INLAND RAIL

ILLABO TO STOCKINBINGAL PROJECT

I2S | Consistency Assessment (Minor) - Combined Services Route Works

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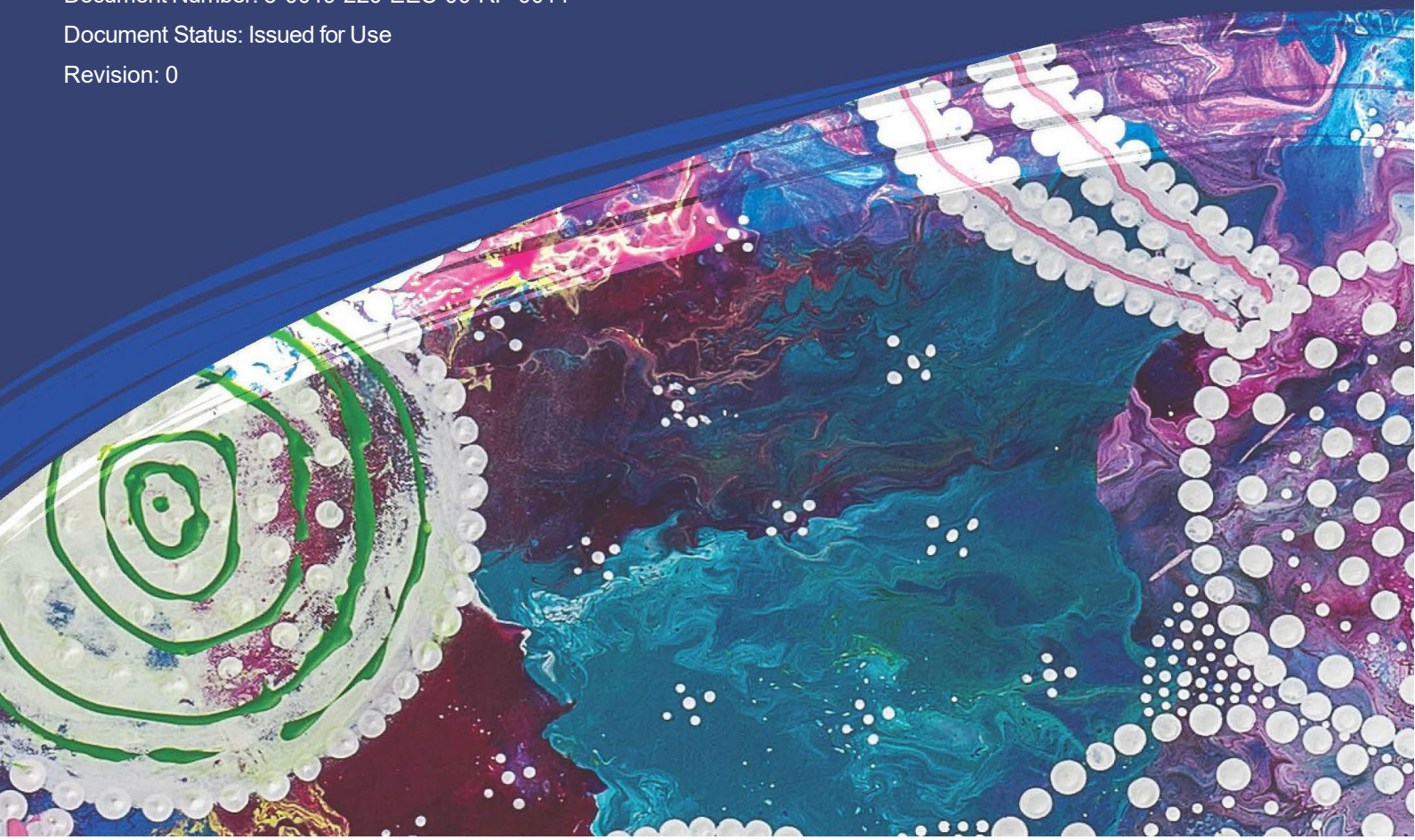

EIS CONSISTENCY ASSESSMENT REPORT (MINOR)

Combined Services Route Works

5-0019-220-EEC-00-RP-0014

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Appendices

Glossary

Specific terms and acronyms used throughout this strategy are listed and described in the table below.

