likelihood of occurrence of threatened and migratory fauna species and populations was determined based on the criteria shown in **Table F.2.**

Table F.2 Potential of Occurrence Criteria for Threatened Species and Populations of Fauna

Potential of Occurrence	Criteria
Known	The species was observed in the subject site either during the current survey or during another survey less than one year prior.
High	A species has a high likelihood of occurrence if: • the subject site contains or forms part of a large area of high-quality suitable habitat • important habitat elements (i.e. for breeding or important life cycle periods such as winter foraging periods) are abundant within the subject site • the species has been recorded recently in similar habitat in the locality • the subject site is likely to support resident populations or to contain habitat that is visited by the species during regular seasonal movements or migration.
Moderate	A species has a moderate likelihood of occurrence if: • the subject site contains or forms part of a small area of high-quality suitable habitat • the subject site contains or forms part of a large area of marginal habitat • important habitat elements (i.e. for breeding or important life cycle periods such as winter foraging periods) are sparse or absent within the subject site • the subject site is unlikely to support resident populations or to contain habitat that is visited by the species during regular seasonal movements or migration but is likely to be used occasionally during seasonal movements and/or dispersal.
Low	A species has a low likelihood of occurrence if: • potentially suitable habitat exists but the species has not been recorded recently (previous 10 years) in the locality despite intensive survey (i.e. the species is considered to be locally extinct) • the species is considered to be a rare vagrant, likely only to visit the subject site very rarely; e.g. during juvenile dispersal or exceptional climatic conditions (e.g. extreme drought conditions in typical habitat of inland birds).
None	Suitable habitat is absent from the subject site.

Table G.4 Threatened Fauna Potential Occurrence Assessment*

***Migratory/pelagic marine species identified in the search results are not assessed as no habitat occurs at the site**

Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPIE Threatened Species Profiles)	Potential of Occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
AMPHIBIANS						
Crinia tinnula	Wallum Froglet	V	-	Acid paperbark and sedge swamps known as 'wallum', this is a banksia-dominated lowland heath ecosystem characterised by acidic waterbodies.	**Moderate**	**Potential foraging habitat occurs at the site. Local BioNet records. AoS completed.**
Litoria olongburensis	Olongburra Frog	V	V	Paperbark swamps and sedge swamps of the coastal 'wallum' country amongst sedges and rushes.	**Moderate**	**Potential foraging habitat occurs at the site. Local BioNet records. AoS completed.**
Mixophyes fleayi	Fleay's Barred Frog	E	E	Rainforest and wet eucalypt forest of the escarpment and foothills, close to gravely streams.	Low	Poor quality habitat occurs at the site. No BioNet records within the locality.
Mixophyes iteratus	Giant Barred Frog	E	E	Deep, damp leaf litter in rainforests, moist eucalypt forest and near dry eucalypt forest.	Low	Poor quality habitat occurs at the site. No BioNet records within the locality.
AVIFAUNA						
Amaurornis moluccana	Pale-vented Bush-hen	V	-	Variety of coastal wetlands from wetlands, mangroves, lagoons and swamps to river margins and creeks running through rainforest.	Low	Poor quality habitat occurs at the site.
Anseranas semipalmata	Magpie Goose	V	-	Shallow wetlands (<1 m deep), large swamps and dams with dense growth of rushes or sedge.	None	No suitable habitat occurs at the site.
Anthochaera phrygia	Regent Honeyeater	CE	CE	Dry open forest and woodland with an abundance of nectar-producing eucalypts, particularly box-ironbark woodland, swamp mahogany forests, and riverine sheoak woodlands.	Low	Poor quality habitat occurs at the site.
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V	-	Woodlands and dry open sclerophyll forests, usually dominated by eucalypts; also recorded in shrublands, heathlands and various modified habitats.	Low	Poor quality habitat occurs at the site.

Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPIE Threatened Species Profiles)	Potential of Occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
Botaurus poiciloptilus	Australasian Bittern	E	E	Permanent freshwater wetlands with tall dense vegetation, particularly bullrushes and spikerushes.	None	No suitable habitat occurs at the site.
Calyptorhynchus lathami	Glossy Black-Cockatoo	V	V	Sheoaks in coastal forests and woodlands, timbered watercourses, and moist and dry eucalypt forests of the coast and the Great Divide up to 1,000 m.	**Moderate**	**Potential foraging habitat (Swamp Oak) occurs at the site. AoS completed.**
Carterornis leucotis	White-eared Monarch	V	-	Coastal rainforest, swamp forest and wet eucalypt forest, prefers edges where trees frequently covered with vines.	Low	Poor quality habitat occurs at the site.
Chthonicola sagittata	Speckled Warbler	V	-	Eucalyptus dominated communities with sparse shrubs and grassy understorey.	Low	Poor quality habitat occurs at the site.
Circus assimilis	Spotted Harrier	V	-	Grassy open woodland, inland riparian woodland, grassland and shrub steppe.	Low	Poor quality habitat occurs at the site. Flyover possible.
Climacteris picumnus victoriae	Brown Treecreeper	V	V	Eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range, and less commonly on coastal plains and ranges.	Low	Poor quality habitat occurs at the site.
Coracina lineata	Barred Cuckoo-shrike	V	-	Rainforest, eucalypt woodlands, swamp woodlands and timber along watercourses.	Low	Poor quality habitat occurs at the site.
Cyclopsitta diophthalma coxeni	Coxen's Fig-parrot	CE	CE	Drier rainforests and adjacent wet eucalypt forest, wetter lowland also wetter lowland rainforests.	Low	Poor quality habitat occurs at the site. No BioNet records within the locality.
Daphoenositta chrysoptera	Varied Sittella	V	-	Inhabits eucalypt forests and woodlands, especially rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland.	Low	Poor quality habitat occurs at the site.
Dromaius novaehollandiae	Emu population in the NSW North Coast Bioregion and Port Stephens LGA	E	-	Open forest, woodland, coastal heath, coastal dunes, wetland areas, tea tree plantations and open farmland, and occasionally in littoral rainforest.	Low	Poor quality habitat occurs at the site.

Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPIE Threatened Species Profiles)	Potential of Occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
Ephippiorhynchus asiaticus	Black-necked Stork	E	-	Swamps, mangroves, mudflats, dry floodplains.	Low	Poor quality habitat occurs at the site.
Erythrotriorchis radiatus	Red Goshawk	CE	E	Open woodland and forest, preferring a mosaic of vegetation types, a large population of birds as a source of food, and permanent water. Typically found in riparian habitats along or near watercourses or wetlands. In NSW, preferred habitats include mixed subtropical rainforest, Melaleuca swamp forest and riparian Eucalyptus Forest of coastal rivers. Population in NSW is naturally small (probably only one pair) and lies at extreme of the natural range of the species in Australia.	Low	Poor quality habitat occurs at the site. No nests present. Flyover possible.
Esacus magnirostris	Beach Stone-curlew	CE	-	Tidal flats at the mouth of estuaries or on open beaches.	None	No suitable habitat occurs at the site.
Falco hypoleucos	Grey Falcon	E	V	The Grey Falcon is sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range.	Low	Poor quality habitat occurs at the site. No BioNet records within the locality.
Glossopsitta pusilla	Little Lorikeet	V	-	Forages in open Eucalyptus forest and woodland; also feeds on Angophora, Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity.	Low	Poor quality habitat occurs at the site.
Grantiella picta	Painted Honeyeater	V	V	Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests. Specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus *Amyema*.	Low	Poor quality habitat occurs at the site. No BioNet records within the locality.
Grus rubicunda	Brolga	V	-	Shallow swamps, floodplains, grasslands and pastoral lands, usually in pairs or parties.	Low	Poor quality habitat occurs at the site. Flyover possible.
Haematopus fuliginosus	Sooty Oystercatcher	V	-	Intertidal rocky and coral reefs, mostly ocean shores.	None	No suitable habitat occurs at the site.

Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPIE Threatened Species Profiles)	Potential of Occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
Haematopus longirostris	Pied Oystercatcher	E	-	Open beaches, intertidal flats, sandbanks and occasionally rocky headlands.	None	No suitable habitat occurs at the site.
Haliaeetus leucogaster	White-bellied Sea-eagle	V	-	Coastal habitats and around terrestrial wetlands characterised by the presence of large areas of open water (larger rivers, swamps, lakes, ocean). Habitats may include freshwater swamps, lakes, reservoirs, billabongs, saltmarsh and sewage ponds in addition to bays and inlets, beaches, reefs, lagoons, estuaries and mangroves.	Low	Poor quality habitat occurs at the site. No nests present. Flyover possible.
Hieraaetus morphnoides	Little Eagle	V	-	Open eucalypt forest, woodland or open woodland. Sheoak or acacia woodlands and riparian woodlands of interior NSW are also used.	Low	Poor quality habitat occurs at the site. No nests present. Flyover possible.
Ixobrychus flavicollis	Black Bittern	V	-	Dense vegetation fringing and in streams, swamps, tidal creeks and mudflats, particularly amongst swamp sheoaks and mangroves.	None	No suitable habitat occurs at the site.
Lathamus discolor	Swift Parrot	E	CE	On mainland Australia foraging occurs where eucalypts are flowering profusely or where abundant lerp infestations occur. Favoured feed trees include winter flowering species such as Swamp Mahogany *Eucalyptus robusta*, Spotted Gum *Corymbia maculata*, Red Bloodwood *C. gummifera*, Forest Red Gum *E. tereticornis*, Mugga Ironbark *E. sideroxylon*, and White Box *E. albens*. Commonly used lerp infested trees include Inland Grey Box *E. microcarpa*, Grey Box *E. moluccana*, *Blackbutt E. pilularis* and Yellow Box *E. melliodora*.	Low	Poor quality habitat occurs at the site. No BioNet records within the locality.
Lichenostomus fasciogularis	Mangrove Honeyeater	V	-	Mangrove forest, also near coastal forests and woodlands including casuarina and paperbark swamps.	Low	Poor quality habitat occurs at the site.
Lophoictinia isura	Square-tailed Kite	V	-	Dry woodland and open forest, particularly along major rivers and belts of trees in urban or semi-urban areas. Home ranges can extend over at least 100 km2.	Low	Poor quality habitat occurs at the site. No nests present. Flyover possible.

Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPIE Threatened Species Profiles)	Potential of Occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
Neophema chrysostoma	Blue-winged Parrot	-	V	Blue-winged parrots breed in Tasmania, coastal south-eastern South Australia and southern Victoria. During the breeding season (spring and summer), birds occupy eucalypt forests and woodlands. Outside of the breeding range, habitat critical to the survival of this species includes foraging and staging habitats found from coastal, sub-coastal and inland areas, right through to semi-arid zones including: grasslands, grassy woodlands and semi-arid chenopod shrubland with native and introduced grasses, herbs and shrubs; and wetlands both near the coast and in semi-arid zones used for foraging and staging.	Low	Poor quality habitat occurs at the site. No BioNet records within the locality.
Ninox connivens	Barking Owl	V	-	Eucalypt woodland, open forest, swamp woodlands and timber along watercourses.	Low	Poor quality habitat occurs at the site. No hollow-bearing trees present. Flyover possible.
Pandion cristatus	Eastern Osprey	V	-	Littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. Typically occur in coastal areas but occasionally travel inland along major rivers. Wetland habitats include inshore waters, reefs, bays, coastal cliffs, beaches, estuaries, mangrove swamps, broad rivers, reservoirs and large lakes and waterholes.	Low	Poor quality habitat occurs at the site. No nests present. Flyover possible.
Pezoporus wallicus wallicus	Eastern Ground Parrot	V	-	Heathland and sedgeland within or adjacent to swamps.	**Moderate**	**Potential foraging habitat occurs at the site. Local BioNet records. AoS completed.**
Pomatostomus temporalis temporalis	Grey-crowned Babbler	V	-	Open woodlands dominated by mature eucalypts, with regenerating trees, tall shrubs, and an intact ground cover of grass and forbs.	**Moderate**	**Potential foraging habitat occurs at the site. Local BioNet records. AoS completed.**
Ptilinopus magnificus	Wompoo Fruit-dove	V	-	Rainforests, low-elevation moist eucalypt forest, and Brush Box forests.	Low	Poor quality habitat occurs at the site.

Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPIE Threatened Species Profiles)	Potential of Occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
Ptilinopus regina	Rose-crowned Fruit-dove	V	-	Subtropical and dry rainforest, moist eucalypt forest and swamp forest.	Low	Poor quality habitat occurs at the site.
Rostratula australis	Australian Painted Snipe	E	E	Well-vegetated shallows and margins of wetlands, dams, sewage ponds, wet pastures, marshy areas, irrigation systems, lignum, tea-tree scrub, and open timber.	None	No suitable habitat occurs at the site. No BioNet records within the locality.
Sternula albifrons	Little Tern	E	-	Coastal waters, bays, shallow inlets, salt or brackish lakes.	None	No suitable habitat occurs at the site.
Sternula nereis nereis	Australian Fairy Tern	-	V	Nests on sheltered sandy beaches, spits and banks above the high tide line and below vegetation. Feeds in Coastal waters.	None	No suitable habitat occurs at the site. No BioNet records within the locality.
Turnix melanogaster	Black-breasted Button-quail	CE	V	Drier rainforests and vine scrubs, often in association with Hoop Pine and a deep moist leaf litter layer. During drought it may move to adjacent wetter rainforests.	Low	Poor quality habitat occurs at the site. No BioNet records within the locality.
Tyto longimembris	Eastern Grass Owl	V	-	Areas of tall grass, including tussocks in swampy areas, grassy plains, swampy heath, cane grass, sedges on flood plains.	Low	Poor quality habitat occurs at the site. Flyover possible.
Tyto novaehollandiae	Masked Owl	V	-	Dry eucalypt forest and woodlands.	Low	Poor quality habitat occurs at the site. No hollow-bearing trees present. Flyover possible.
FISH						
Nannoperca oxleyana	Oxleyan Pygmy Perch	E (FM Act)	E	Still or slow-moving acidic waterbodies with areas of dense aquatic vegetation and undercut banks in banksia dominated lowland heath.	**Moderate**	**Potential mapped habitat occurs at the site. AoS completed.**
INSECTA						
Argynnis hyperbius	Australian Fritillary	E	CE	Open swampy coastal habitat where the caterpillar's food plant, Arrowhead Violet (*Viola betonicifolia*) occurs.	Low	Poor quality habitat occurs at the site. No BioNet records within the locality.

Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPIE Threatened Species Profiles)	Potential of Occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
MAMMALS						
Chalinolobus dwyeri	Large-eared Pied Bat	V	V	Near cave entrances and crevices in cliffs.	Low	Poor quality habitat occurs at the site. No roosting habitat occurs at the site.
Chalinolobus nigrogriseus	Hoary Wattled Bat	V	-	Dry open eucalypt forest dominated by spotted gum, boxes and ironbarks. Also, healthy coastal forests where Red Bloodwood and Scribbly Gum are common. Naturally sparse understorey is favourable.	Low	Poor quality habitat occurs at the site. No roosting habitat occurs at the site.
Dasyurus maculatus	Spotted-tailed Quoll	V	E	Dry and moist eucalypt forests and rainforests, fallen hollow logs, large rocky outcrops.	Low	Poor quality habitat occurs at the site.
Miniopterus australis	Little Bent-winged Bat	V	-	Moist eucalypt forest, rainforest and dense coastal scrub.	Low	Poor quality habitat occurs at the site. No roosting habitat occurs at the site.
Miniopterus orianae oceanensis	Large Bent-winged Bat	V	-	Forest or woodland, roost in caves, old mines and stormwater channels.	Low	Poor quality habitat occurs at the site. No roosting habitat occurs at the site.
Myotis macropus	Southern Myotis	V	-	Bodies of water, rainforest streams, large lakes, reservoirs.	Low	Poor quality habitat occurs at the site. No roosting habitat occurs at the site.
Nyctophilus bifax	Eastern Long-eared Bat	V	-	Lowland subtropical rainforest and wet and swamp eucalypt forest, extending to adjacent moist eucalypt forest.	Low	Poor quality habitat occurs at the site. No roosting habitat occurs at the site.
Petauroides volans	Greater Glider	-	E	Ranges and coastal plains of eastern Australia, where it inhabits a variety of eucalypt forests and woodlands.	Low	Poor quality habitat occurs at the site. No large mature eucalypts or hollow-bearing trees.
Petaurus australis australis	Yellow-bellied Glider	V	V	Tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Dens in tree hollows of large trees, often in family groups. Forest type preferences vary with latitude and elevation;	Low	Poor quality habitat occurs at the site. No hollow-bearing trees.

Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPIE Threatened Species Profiles)	Potential of Occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
				mixed coastal forests to dry escarpment forests in the north; moist coastal gullies and creek flats to tall montane forests in the south.		
Petaurus norfolcensis	Squirrel Glider	V	-	Blackbutt, bloodwood and ironbark eucalypt forest with heath understorey in coastal areas, and box-ironbark woodlands and River Red Gum forest inland.	Low	Poor quality habitat occurs at the site. No hollow-bearing trees.
Phascogale tapoatafa	Brush-tailed Phascogale	V	-	Drier forests and woodlands with hollow-bearing trees and sparse ground cover.	Low	Poor quality habitat occurs at the site. No hollow-bearing trees.
Phascolarctos cinereus	Koala	V	E	Appropriate food trees in forests and woodlands, and treed urban areas.	**Known**	**Previously recorded at the site. Foraging habitat occurs that the site (feed trees). Numerous BioNet records in the locality. Aos completed.**
Planigale maculata	Common Planigale	V	-	Rainforest, eucalypt forest, heathland, marshland, grassland and rocky areas with surface cover close to water.	Low	Poor quality habitat occurs at the site.
Potorous tridactylus	Long-nosed Potoroo	V	V	Cool temperate rainforest, moist and dry forests, and wet heathland, inhabiting dense layers of grass, ferns, vines and shrubs.	Low	Poor quality habitat occurs at the site. No BioNet records within the locality.
Pseudomys novaehollandiae	New Holland Mouse	-	V	Occurs in open heathlands, open woodlands with a heathland understorey, and vegetated sand dunes.	Low	Poor quality habitat occurs at the site.
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	Subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.	**Moderate**	**Potential foraging habitat occurs at the site. Local BioNet records. AoS completed.**
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V	-	Forages in a variety of habitats, roosts in tree hollows and buildings.	Low	Poor quality habitat occurs at the site. No roosting habitat occurs at the site.

Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or DPIE Threatened Species Profiles)	Potential of Occurrence	Outcome - Assessment of Significance (AoS)?
		BC Act	EPBC Act			
Scoteanax rueppellii	Greater Broad-nosed Bat	V	-	Woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest.	Low	Poor quality habitat occurs at the site. No roosting habitat occurs at the site.
Syconycteris australis	Common Blossom-bat	V	-	Feeds in heathland and paperbark swamps; roosts in littoral rainforest. Also recorded in subtropical rainforest, wet sclerophyll forest and other coastal forests.	**Moderate**	**Potential foraging habitat occurs at the site. Local BioNet records. AoS completed.**
Xeromys myoides	False Water-rat	-	V	Primarily in habitats mangrove forests but has been recorded in a variety of well-watered habitats including, freshwater lagoons, sedged lakes close to foredunes, and swamps.	Low	Poor quality habitat occurs at the site. No BioNet records within the locality.
Reptilia						
Coeranoscincus reticulatus	Three-toed Snake-tooth Skink	V	E	Rainforest and occasionally moist eucalypt forest, on loamy or sandy soils.	Low	Poor quality habitat occurs at the site. No BioNet records within the locality.
Hoplocephalus stephensii	Stephens' Banded Snake	V	-	Rainforest and eucalypt forests and rocky areas up to 950 m.	Low	Poor quality habitat occurs at the site.

V = Vulnerable; E = Endangered; CE = Critically Endangered

Appendix F

Flora and Fauna Inventory

Table G 1 Flora Inventory of the Site

Family	Scientific Name	Common Name
Adoxaceae	*Viburnum odoratissimum**	Sweet Viburnum
Amaranthaceae	*Alternanthera denticulata*	Lesser Joyweed
Apiaceae	*Centella asiatica*	Pennywort
Apocynaceae	*Parsonsia straminea*	Monkey Rope
Asparagaceae	*Asparagus aethiopicus**	Asparagus Fern
Asteraceae	*Ageratum houstonianum**	Blue Billygoat Weed
Asteraceae	*Ambrosia artemisiifolia**	Annual Ragweed
Asteraceae	*Bidens pilosa**	Cobbler's Pegs
Asteraceae	*Conyza sp.**	A Fleabane
Asteraceae	*Senecio madagascariensis**	Fireweed
Asteraceae	*Taraxacum officinale**	Dandelion
Casuarinaceae	*Casuarina glauca*	Swamp Oak
Commelinaceae	*Commelina cyanea*	Scurvy Weed
Convolvulaceae	*Ipomoea cairica**	Coast Morning Glory
Cupressaceae	*Callitris columellaris*	Coastal Cypress Pine
Cyperaceae	*Cyperus polystachyos*	Bunchy Sedge
Cyperaceae	*Gahnia clarkei*	Tall Saw-sedge
Dennstaedtiaceae	*Pteridium esculentum*	Bracken
Dilleniaceae	*Hibbertia scandens*	Climbing Guinea Flower
Euphorbiaceae	*Breynia oblongifolia*	Coffee Bush
Euphorbiaceae	*Glochidion ferdinandi var. ferdinandi*	Cheese Tree
Fabaceae (Faboideae)	*Crotalaria lanceolata subsp. lanceolata**	Lance-leaf Rattlepod
Fabaceae (Faboideae)	*Trifolium repens**	White Clover
Fabaceae (Mimosoideae)	*Acacia concurrens*	Curracabah
Fabaceae (Mimosoideae)	*Acacia floribunda*	White Sally
Fabaceae (Mimosoideae)	*Acacia longifolia var. sophorae*	Coastal Wattle
Fabaceae (Mimosoideae)	*Acacia melanoxylon*	Blackwood
Malvaceae	*Sida rhombifolia**	Paddy's Lucerne
Myrtaceae	*Acmena smithii*	Lilly Pilly
Myrtaceae	*Eucalyptus robusta*	Swamp Mahogany
Myrtaceae	*Leptospermum liversidgei*	Teatree
Myrtaceae	*Lophostemon confertus*	Brush Box
Myrtaceae	*Lophostemon suaveolens*	Swamp Box
Myrtaceae	*Melaleuca quinquenervia*	Broad-leaved Paperbark
Myrtaceae	*Melaleuca sieberi*	Sieber's Paperbark
Myrtaceae	*Syzygium australe*	Brush Cherry
Myrtaceae	*Waterhousea floribunda*	Weeping Lilly Pilly
Ochnaceae	*Ochna serrulata**	Mickey Mouse Plant
Passifloraceae	*Passiflora edulis**	Common Passionfruit
Passifloraceae	*Passiflora suberosa**	Corky Passionfruit
Pinaceae	*Pinus elliottii**	Slash Pine
Poaceae	*Andropogon virginicus**	Whiskey Grass
Poaceae	*Axonopus fissifolius**	Narrow-leaved Carpet Grass
Poaceae	*Capillipedium spicigerum*	Scented-top Grass
Poaceae	*Chloris gayana**	Rhodes Grass
Poaceae	*Cynodon dactylon*	Common Couch
Poaceae	*Imperata cylindrica*	Blady Grass
Poaceae	*Leersia hexandra*	Swamp Ricegrass
Poaceae	*Paspalum mandiocanum**	Broad-leaved Paspalum
Poaceae	*Paspalum notatum**	Bahia Grass
Poaceae	*Cenchrus clandestinus**	Kikuyu
Poaceae	*Setaria palmifolia**	Palm Grass
Poaceae	*Setaria sphacelata**	South African Pigeon Grass
Poaceae	*Sporobolus africanus**	Parramatta Grass
Poaceae	*Themeda triandra*	Kangaroo Grass
Polygalaceae	*Polygala paniculata**	Milkwort
Polygonaceae	*Persicaria decipiens*	Slender Knotweed
Proteaceae	*Banksia aemula*	Wallum Banksia
Proteaceae	*Banksia integrifolia*	Coastal Banksia
Proteaceae	*Grevillea robusta*	Silky Oak