TERM	DEFINITION
Action Management Plan	*EPBC Act:* In relation to an action, means a plan for managing the impacts of the action on a matter protected by a provision of Part 3, such as a plan for conserving habitat of a species.
ACHAR	Aboriginal Cultural Heritage Assessment Report
ASS	Acid Sulfate Soil
ARTC	Australian Rail Track Corporation
Change	Macquarie Dictionary: A variation, adjustment, alteration, deviation or transformation to the project scope, construction methodology or design.
CIZ	Construction Impact Zone
Consistent	Macquarie Dictionary: Agreeing or accordant; compatible; not self-opposed or self-contradictory; constantly adhering to the same principles, course, etc.
Consistent with	Means that carrying out the project (as approved) will comply with the terms of the approval despite the proposed change. (See Barrick Australia Ltd v. Williams [2009] NSWCA 275)
Compatible	Macquarie Dictionary: Capable of existing in harmony. Capable of orderly, efficient integration with other elements in a system.
CCS	Community Communication Strategy
Division 5.2 Approval	An approval under Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979* for State Significant Infrastructure / Critical State Significant Infrastructure.
DPHI	Department of Planning, Housing and Infrastructure
EPBC Approval	An approval of a controlled action issued by the Australian Government Minister under Section133 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.
I2S	Illabo to Stockinbingal section of the Inland Rail Project
km	kilometres
LGA	local government area
Modification of an Approval	Section 5.25 *Environmental Planning and Assessment Act 1979*: Means changing the terms of the Division 5.2 approval, including revoking or varying a condition of the approval or imposing an additional condition on the approval.
Division 5.2 Approval	An approval under Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979* for State Significant Infrastructure / Critical State Significant Infrastructure.
OOHW	Out of Hours Works
ROL	Road Occupancy License

1 Introduction

1.1 Background

ARTC completed an environmental impact statement of the Inland Rail: Illabo to Stockinbingal (I2S) (the project EIS) in August 2022. The EIS identified a range of environmental, social and planning issues associated with the construction and operation of the Inland Rail: Illabo to Stockinbingal Project and proposed measures to mitigate and manage those potential impacts.

The EIS was exhibited by the Department of Planning, Housing and Infrastructure (DPHI) for a period of six (6) weeks, commencing on 14 September 2022 and concluding on 26 October 2022. Following public exhibition, submissions from stakeholders were received and addressed by Inland Rail in the submissions report.

The Minister for Planning and Public Spaces approved the Inland Rail: Illabo to Stockinbingal Project under Division 5.2, Part 5 of the *Environmental Planning and Assessment Act 1979 (EP&A Act)* on 4 September 2024 (application number SSI-9406). The approval incorporated the Minister's Conditions of Approval (CoA).

For the purposes of this consistency assessment, the approval issued by the NSW Minister for Planning and Public Spaces for the Inland Rail: Illabo to Stockinbingal Project is referred to as the Division 5.2 approval.

The Inland Rail: Illabo to Stockinbingal Project was referred to the Australian Government Minister for the Environment under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to potential substantial impacts to listed threatened species and communities and was subject to assessment via the NSW Bilateral agreement with the Commonwealth. The Australian Government Minister's approval was received on 28 October 2024 subject to a number of conditions being met. For the purposes of this consistency assessment, the approval issued by the Australian Government Minister for the Environment for the Inland Rail: Illabo to Stockinbingal Project is referred to as the EPBC approval (2018/8233).

This consistency assessment considers whether the construction of Combined Services Route (CSR) which includes several Underline Crossings (ULX) and Under-road Crossings (URX) within the existing Main South Line ARTC Railway Corridor (MSL) (which is located outside the Proposal Site) is consistent with the impacts described in the EIS. The proposed works are located outside of the construction footprint, adjacent to the approved construction project.

The Construction Impact Zone (CIZ) assessed by the EIS, does not extend far enough to incorporate the various CSR works required to facilitate the construction and operation of the Project. The required activities subject to this Consistency Assessment include minor activities such as trenching across the MSL and Olympic Highway to install conduits followed by the backfilling and reinstatement of the rail/road surface. These works are required to take place during the September possession where the works can be completed safely and without impacting ARTC railway operations. More details associated with the methodology and assessment of potential impacts to confirm consistency with those identified in the EIS are provided in the following sections. It's noted that some pre and post works will also be required i.e. service locating, mobilization/demobilization etc.

1.2 Purpose of consistency assessment

The purpose of this consistency assessment is to:

- Describe the proposed change relative to the 5.2 approval and the EPBC approval.
- Assess the environmental impacts associated with the proposed change relative to the Division 5.2 approval and the EPBC approval. Determine if the proposed change is consistent with the 5.2 approval or whether further approval is required either for a modification application or a new project.
- Determine if the proposed change is consistent with the EPBC approval, or whether a variation to the conditions of approval / a conditioned action management plan or a new referral is required.

2 Proposed Change

2.1 Description of proposed change

Following approval of the Project, John Holland has progressed from concept design to detailed design, which has identified the need for various utility CSRs throughout the Project. The CSRs will include AC power to locations, local cable routes to signaling equipment, location-location multi-core cables and fibre optic services. While the need for utility installations and CSR works was generally outlined in the EIS, the works have been identified outside the Construction Impact Zone (CIZ) at several locations. The specific works include the following which is also shown in Figure 2-1, Figure 2-2 and Figure 2-3.

- ULX at chainage 466.159km
- URX at chainage approximately 466.159km at the Olympic Highway
- ULX at chainage 468.140km
- CSR longitudinal trench between chainage 467.600km to 468.140km

As detailed in Section 8.2.9 of the EIS (Signaling and controls works), the installation of cable routes and conduits are required to connect into the existing network to facilitate the safe operation of the Project. The location of these works are not shown on figures in the EIS. The Utilities Management Framework (Appendix F of the EIS) also states that it is anticipated that some utility needs would be required outside the project footprint.

The proposed CSR works (i.e. trenching, laying pipe/conduit and backfilling) described in this Consistency Assessment are outside the approved EIS construction footprint. The proposed works are wholly contained with the existing ARTC railway corridor on the MSL which has been previously subject to significant disturbance. The proposed works will be localised with minimal disturbance and will be undertaken for the purposes of connecting the utilities required for safe operation of the Project. There is no vegetation removal proposed for these works. Should circumstances on site result in the need for minor grubbing and trimming of tree branches to allow adequate clearance, this would be subject to pre-clearance to confirm that the works would not impact on biodiversity values. More information on this process is included in Section 4.

Figure 2-1, Figure 2-2 and Figure 2-3 identify the anticipated footprint of works. Exact locations would be optimised to avoid services, ground conditions and other site-specific constraints, however, the works associated would remain within the areas assessed in this Consistency Assessment.

The scope of this Consistency Assessment includes the construction of several CSRs within locations provided in Figure 2-1, Figure 2-2 and Figure 2-3 using the work/construction methodology provided in Section 2.1.1.

2.1.1 Work Methodology for Proposed Change

The proposed change is anticipated to involve the following work methodology

- Establish environmental controls, demarcation, safety barriers and any other relevant site setup/establishment works.
- Surveying/service searching which will be undertaken during standard hours from 03/09/2025 until the commencement of the possession.
- Mark out location for the trenching works using tape and paint or other appropriate methods
- For ULX works:
  - Removal of ballast and spoil
  - Placement of conduits at the desired depth
  - Backfilling with site-won material and appropriate capping layers/ballast.
  - Reinstatement of the disturbed section of the track.

  The ULX trenches will be approximately 15-20m long, 500mm wide and 1.5-2m deep.
- The URX works under the Olympic Highway will be constructed using an underbore. An entry and exit pit will be required either side of the Olympic Highway.
- For the CSR longitudinal trench:
  - Excavation of the CSR route with material being sidecast.
  - Installation of the CSR conduits

  - Backfilling with site-won material and appropriate capping layers.

  The CSR longitudinal trench will be approximately 524m long, 500mm wide and 1.5-2m deep.
- Any excess material that cannot be reused on site will be temporarily stockpiled in the site area or taken back to the designated MAF. Temporary stockpiles will be managed in accordance with the Site Environment Plan (SEP) and ERSED Plan, which includes mitigation measures required for the management of stockpiles and erosion and sediment control also included.

The proposed works would take 3 days to complete, which will be undertaken during and outside standard construction hours during the September possession. The CSR longitudinal trench may in some cases be undertaken in the weeks following the possession. Potholing/service searching will be undertaken during standard hours from 03/09/2025 until the commencement of the possession.

Under Condition E1 of the conditions of approval for the Project, work would be undertaken during the following hours:

- 7:00 am to 6:00 pm Mondays to Fridays;
- 7:00 am to 6:00 pm Saturdays; and
- at no time on Sundays or public holidays.

Any works undertaken outside standard construction hours will be done in accordance with EPL #22021. Where the works are being undertaken prior to CEMP and main Construction approval, a Low Impact Works Application (LIWA) will also be required which will confirm the works meet the definition of LIW in the Infrastructure Approval (SSI-9406).