Family	Scientific Name	Common Name
Rhamnaceae	*Alphitonia excelsa*	Red Ash
Rutaceae	*Acronychia imperforata*	Beach Acronychia
Smilacaceae	*Smilax australis*	Lawyer Vine
Solanaceae	*Solanum nigrum**	Blackberry Nightshade
Verbenaceae	*Lantana camara**	Lantana
Verbenaceae	*Verbena bonariensis**	Purpletop
*Denotes exotic species		

Table G 2 Fauna Observed at the Site

Scientific Name	Common Name	Observation Type
Aves		
Aviceda subcristata	Pacific Baza	O
Corvus orru	Torresian Crow	HC
Cracticus nigrogularis	Pied Butcherbird	HC
Dacelo novaeguineae	Laughing Kookaburra	O
Entomyzon cyanotis	Blue-faced Honeyeater	O
Gymnorhina tibicen	Australian Magpie	O
Manorina melanocephala	Noisy Miner	HC
Meliphaga lewinii	Lewin's Honeyeater	O
Philemon corniculatus	Noisy Friarbird	O
Rhipidura leucophrys	Willie Wagtail	HC
Threskiornis spinicollis	Straw-necked Ibis	O
Trichoglossus haematodus	Rainbow Lorikeet	O
Vanellus miles	Masked Lapwing	O
Zanda funereus	Yellow-tailed Black-Cockatoo	O
Reptilia		
Lampropholis delicata	Dark-flecked Garden Sun Skink	O

O = Observed. HC = Heard call

Appendix G

Assessment of Significance

BC Act Five-part Tests for Threatened Species

The site habitat values and extent of local population per species/ species group are detailed below. To minimise repetition, the responses to the five-part tests are structured as follows:

Part (a), (c), (d) and (e) are answered per species or as a collective group of species depending on the nature of impacts.

Part (b) deals specifically with threatened ecological communities, and hence is not relevant to the subject threatened species assessment.

a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

Threatened Ecological Communities (TECs)

- Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions

Fauna:

- Amphibians
  - Wallum Froglet
  - Olongburra Frog
- Blossom Nomads
  - Grey-headed Flying-fox
  - Common Blossom-bat
- Birds
  - Glossy Black-Cockatoo
  - Eastern Ground Parrot
  - Grey-crowned Babbler
- Mammals
  - Koala

AMPHIBIANS

Wallum Froglet

Wallum Froglets are found along the coastal margin from Litabella National Park in south-east Queensland to Kurnell in Sydney. Wallum Froglets are found in a wide range of habitats, usually associated with acidic swamps on coastal sand plains. They typically occur in sedgelands and wet heathlands. They can also be found along drainage lines within other vegetation communities and disturbed areas, and occasionally in swamp sclerophyll forests.

The species breeds in swamps with permanent water as well as shallow ephemeral pools and drainage ditches. Breeding is thought to peak in the colder months but can occur throughout the year following rain. Eggs of 1.1-1.2mm are deposited in water with a pH of <6 and tadpoles take 2-6 months to develop into frogs. Wallum Froglets shelter under leaf litter, vegetation, other debris or in

burrows of other species. Shelter sites are wet or very damp and often located near the water's edge. Males may call throughout the year and at any time of day, peaking following rain.

Threatening processes for this species include:

- Destruction and degradation of coastal wetlands as a result of roadworks, coastal developments and sandmining.
- Reduction of water quality and modification to acidity in coastal wetlands.
- Changes to hydrology of coastal wetlands as a result of a changing climate and/ or sea level rise.
- Nutrient enrichment and chemical run off from urban and agricultural areas and as a result of mosquito control.
- Predation of tadpoles and eggs by the Plague Minnow *Gambusia holbrooki*. While little is known of the extent of Plague Minnow predation on Wallum Froglets, it must be considered a potential threat.
- Habitat disturbance by feral pigs.

Potential Impacts from the Activity

The Activity may result in the disturbance within the Wallum Froglet habitat onsite, due to proposed construction of a shared pathway. Following the mitigations detailed in this report the impacts will be minor during the pathway's construction. Adjacent parts of the site representing habitat for this species are unlikely to be indirectly impacted by the Activity.

On this basis, it would be highly unlikely that an adverse effect on the life cycle of the Wallum Froglet would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Olongburra Frog

The Olongburra Frog is an "acid" frog confined to the coastal sandplain wallum swamps. Their life-cycle is adapted to the acidic pH (2.8-5.5) of these wetlands. Frogs are highest in abundance in relatively undisturbed wallum swamps. Breeding habitat is characterised by the presence of emergent sedges, with upright species such as *Baumea* spp. and *Schoenus* spp. preferred by adult frogs for perching. Frogs can be found in breeding habitat all year. However, little is known about habitat use when breeding is not occurring and drier areas adjacent to primary habitat may also be utilised.

Breeding occurs mainly in spring, summer, and autumn after rain. Eggs are laid singly in water at the base of sedges.

Threatening processes for this species include:

- Destruction and degradation of wallum habitat for coastal development.
- Reduction of water quantity and/or quality (including changes to pH) in coastal wetland habitat.
- Changes in average and extreme temperatures and the amount and timing of rainfall due to climate change.
- Severe fires in very dry periods that result in insufficient refuge remaining post-fire.
- Roadkill (it has been estimated that >10,000 Olongburra Frogs are killed annually on one 4km stretch of road near Lennox Head).
- Predation of tadpoles and eggs by the Plague Minnow (*Gambusia holbrooki*). While little is known of the extent of Plague Minnow predation on Olongburra Frogs, it must be considered a potential threat.

Potential Impacts of the Activity

The Activity may result in the disturbance within the Olongburra Frog habitat onsite, due to proposed construction of a shared pathway. Following the mitigations detailed in this report the impacts will be

minor during the pathway's construction. Adjacent parts of the site representing habitat for this species are unlikely to be indirectly impacted by the Activity.

On this basis, it would be highly unlikely that an adverse effect on the life cycle of the Olongburra Frog would occur such that a viable local population of the species is likely to be placed at risk of extinction.

BLOSSOM NOMADS

Grey-headed Flying-fox

Grey-headed Flying-foxes (GHFF) have a distribution that typically extends approximately 200 km from the coast of Eastern Australia, from Rockhampton in Queensland to Adelaide in South Australia. Foraging areas include subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. GHFF feed on the nectar and pollen of native trees, in particular *Eucalyptus, Melaleuca* and *Banksia*, and fruits of rainforest trees and vines, as well as from cultivated gardens and orchards. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy. Individual camps may have tens of thousands of animals and are used for mating, and for giving birth and rearing young. Annual mating commences in January and conception occurs in April or May; a single young is born in October or November. Site fidelity to camps is high; some camps have been used for over a century. GHFF may travel up to 50 km from the camp to forage; commuting distances are more often <20 km.

Threatening processes for this species include:

- Clearing of woodlands for agriculture.
- Loss of roosting and foraging sites.
- Electrocution on powerlines, entanglement in netting and on barbed wire.
- Heat stress.
- Conflict with humans.
- Incomplete knowledge of abundance and distribution across the species' range.

Potential Impacts from the Activity

The Activity may result in the loss of up to 0.37 ha of native vegetation. The subject vegetation comprises a small area of potential foraging habitat for GHFF in a local context. Given the occurrence of extensive areas of woodland and foraging habitat within the locality (in the form of flowering myrtaceous and fruiting garden trees), the Activity represents a minor reduction of foraging habitat which may be utilised by the GHFF. The nearest potential roosting sites occurs 2 km northwest (Woodburn) and 4 km to the south-east (Evans Head) (DCCEEW, 2023). Therefore, no GHFF breeding habitat will be removed as part of the Activity.

On this basis, it would be highly unlikely that an adverse effect on the life cycle of the GHFF would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Common Blossom-bat

Common Blossom-bats often roost in littoral rainforest and feed on nectar and pollen from flowers in adjacent heathland and paperbark swamps. They have also been recorded in a range of other vegetation communities, such as subtropical rainforest, wet sclerophyll forest and other coastal forests. They generally roost individually in dense foliage and vine thickets of the sub-canopy, staying in the same general area for a season. They change roost sites daily, but each roost site is generally only 50m or so away from other recent roosts. Favoured feeding sites are repeatedly visited on consecutive nights within a flowering season and revisited over several years.

Blossom-bats require a year-round supply of nectar and pollen which is gathered from a mosaic of coastal complex vegetation types. When these vegetation types are in short supply of nectar and pollen (Nov/Dec in northern NSW) Common Blossom-bats have been known to utilise riverine areas containing Black Bean, Silky Oak and Weeping Bottlebrush.