Expected equipment would include:

- 1 x Vacuum truck
- 1 x Excavator (20-35t)
- 1 x Hydrema
- 1 x Wacker packer
- 3 x Light vehicles
- 2 x Truck (various)
- Hand tools
- 1 x Water cart
- 1 x Drill rig (for underboring)

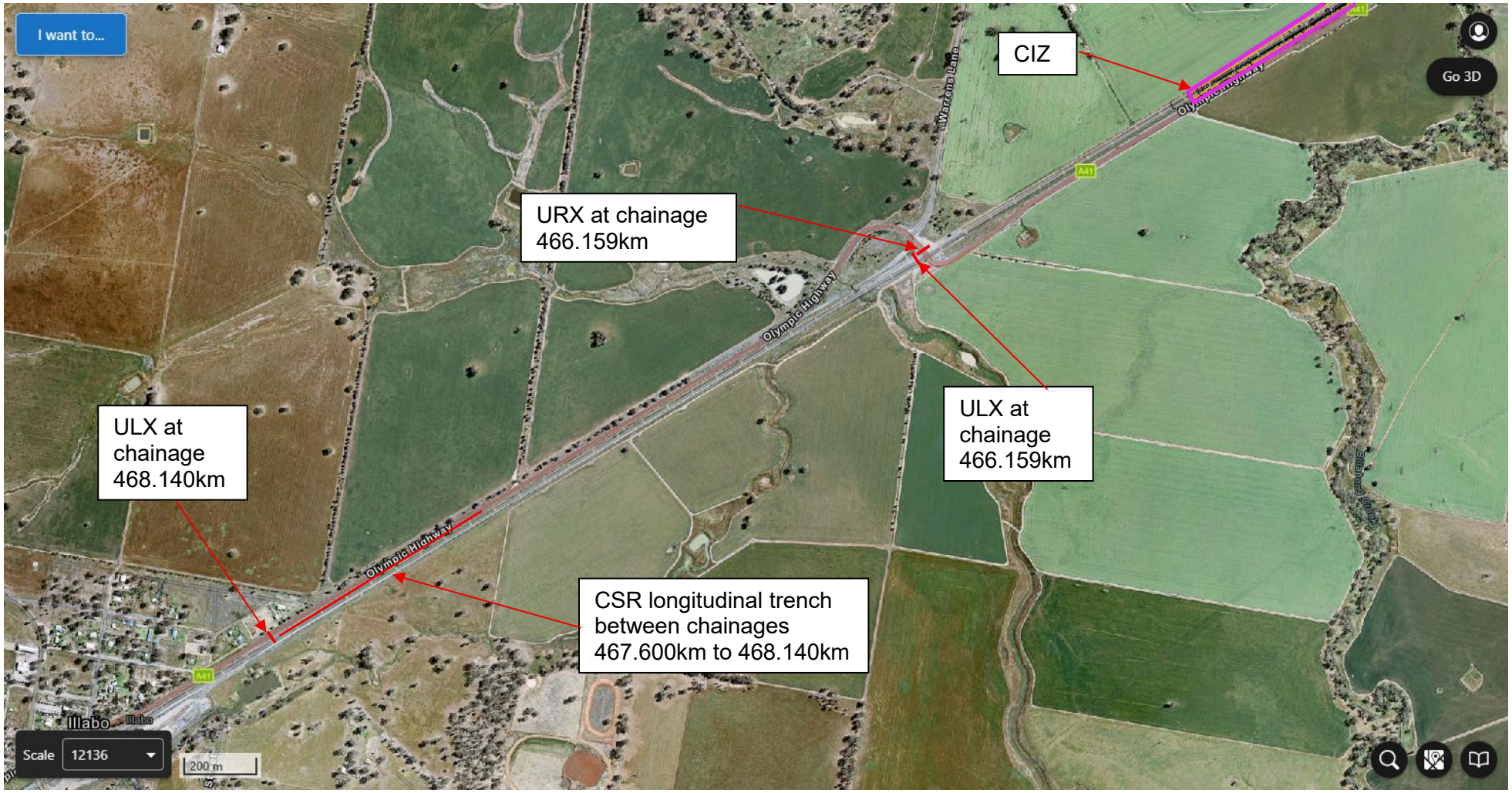


Figure 2-1 Overview map of the proposed works in relation to the CIZ

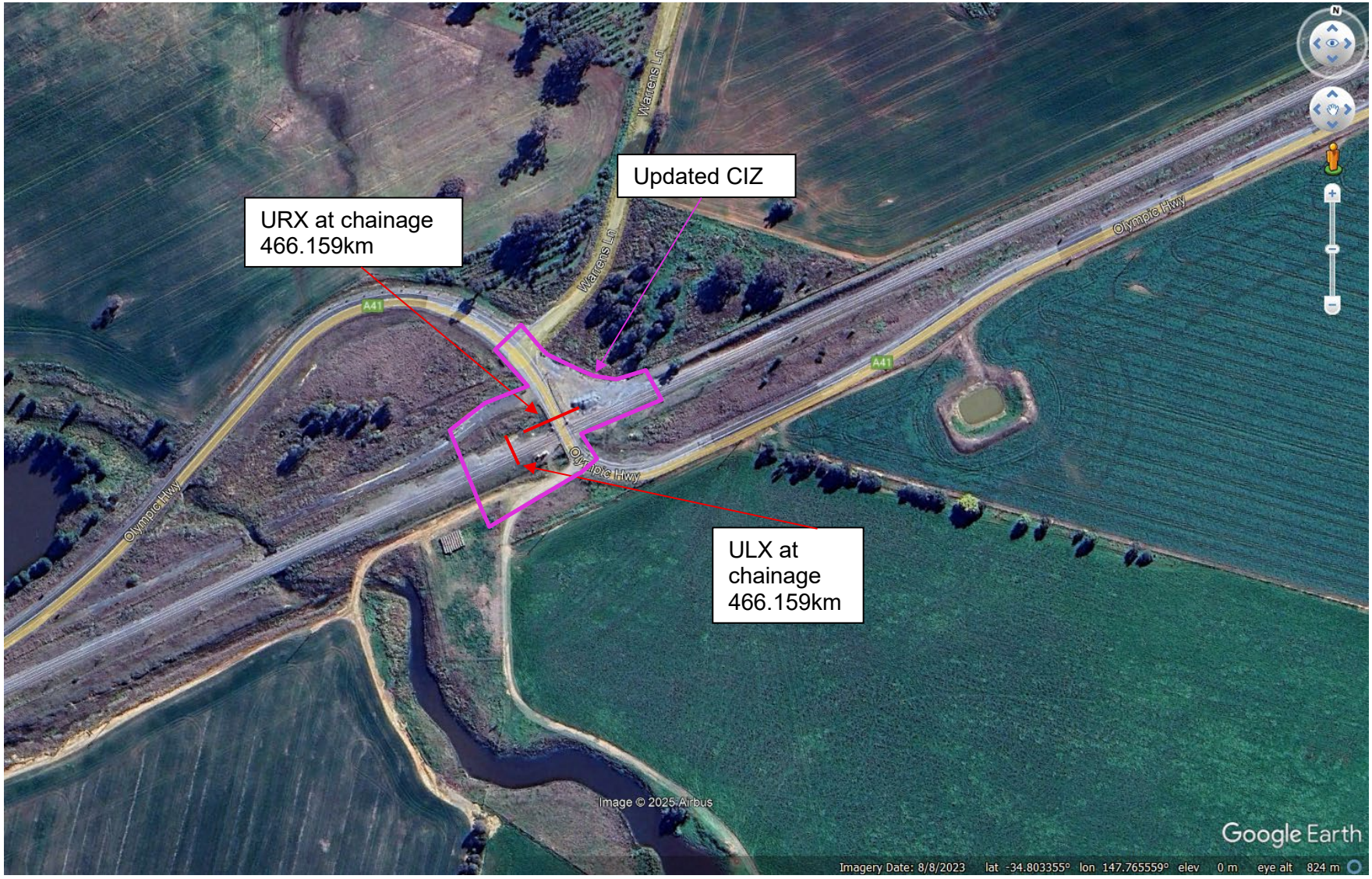


Figure 2-2 Location of ULX and URX at chainage 466.159km

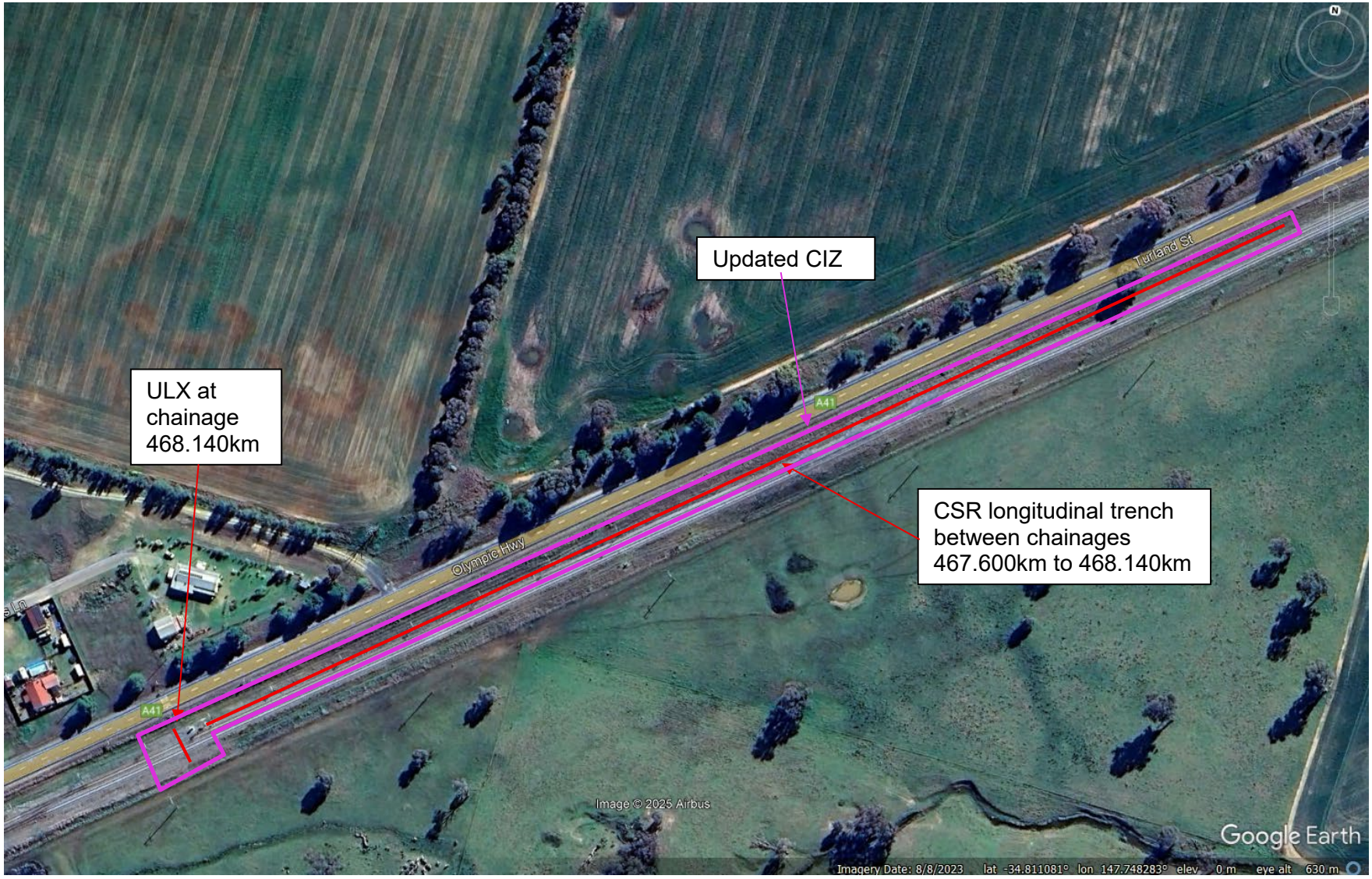


Figure 2-3 Location of ULX at chainage 468.140km and CSR longitudinal trench between chainage 467.600km to 468.140km.

2.2 Need

The proposed change has been developed and reviewed in the context of Division 5.2 approval and EPBC approval. The relationship between the proposed change and the approvals is considered in detail in the Environmental Assessment Documentation. As detailed in Section 8.2.9 of the EIS (Signaling and controls works), the installation of cable routes and conduits are required to connect into the existing network to facilitate the safe operation of the Project. The ULXs and URX works are a part of CSR design and will have signaling services in them including AC power to locations, local cable routes to signaling equipment, location-location multi-core cables and fibre optic services.