Threatening processes for this species include:

- Clearing of coastal habitat for urban development or sandmining.
- Weeds, such as Bitou Bush, that suppresses the regeneration of key food trees, such as Coastal Banksia.
- Predation by foxes and feral cats may occur whilst the bat is feeding on low hanging flowers and fruit.
- Inappropriate fire regimes applied in heathland habitats leading to reduced flowering of Banksia, Callistemon and Melaleuca species.

Potential Impacts from the Activity

The Activity may result in the loss of up to 0.37 ha of native vegetation. The subject vegetation comprises a small area of potential foraging habitat for Common Blossom-bat in a local context. Given the occurrence of extensive areas of woodland and foraging habitat within the locality, the Activity represents a minor reduction of foraging habitat which may be utilised by the Common Blossom-bat.

On this basis, it would be highly unlikely that an adverse effect on the life cycle of the Common Blossom-bat would occur such that a viable local population of the species is likely to be placed at risk of extinction.

BIRDS

Glossy Black Cockatoo

Glossy Black Cockatoo (GBC) inhabit coastal woodland, dry open forests, open inland woodland or along timbered watercourses where *Casuarina* and *Allocasuarina* species commonly occur. In Northern NSW their key food trees belong to the genus *Allocasuarina* and include Forest Oak (*A. torulosa*) and Black Oak (*A. littoralis*). This species is dependent on large hollow bearing Eucalypts for breeding where nests are located within large hollows where single egg is laid between March and May. The female predominantly feeds the chick however and both parents have been observed to feed the young.

Threatening processes for this species include:

- Habitat loss via clearing of woodland areas containing Allocasuarina (food) trees or large eucalyptus (hollow bearing) trees.
- Habitat fragmentation of food resources in relation to nesting trees sites.
- Changing patterns of bushfires in eastern Australia. *Casuarina* and *Allocasuarina* trees are very fire sensitive and are easily killed in an intense fire. Large dead trees where the birds nest may also be destroyed by fire.
- Threats from other animals such as feral cats and possums, which raid bird nests.
- Competition with Galah and feral honeybees for hollow resources.
- Climate change and reduction in resources due to drought.
- Illegal bird smuggling and egg collection.
- Habitat infestation by weeds.

Potential Impacts from the Activity

The Activity may result in the loss of up to 0.37 ha of native vegetation. The subject vegetation comprises a relatively minor amount of potential foraging habitat for the GBC. This includes Swamp

Oak (a food tree for the Glossy Black Cockatoo) within the Activity footprint and surrounding forest vegetation. The Activity footprint does not support important breeding habitat for the species due to the lack large hollow bearing trees which these birds rely on for breeding and nesting. GBC may also disperse across the site and opportunistically forage on occasions when moving between key forest habitat areas and nesting sites more broadly within the surrounding forest.

On this basis it would be highly unlikely that an adverse effect on the life cycle of the GBC would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Eastern Ground Parrot

The Ground Parrot occurs in high rainfall coastal and near coastal low heathlands and sedgelands, generally below one metre in height and very dense (up to 90% projected foliage cover). These habitats provide a high abundance and diversity of food, adequate cover and suitable roosting and nesting opportunities for the Ground Parrot, which spends most of its time on or near the ground. When flushed, birds fly strongly and rapidly for up to several hundred metres, at a metre or less above the ground.

The coastal and subcoastal heathland and sedgeland habitats of the Ground Parrot are particularly fire-prone. Ground Parrots can re-colonise burnt habitat after 1-2 years and reach maximum densities after 15-20 years without fire. Therefore, it is recommended that habitat be protected from extensive and intense fires. Home ranges of adult birds is typically 10 ha and overlapping with other birds, while juveniles have a significantly larger home range. There is no evidence of regular long-distance dispersal or migration events.

Ground Parrots feed mostly on seeds from a large range of plant species, which varies seasonally. An individual bird may consume in the order of 8000 seeds per day from as many as 60 plant species. Other plant material and invertebrates may be ingested. Breeding occurs from September to December and is thought to be triggered by increasing seed availability in spring. 2-7 eggs are laid in a shallow bowl of fine sticks and grass, well hidden under overhanging tall, coarse grass, sedge or low, heathy shrubs. The nest is usually screened from above and sides, often with a tunnel in the surrounding dense plants. The female incubates the eggs for 21-24 days and on average a pair successfully fledges 2 young per season.

Threatening processes for this species include:

- Historical loss and fragmentation of habitat through clearing for agriculture and residential developments.
- Extensive and intense fires which temporarily remove habitat.
- The Eastern Ground Parrot occupies habitat that has not been burnt for between 2 and over 25 years. There is some evidence that too-frequent (< every 2 years) fire may be a threat to the species and that long unburnt (>30 years) habitat may start to lose structural complexity.
- Psittacine Circoviral Disease (PCD) may be a potential threat.
- Dieback of heathland habitats from *Phytophthora* fungus may be a potential threat.
- Predation by foxes and cats may be a threat.

Potential Impacts from the Activity

The Activity may result in the loss of up to 0.37 ha of native vegetation. The subject vegetation comprises a small area of potential foraging habitat for Eastern Ground Parrot in a local context. Given the occurrence of extensive areas of woodland and foraging habitat within the locality, the Activity represents a minor reduction of foraging habitat which may be utilised by the Eastern Ground Parrot. The Activity would not impact any potential nesting habitat for the Eastern Ground Parrot.

On this basis it would be highly unlikely that an adverse effect on the life cycle of the Eastern Ground Parrot would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Grey-crowned Babbler

Grey-crowned Babblers inhabit open Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains; in coastal regions Woodlands on fertile soils are typical habitat. Babblers live in family groups that consist of a breeding pair and young from previous breeding seasons. A group may consist of up to fifteen birds. They feed on invertebrates, either by foraging on the trunks and branches of eucalypts and other woodland trees or on the ground, digging and probing amongst litter and tussock grasses.

Grey-crowned Babblers build and maintain several conspicuous, dome-shaped stick nests about the size of a football, which are used as a dormitory for roosting each night. Nests are usually located in shrubs or sapling eucalypts, although they may be built in the outermost leaves of low branches of large eucalypts. Nests are maintained year round, and old nests are often dismantled to build new ones. Breeding occurs between July and February. Usually, two to three eggs are laid and incubated by the female. During incubation, the adult male and several helpers in the group may feed the female as she sits on the nest. Young birds are fed by all other members of the group. Territories range from one to 50 hectares (usually around 10 hectares) and are defended all year.

Threatening processes for this species include:

- Loss, degradation and fragmentation of woodland habitat on high fertility soils.
- Excessive total grazing pressure and loss of coarse woody debris is resulting in degradation and loss of important habitat components.
- Infestation of habitat by invasive weeds including exotic perennial grasses.
- Inappropriate fire regimes - excessive fires lead to loss of tree and shrub regeneration and absence of fire may lead to the grass sward being too dense and therefore unsuitable for foraging by babblers.
- Aggressive exclusion from forest and woodland habitat by over abundant Noisy Miners.
- Climate change impacts including reduction in resources due to drought.
- Nest predation by species such as ravens and butcherbirds may be an issue in some regions where populations are small and fragmented.

Potential Impacts of the Activity

The Activity may result in the loss of up to 0.37 ha of native vegetation. The subject vegetation comprises a small area of potential foraging habitat for Grey-crowned Babbler in a local context. Given the occurrence of extensive areas of woodland and foraging habitat within the locality, the Activity represents a minor reduction of foraging habitat which may be utilised by the Grey-crowned Babbler.

On this basis it would be highly unlikely that an adverse effect on the life cycle of the Grey-crowned Babbler would occur such that a viable local population of the species would be placed at risk of extinction.

MAMMALS

Koala

The Koala has a fragmented distribution throughout eastern Australia from north-east Queensland to the Eyre Peninsula in South Australia. In NSW, it mainly occurs on the central and north coasts, with populations on the western side of the Great Dividing Range. Habitat consists of eucalypt woodlands and forests, in which the Koala feeds on more than 70 eucalypt species and 30 non-eucalypt species. Preferred browse species differ across regions. Koalas are inactive for most of the day and do most

of their feeding and moving during the night. Although predominantly arboreal, Koalas will descend and traverse open ground to move between trees. Home range size varies with quality of habitat, ranging from less than 2 ha to several hundred hectares in size. Generally solitary, the Koala has complex social hierarchies based on a dominant male with a territory that overlaps that of several females, with sub-ordinate males on the periphery. Females breed at two years of age and produce one young per year.

Threatening processes for this species include:

- Loss, modification and fragmentation of habitat.
- Predation by feral and domestic dogs.
- Intense fires that scorch or kill the tree canopy.
- Road-kills.
- Human-induced climate change, especially drought.

Potential Impacts from the Activity

The Activity may result in the loss of up to 0.37 ha of native vegetation. The subject vegetation is disturbed and comprises a small area of foraging habitat for the Koala in a local context (isolated Forest Red Gum and Swamp Mahogany trees). Given the occurrence of extensive areas of foraging within the locality to the south, where Koala are known to occur, the Activity represents a minor reduction of foraging habitat which may be utilised by the Koala. The as the Activity is to build a new shared pathway (cycling and pedestrians), this would not adversely affect Koalas in regard to increased fatal vehicle strikes .

On this basis, it would be highly unlikely that an adverse effect on the life cycle of the Koala would occur such that a viable local population of the species is likely to be placed at risk of extinction.

b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

i. ***is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or***
ii. ***is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,***

The Activity will have minor direct impacts on the subject TEC.

Approximately up 0.071 ha of *Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions* may require removal for the Activity footprint. It would be highly unlikely that an adverse effect of the subject TEC that it is likely to be paced at the risk of extinction.

c) in relation to the habitat of a threatened species or ecological community:

i. ***the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and***

TEC: The Activity will result in minor removal of *Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions* (0.071 ha) and would not affect the life cycle of the species which makes up the ecological community or simplify floristic composition or vegetation structure. As such, no composition of the ecological community would be substantially or adversely modified such that its local occurrence is likely to be placed at risk of extinction.

Threatened fauna: Native vegetation removal of up to 0.37 ha within the Activity footprint would provide a negligible area of habitat for all of the subject fauna species. This habitat is unlikely to represent core habitat for any of the subject species and would form an insignificant foraging/ breeding/ roosting resource and comprises a negligible portion of more extensive home ranges.

ii. ***whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and***

TEC: The Activity will result in minor removal of *Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions* (0.071 ha) that would occur on the edge of the existing patch. The Activity would not affect the potential for cross-pollination to occur between individuals which make up the ecological community or simplify floristic composition or vegetation structure. Considering the above, no significant fragmentation or isolation of habitat for the subject TEC is likely.

Threatened fauna: minor clearing of up to 0.37 ha required for the Activity would not result in habitat fragmentation for threatened fauna species.

iii. ***the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,***

TEC: A minor removal of 0.01 ha of *Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions.* This 0.071 ha, while a marginal negative outcome, will not have any significant effects of the long-term survival directly or indirectly, of the subject TEC.

Threatened fauna: The habitat to be removed comprises disturbed vegetation within a road reserve, which contains no specific habitat value that do not occur more widely in the locality. No barriers to dispersal for the subject species would be created due to the Activity. Habitat to be removed is unlikely to be of any significant importance to the subject species.

d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

No areas of outstanding biodiversity value occur within vicinity of the Activity.

e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

A key threatening process (KTP) is a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species or ecological communities. The current list of KTP under the BC Act, and whether the Activity is recognised as a KTP is shown in **Table H.1.**

Table H.1 Key Threatening Processes

Key Threatening Process (as per Schedule 4 of the BC Act)	*Is the development or activity proposed of a class of development or activity that is recognised as a threatening process?*		
	Likely	*Possible*	*Unlikely*
Aggressive exclusion of birds by noisy miners (*Manorina melanocephala*)			✓
Alteration of habitat following subsidence due to longwall mining			✓
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands			✓
Anthropogenic climate change			✓
Bushrock removal			✓
Clearing of native vegetation	✓		
Competition and grazing by the feral European Rabbit (*Oryctolagus cuniculus*)			✓
Competition and habitat degradation by feral goats (*Capra hircus*)			✓
Competition from feral honeybees (*Apis mellifera*)			✓
Death or injury to marine species following capture in shark control programs on ocean beaches			✓
Entanglement in or ingestion of anthropogenic debris in marine and estuarine environments			✓
Forest eucalypt dieback associated with over-abundant psyllids and bell miners			✓
Habitat degradation and loss by Feral Horses, *Equus caballus*			✓
Herbivory and environmental degradation caused by feral deer			✓
High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition			✓
Importation of red imported fire ants (*Solenopsis invicta*)			✓
Infection by *Psittacine circoviral* (beak and feather) disease affecting endangered psittacine species and populations			✓
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis			✓
Infection of native plants by *Phytophthora cinnamomi*			✓
Introduction and Establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae			✓
Introduction of the large earth bumblebee (*Bombus terrestris*)			✓
Invasion and establishment of exotic vines and scramblers			✓
Invasion and establishment of Scotch Broom (*Cytisus scoparius*)			✓
Invasion and establishment of the Cane Toad (*Bufo marinus*)			✓
Invasion, establishment and spread of Lantana (*Lantana camara*)			✓
Invasion of native plant communities by African Olive (*Olea europaea L. subsp. cuspidata*)			✓
Invasion of native plant communities by *Chrysanthemoides monilifera*			✓
Invasion of native plant communities by exotic perennial grasses			✓
Invasion of the Yellow Crazy Ant (*Anoplolepis gracilipes*) into NSW			✓
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants			✓
Loss of hollow-bearing trees			✓
Loss or degradation (or both) of sites used for hill-topping by butterflies			✓
Predation and hybridisation by feral dogs (*Canis lupus familiaris*)			✓
Predation by the European Red Fox (*Vulpes vulpes*)			✓
Predation by the feral cat (*Felis catus*)			✓
Predation by *Gambusia holbrooki* (Plague Minnow or Mosquito Fish)			✓
Predation by the Ship Rat (*Rattus rattus*) on Lord Howe Island			✓
Predation, habitat degradation, competition and disease transmission by feral pigs (*Sus scrofa*)			✓
Removal of dead wood and dead trees			✓

The Activity is characteristic of the KTP as follows:

Clearing of Native Vegetation: Refers to the destruction of a sufficient proportion of one or more strata (layers) within a stand or stands of native vegetation. The Activity would require a maximum clearing of 0.37 ha of native vegetation (including 0.071 ha of the subject TEC).

Contributions to any relevant KTPs are minor in a local context.

The degree that the Activity would contribute to any threatening process is not considered likely to place the local population of any of the subject species at significant risk of extinction.

Conclusion

It is considered unlikely that the local population of any of the subject species and TECs would be placed at significant risk of extinction as a result of the Activity.

FM Act Seven-part Test for Threatened Fish

One freshwater fish species, Oxleyan Pygmy Perch (OPP) requires a test of significance.

(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction

OPP has restricted distribution and are located within a small number of swamps, streams and lakes of lowland, coastal 'wallum' heaths between NE NSW and SE Queensland (Knight 2000). More specifically, OPP inhibits slow flowing or still waters (generally <0.1 m/s) up to depths of 1.5 m over substrates of siliceous sand and plant debris. They can occur in very clear to dystrophic water, amongst submerged and emergent vegetation and occasionally woody debris (Thompson et al. 2000). It is therefore evident that OPP has very specific habitat requirements.

Potential impacts from the Activity would likely be the result of indirect impacts from sedimentation. The potential habitat to be impacted is a narrow linear area (drainage line) adjacent to the site. This area is only a very small portion of the available habitats in the locality, the impact would represent <1% of available habitat for these species. The Activity footprint is confined to the existing road and road reserve, with a relatively small amount of suitable habitat likely to be affected. Additionally the Activity footprint has been sighted to minimise impacts to potential OPP habitat (opposite side of the road from the habitat). It is unlikely that the Activity would significantly affect important or specific habitat that is reliant on breeding for either species. The presence of aquatic vegetation and habitat for breeding will continue to be available for these species surrounding the Activity footprint and post-construction.

On this basis, it is unlikely that the Activity would have an adverse impact on the life cycle of either species that it would be placed at risk of extinction.

(b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.