The location of the CSRs was selected and refined based on operational needs, minimisation of impact on the environment (e.g. avoid native vegetation clearing, less investigative works due to the existing Telstra utility adjacent to the proposed pipeline), location of existing services to tie into, proximity to other access roads and local roads, proximity to the railway track and general site conditions.

2.3 Location and setting

The Project is a new rail corridor that would connect Illabo to Stockinbingal between the Junee Shire and Cootamundra-Gundagai LGAs. The alignment branches out from the existing rail line north-east of Illabo and travels north to join the Stockinbingal–Parkes Line west of Stockinbingal. The alignment passes through agricultural and rural properties in the Riverina region of NSW and generally follows the existing cadastral boundaries and roads between the towns of Illabo and Stockinbingal.

The proposed works are located directly south-west of the southern extent of the CIZ, running parallel to Olympic Highway the existing ARTC MSL railway corridor. The extent of the proposed works is between chainage 466.149km And 468.140km and is located wholly within the ARTC MSL railway corridor. Existing services will remain unaffected at this stage of the investigation works with non-destructive investigative measures (i.e. vacuum truck) to be used to locate services only.

3 Consultation

Inland Rail does not always carry out consultation for consistency assessments. However, in some cases consultation may be carried out to:

- Help identify the nature and scale of the impacts.
- Involve the community in the options considerations for the proposed change.
- Manage community expectations for the project.
- Provide the best design outcome that minimises environmental impacts.

Consultation for the project is prescribed within the Inland Rail: Illabo to Stockinbingal Community Communication Strategy (CCS).

John Holland's communication and engagement objective throughout the project development and delivery timeline is to ensure the community and stakeholders are kept informed about construction activities, and to regularly provide updates on progress. Providing accurate and current information is essential to managing community expectations and encouraging an understanding of the project and its benefits.