Not applicable

(c) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity—

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction

Not applicable

(d) in relation to the habitat of a threatened species or ecological community—

(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed,

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the action proposed,

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

Potential impacts from the Activity would likely be the result of indirect impacts from sedimentation. The potential habitat to be impact is a narrow linear area (drainage line) adjacent to the site.

The Activity would not impede OPP movement with the associated with vegetation removal or pathway construction The drainage line is not a key fish passageway or significant freshwater tributary for the locality. OPP would not be isolated or have habitat fragmented due to the Activity. The implementation of mitigation controls to sediment would be designed to allow water flow within the OPP habitat.

Better quality OPP habitat occurs within the locality outside of the site which will not be impacted by the Activity. No fragmentation or isolation or direct impacts to OPP habitat is likely to occur as a result of the works. The Activity is unlikely to result in a significant reduction in the habitat values associated with the aquatic habitat during the vegetation removal works. Post vegetation removal, the habitat values should largely be retained.

(e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),

No areas of critical habitat have been declared for the subject species.

(f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threatened abatement plan.

An approved recovery plan for OPP has been prepared, however due to the minor nature and minor potential indirect impacts of the Activity, the Activity is unlikely to conflict or impede with the objectives of the OPP recovery plan.

(g) whether the action proposed constitutes or is part of a threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

An assessment of the activity with regards to potential contribution towards or operation of key threatening processes (KTPs) listed under Schedule 6 of the FM Act is provided in **Table** .

Table H.2 Assessment of Key Threatening Process (FM Act)

	Likely	*Possible*	*Unlikely*
Current shark meshing program in NSW waters			✓
Hook and line fishing in areas important for the survival of threatened fish species			✓
Human-caused climate change			✓
Instream structures and other mechanisms that alter natural flow			✓

Introduction of non-indigenous fish and marine vegetation to the coastal waters of NSW			✓
The introduction of fish to fresh waters within a river catchment outside their natural range			✓
The removal of large woody debris from NSW rivers and streams			✓
The degradation of native riparian vegetation along NSW water courses			✓

The activity is not characteristic of any KTPs and is not likely to result in the operation of or increase the impact of any KTP. With the prescribed safeguards implemented the impacts to threatened fish via impacts to habitat is reduced. The degree that the proposed action would contribute to any key threatening process is not considered likely to place the local population of any of the OPP at significant risk of extinction.

Conclusion

It is considered unlikely that the local population of any of the OPP would be placed at significant risk of extinction as a result of the Activity.

EPBC Significance Assessments

For threatened biodiversity listed under the EPBC Act, significance assessments have been completed in accordance with the *EPBC Act Policy Statement 1.1 Significant Impact Guidelines* (Department of Environment, 2013). These significance assessments have been prepared for the following community and threatened species:

- Vulnerable species:
  - Olongburra Frog
  - Grey-headed Flying-fox
  - Glossy Black-Cockatoo
- Endangered Species:
  - Koala
  - Oxleyan Pygmy Perch

EPBC Vulnerable Species

The Olongburra Frog, Grey-headed Flying-fox and Glossy Black-Cockatoo are listed as Vulnerable under the EPBC Act. The following assessment has been undertaken following the Matters of National Environmental Significance, Significant Impact Guidelines 1.1. Under the Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity, and/or
- at or near the limit of the species range.

Is this part of an important population:

Olongburra Frog

Oblongburra Frog has been recorded on the east coast of NSW from Brunwicks Head and south to Wooli. Potential Olongburra Frogs at or near the site would not be at the limit of the species range. Furthermore, the habitat at the site does not feature *Baumea* sp. and *Schoenus* sp. that are characteristic of breeding habitat. However, the national recovery plan for the species (DCCEEW, 2006) states that Olongburra Frogs which occur within the Broadwater National Park are part of an important population.

The site occurs just outside the of the Broadwater National Park, however any species that occurs at the site would be considered as part of an important population.

Grey-headed Flying-fox

Grey-headed Flying-fox (GHFF) occur across a range of wooded habitats where their favoured food, eucalypt blossom occurs. They set up roosting camps in association with blossom availability, which are usually situated in dense vegetation and associated with water. GHFF can migrate up to 75 km north during the winter and during this time young flying-foxes establish camps.

With reference to National Flying-fox monitoring viewer, there are no recorded Flying-fox camps within the site (DCCEEW). The closest significant recorded camps in relation to the site include:

- Woodburn (North Woodburn camp #509) – approximately 2 km to the north-west of the site, according to the National Flying Fox monitoring viewer this camp includes 2500+ individuals in 2015.

- Evans Head (Evans Head camp #239) – approximately 4 km south-east of the site, according to the National Flying Fox monitoring viewer this camp includes between 2500+ individuals from surveys in 2022.

Occurrences of this species within the site are not at the limits of the species' distribution, nor are any maternity camps present in the site, and as such the habitat within the site can only be considered to represent a part of the foraging range of widely occurring individuals.

Overall, the Activity is not expected to result in a significant reduction of occupancy for any important GHFF populations.

Glossy Black Cockatoo

Glossy Black Cockatoo (GBC) Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of She Oak occur. *Allocasuarina* and *Casuarina* tree species are important foods. While Swamp Oak (*Casuarina glauca*) occurs at the site, however the scope of the Activity will not require removal of these trees. Additionally, no hollow-bearing trees do not occur at the site.

Occurrences of this species within the site are not at the limits of the species' distribution, and as such the habitat within the site can only be considered to represent a part of the foraging range of widely occurring individuals.

Overall, the Activity is not expected to result in a significant reduction of occupancy for any important GBC populations.

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will result in one or more of the following:

- **Lead to a long-term decrease in the size of an important population of a species**

Olongburra Frog

The Activity may result in the loss of up to 0.37 ha of native vegetation, however none of which would be foraging or breeding habitat for the Olongburra Frog. Impacts from sediment and erosion would be mitigated by suitable controls in place near suitable habitat that occurs at the site. Therefore, the Activity is not likely to lead to a long-term decrease in the population of the Olongburra Frog.

Grey-headed Flying-fox

The population subject to the proposed action is not considered an important population (refer above).

Glossy Black Cockatoo

The population subject to the proposed action is not considered an important population (refer above).

- **Reduce the area of occupancy of an important population**

Olongburra Frog

The Activity may result in the loss of up to 0.37 ha of native vegetation, however none of which would be foraging or breeding habitat for the Olongburra Frog. The removal of this vegetation would have minimal impact on the area of occupancy of the species.

Grey-headed Flying-fox

The population subject to the proposed action is not considered an important population (refer above).

Glossy Black Cockatoo

The population subject to the proposed action is not considered an important population (refer above).

- **Fragment an existing important population into two or more populations**

Olongburra Frog

The site is located within the road reserve of Woodburn-Evans Head Road and the Activity would not increase any fragmentation that has already occurred. Therefore, the Activity would not contribute to the further fragmentation of an existing important population into two or more populations of the subject species.

Grey-headed Flying-fox

The population subject to the proposed action is not considered an important population (refer above).

Glossy Black Cockatoo

The population subject to the proposed action is not considered an important population (refer above).

- **Adversely affect habitat critical to the survival of a species**

Olongburra Frog

Critical habitat for the Olongburra Frog is defined as wallum acidic swamps, with pH less than 6 and featuring a range of emerging sedge species (DCCEEW, 2006).

While native vegetation removal is required as part of the Activity, no habitat critical to the species will be removed. On the basis the Activity will not adversely affect habitat critical to the survival of the species.

Grey-headed Flying-fox

The foraging habitat within the site meets the criteria for habitat critical for the survival of GHFF due to its proximity to existing camps (within 50 km) (DCCEEW, 2021).

However, the removal of 0.37 ha of native vegetation would result in minimal impacts to foraging habitat for the GHFF and the Activity would not impact on roosting sites for the species. On the basis the Activity will not adversely affect habitat critical to the survival of the species.

Glossy Black Cockatoo

The habitat ai the site is low quality with better habitat in the greater locality. However, while some feed trees occur that the site, the removal would not be a significant loss. Additionally, not hollow-bearing trees occur at the site (an important for breeding resource). On the basis the Activity will not adversely affect habitat critical to the survival of the species.