John Holland has undertaken consultation for these works with ARTC/IRPL. This includes meetings and email correspondence to confirm requirements associated with undertaking works in each area.

John Holland will continue to consult with stakeholders and provide project feedback and updates in accordance with the approved Community Communication Strategy as well as ensure access agreements are managed for access to private properties for these works (in accordance with the Conditions of Approval). This includes specific consultation with potentially affected residents as a result of any high impact noise or potential Out of Hours Works (OOHW).

The landowner relevant to this application is Property #1 – Peter McInerney and Peter Curren. In accordance

with CoA C7 and C8, written permission from the landowner has been obtained for use of the existing private access to access the works sites.

4 Consistency assessment review

An environmental risk review of the proposed activity has been undertaken and is provided below in Table 4-1. Environmental constraint maps are provided in Appendix A.

Table 4-1Consistency assessment review

ISSUE	Y/N	NOTES
Are works required outside the IR property acquisition boundary, or land not previously impact on by project works?	Yes	The proposed works, although outside the CIZ, will occur wholly within the existing ARTC MSL railway corridor. No works will occur on private property or land subject to any property acquisition provisions.
Will the works result in any changes to form or functionality of the approved project?	No	The proposed works are required to facilitate safe operation of the Project and will not result in any changes to form or functionality of the approved project.
Do the works require any changes or new traffic access arrangements?	No	The proposed works would be in proximity to existing roadways including Olympic Highway. The works would utilise existing ARTC haul roads and access points. No additional access tracks or gates/access points would be required. Some additional traffic on Olympic Highway is expected due to the presence of additional vehicles, plant and machinery travelling to and from the proposed works area however this will be minimal and short term. Approximately 10 light vehicles and 4 heavy vehicles would access the site per day during the possession. Post possession works (CSR longitudinal trench) will consist of approximately 2 heavy vehicle and 5 light vehicles movements per day. There are no road, lane or footpath closures, temporary road closures/diversions required as a result of the works.
Are the works within 50m of an EEC or threatened species?	No	A review of the NSW State Vegetation Type Map on the Central Resource for Sharing and Enabling Environmental Data in NSW (SEED) database which confirmed that there is no EEC or PCT vegetation within 50m of the proposed works. The works will not impact any PCT or EEC vegetation. A review of the BioNet Atlas database was undertaken. As shown in Appendix A, there are no threatened flora or fauna species within the work area. There are several threatened species within the 10km x 10km buffer area however they will not be impacted by the proposed works. It's noted that there is a Diamond Firetail (Stagonopleura guttata) sighting record approximately 60m from the work area however it will not be impacted by the proposed works. A review of the Inland Rail – Albury to Illabo EIS, Chapter 16 and Technical Paper 8 confirms that there is no EEC vegetation within or directly adjacent to the work area. Vegetation is limited to grasses mapped as 'Miscellaneous ecosystem – highly disturbed areas with no or limited native vegetation'. See Appendix A for further details. An ecological inspection was undertaken by OzArk which verified the above points and concluded that the proposed work would not impact any biodiversity values. See Appendix F for further details.
Do the works require clearing of native vegetation or habitat trees?	No	No vegetation removal in the form of trimming or clearing is required as part of the proposed works.

Are works within 50m of a known heritage site or within an area of potential heritage value?	No	The following heritage databases were searched to determine whether there are any known Indigenous or non-Indigenous heritage items located within or in the immediate vicinity of the proposed works. • Aboriginal Heritage Information Management System (AHIMS) • State Heritage Inventory • *Junee Local Environment Plan 2012* • S170 Heritage Register • A2I EIS, Chapter 11 and Technical Paper 3 – Non-Aboriginal Heritage • A2I EIS, Chapter 10 and Technical Paper 2 – Aboriginal Cultural Heritage Assessment Report, including Site Investigation Zone 14 which concludes there are no artefacts noted, and the areas was considered to have nil archaeological potential. Based on the above, and results which are provided in Appendix B, there are no known Indigenous and non-Indigenous heritage sites within 50m of the proposed work area. Further, the work area is located within the ARTC MSL railway corridor which has been subject to significant ground disturbance works in the past. Therefore, impacts to heritage are not anticipated. The works would be undertaken in accordance with the Unexpected and Incidental Finds Protocol and Procedure that has been prepared by John Holland, approved by IRPL and DPHI and implemented for the project. Additional mitigation measures are included in Section 4.2.
Do the works involve ground disturbance of more than 2 hectares?	No	The proposed works would involve ground disturbance, however the disturbance would be less than two hectares. Ground disturbance would be undertaken in the form of topsoil stripping, excavation, backfilling, and compaction, followed by the reapplication of the topsoil. Erosion and sediment controls would be established for prior to the commencement of works, and any temporary stockpiles and waste material would be managed in accordance with the mitigation measures included in Section 4.2 below.
Are the works in an area of known acid sulfate soil risk?	No	A review of the Environmental Planning Instrument – Acid Sulfate Soils on the SEED database was undertaken which confirmed that there is no known acid sulfate soils (ASS) within 50m of the proposed works. This is consistent with the EIS which also does not identify any ASS within the proposal area.
Are the works within 40m of a waterway or water body?	No	Works are not located within 40m of a waterway or water body. The nearest waterway is Jeralgambeth Creek which is located approximately 110m from the proposed work site. There are some farm dams located in paddocks near the proposed works area, however these are greater than 40m from the works and not expected to be impacted by the work. Potential impacts associated with runoff and water would be mitigated in accordance with the mitigation measures detailed in Section 4.2.
Will works impact on sensitive receivers (noise)?	No	The closest nearest receivers to each work location are summarised as follows. • ULX at chainage 468.140km and CSR longitudinal trench between chainages 467.600km to 468.140km – The closest receiver is approximately 50m away on Tooheys Lane. There are a total of 3 sensitive receivers located within the 200m of the proposed works. • ULX and URX at chainage 466.159km – The nearest sensitive receiver is located approximately 800m away on Warrens Lane. Several noise assessments were undertaken for the works which