- **Disrupt the breeding cycle of an important population**

Olongburra Frog

The site is located within the road reserve of Woodburn-Evans Head Road and the Activity would not have any direct impacts on breeding habitat of the Olongburra Frog. It is unlikely indirect impacts would have significant effects on breeding with mitigations and controls in place during the Activity works.

On this basis the Activity would not disrupt the breeding cycle of an important population of the Olongburra Frog.

Grey-headed Flying-fox

The population subject to the proposed action is not considered an important population (refer above).

Glossy Black Cockatoo

The population subject to the proposed action is not considered an important population (refer above).

- **Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline**

Olongburra Frog

No, the scope of the Activity would not modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

Grey-headed Flying-fox

No, the scope of the Activity would not modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

Glossy Black Cockatoo

No, the scope of the Activity would not modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

- **Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat**

Olongburra Frog

No, the Activity would not result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.

Grey-headed Flying-fox

No, the Activity would not result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.

Glossy Black Cockatoo

No, the Activity would not result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.

- **Introduce disease that may cause the species to decline**

Olongburra Frog

In Australia, frogs are susceptible to the amphibian chytridiomycosis, an exotic disease caused by the chytrid fungus *Batrachochytrium dendrobatidis*. With mitigations in place and frog hygiene practices adhered to when working near Olongburra Frog habitat, it is unlikely the Activity will introduce this disease.

Grey-headed Flying-fox

Australian flying-foxes, including the GHFF, are natural reservoirs for at least three diseases - Australian Bat Lyssavirus (ABL), Hendra virus and Menangle virus. While injured and orphaned Grey-headed Flying-foxes have a higher chance of testing positive for ABL, it is unlikely the Activity will introduce this disease.

Glossy Black Cockatoo

GBC are susceptible to contracting Psittacine Beak and Feather Disease (PBFD). However, it is unlikely the Activity will introduce this disease.

- **Interfere substantially with the recovery of the species**

Olongburra Frog

No, due to the scope of the works and the level of disturbance, the Activity would not interfere substantially with the recovery of the species.

Grey-headed Flying-fox

No, due to the scope of the works and the level of disturbance, the Activity would not interfere substantially with the recovery of the species.

Glossy Black Cockatoo

No, due to the scope of the works and the level of disturbance, the Activity would not interfere substantially with the recovery of the species.

Conclusion

Overall due to the relatively low extent and magnitude of impacts associated with the Activity, it is unlikely that the Activity would result in a significant impact to Olongburra Frog, GHFF and GBC.

EPBC Endangered Species

The Koala and Oxleyan Pygmy Perch (OPP) are listed as Endangered under the EPBC Act. The following assessment has been undertaken following the Matters of National Environmental Significance, Significant Impact Guidelines 1.1. Under the Act, populations are:

- a geographically distinct regional population, or collection of local populations, or
- a population, or collection of local populations, that occurs within a particular bioregion.

An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will result in one or more of the following:

- **Lead to a long-term decrease in the size of a population**

Koala

The native vegetation clearing (0.37 ha) will predominately consist of ground cover species, regrowth trees/ shrubs and planted hedgerows. These impacts would be negligible loss of potential foraging habitat for a local Koala population. Additionally, the Activity would not increase vehicle strikes to Koalas.

On this basis, the Activity would not lead to a long-term decrease in the size of the local Koala population.

Oxleyan Pygmy Perch

No vegetation clearing would occur within the OPP habitat. Additionally, with controls to mitigate any potential deleterious effects due to erosion, sediment and/ or oil and fuel leaks, the impacts would be negligible for a local OPP population.

On this basis, the Activity would not lead to a long-term decrease in the size of the local OPP population.

- **Reduce the area of occupancy of the species**

Koala

The Activity may result in the loss of up to XX ha of vegetation, which predominately consists of ground cover species, regrowth trees/ shrubs and planted hedgerows. The proportional impact to this potential habitat is very small and would constitute <1% of available habitat for the species. Due to the Activity occurring within a disturbed and highly modified area, it is considered unlikely that local population of Koala would be restricted to the site.

On this basis the Activity would not reduce the area of occupancy of the species.

Oxleyan Pygmy Perch

No. The scope of the Activity does not involve direct impacts to waterways that would reduce the area of occupancy of the species.

- **Fragment an existing population into two or more populations**

Koala

Habitat within the site is already fragmented at a local scale by historic clearing and development. Landscape scale fragmentation is unlikely to occur from the Activity as the scope of work would involve removing vegetation from small, isolated patches rather than breaking apart of large blocks of vegetation into many smaller patches. No further habitat fragmentation on a landscape scale would occur as a result of the Activity.

On this basis, the Activity would not result in the fragmentation of an existing population into two or more populations.

Oxleyan Pygmy Perch

No. The scope of the Activity does not involve direct impacts to waterways that would result in the fragmentation of an existing population into two or more populations.

- **Adversely affect habitat critical to the survival of a species**

Koala

The vegetation clearing may remove some ancillary use Koala trees (such as *Casuarina glauca* and *Melaleuca quinquenervia*), these trees occur in a disturbed road reserve and are unsuitable to support Koalas (regrowth/ small size). Therefore, the Activity would not result in significant impacts that would adversely affect habitat critical to the survival of the Koala.

Oxleyan Pygmy Perch

No. The scope of the Activity does not involve direct impacts to waterways that would adversely affect critical habitat to the OPP. Additionally, with mitigations and controls in place to indirect impacts, there

will be no significant impacts that would adversely affect critical habitat to the OPP and a result of the Activity.

- **Disrupt the breeding cycle of a population**

Koala

Due to the Activity occurring within disturbed and highly modified area, it is considered unlikely that local population of Koala would be restricted to the site. Habitat within the site is already fragmented at a local scale by the historic clearing for Woodburn-Evans Head Road and neighbouring properties. The Activity unlikely to exacerbate movement or significantly reduce area of occupancy of breeding individuals for the population. It is unlikely the Activity would significantly disrupt the breeding cycle of the population of Koalas.

Oxleyan Pygmy Perch

The Activity is unlikely to affect the breeding cycle of OPP, particularly if mitigations area in place to limit potential indirect impacts to the OPP habitat adjacent site. On this basis the Activity would not significantly disrupt the breeding cycle of the population of OPP.

- **Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline**

Koala

The vegetation within the road reserve is disturbed from frequent mowing/ slashing and road maintenance activities. The Activity is limited to this area and would not have direct impacts on better quality habitat outside of the road reserve and Activity footprint. Therefore, on this basis the Activity would not modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the Koala is likely to decline.

Oxleyan Pygmy Perch

The Activity would not have direct impacts that would modify, destroy, remove, or decrease availability of physical OPP habitat adjacent the site. With mitigations in place there would not be significant indirect impacts that would affect the OPP habitat (such as water quality). On this basis the Activity would not modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that OPP is likely to decline.

- **Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the critically endangered or endangered species' habitat**

Koala

It is unlikely that invasive species (such as introduced predators) that are harmful to the Koala would become further established as a result of the Activity.

Oxleyan Pygmy Perch

It is unlikely that the Activity would introduce Plague Minnow (*Gambusia holbrooki*), or other exotic fish species that are harmful to OPP habitat adjacent to site.

- **Introduce disease that may cause the species to decline**

Koala

It is unlikely that the Activity would significantly fragment a koala population to the point where dispersal is limited and therefore disease transmission between individuals is increased. As

Chlamydia bacteria in Koalas and Koala Retrovirus is primarily transmitted between Koala individuals it is unlikely that the Activity would introduce disease that may cause the species to decline.

Oxleyan Pygmy Perch

The Activity is unlikely to introduce any disease that would cause a decline to OPP.

- **Interfere substantially with the recovery of the species**

Koala

No, due to the scope of the works and the level of disturbance, the Activity would not interfere substantially with the recovery of the species.

Oxleyan Pygmy Perch

No, due to the scope of the works and the level of disturbance, the Activity would not interfere substantially with the recovery of the species.

Conclusion

Overall due to the relatively low extent and magnitude of impacts associated with the Activity and with mitigations put in place where required, it is unlikely that the Activity would result in a significant impact to Koala or Oxleyan Pygmy Perch.

Assessment of Significance References

Department of Climate Change, Energy the Environment and Water (2023). National Flying-fox Monitoring Viewer. Available: https://www.environment.gov.au/webgis-framework/apps/ffc-wide/ffc-wide.jsf

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