		are summarised below – see Appendix C for the full CNVISs. • Noise Assessment 1 – ULX and URX at chainage 466.159km – These works are proposed to occur outside standard construction hours during the September possession. As detailed in the CNVIS, there are no sensitive receivers which are above NML. • Noise Assessment 2 – ULX at chainage 468.140km – These works are proposed to occur during standard construction hours during the September possession. As detailed in the CNVIS, there are 9 receivers which are above NML (for standard construction hours). • Noise Assessment 3 – CSR longitudinal trench between chainages 467.600km to 468.140km – These works are proposed to occur during standard construction hours during the September possession. As detailed in the CNVIS, there are 3 receivers which are above NML (for standard construction hours). The CNVISs indicates that noise level impacts (as per the ICNG) are deemed not to be within the highly noise affect dBA range (greater than or equal to 75dB(A)). There are no sensitive receivers within the highly noise affected category as per the ICNG i.e. >75dB(A). There are no sensitive receivers of structures within the safe working distances for vibration generating works i.e. tamping.
Will works require temporary or permanent placement of surplus spoil material?	Yes	Excavation required for the CSR, ULX and USR works will be required. The spoil generated will be stockpiled immediately adjacent to the excavation area and will be used as backfill material. Where there is any excess material, or where the material is not suitable for reuse, it will be temporarily stockpiled within the work area. The stockpiles will be stabilised in accordance with the Blue Book – refer to the mitigation measures provided in Section 4.2 for further details. A water cart would also be used on site if required to prevent excessive dust generation. The stockpile will be classified in accordance with the NSW Waste Classification Guidelines. Waste and will be disposed of at a facility licensed to accept the waste type. Works will not require permanent placement of surplus spoil material.
Will works result in any operational impacts further to those detailed in the approved project?	No	Works will not result in any operational impacts further to those detailed in the approved project. The proposed works will facilitate the operation of the Project.
Are the works located on flood prone land?	No	A review of the proposed works with regards to flood prone land was undertaken, with results summarised below. • I2S EIS, Technical Paper 4, Appendix C does not assess the areas proposed by this CA. However based on Map 1 of the 1% AEP, it is likely that the ULX and URX at chainage 466.159km are no located within the 1% AEP. The other sites were not assessed in the I2S EIS. See Appendix G for details. • A2I EIS, Chapter 18, Table 18-7 assess the entire alignment of the works in this CA and confirms the railway alignment is not within flood prone land or events up to the 1% AEP. Refer to Appendix G for further details. • The Junee Councill Flood Mapping Online Tool confirms that the works are not located in flood prone land. Further, following completion of the CSR works, the ground will be reinstated to the pre-existing heights and therefore no changes to flood (or overland flow) impacts are anticipated.

Are the works located on bushfire prone land?	No	A review of the proposed works with regards to bushfire prone land was undertaken, with results summarised below. • The A2I EIS, Chapter 24, Table 24-1 confirms that there is no bushfire prone land within 2.8km of the works proposed in this CA. • The I2S EIS, Chapter 25, Section 25.3.3.1, suggests that there is no bushfire prone land towards the southern end of the alignment. • The Junee Councill Bushfire Mapping Online Tool confirms that the works are not located in bushfire prone land. Refer to Appendix H for further details.
Are the works in an area of known salinity hazard risk?	No	A review of the proposed works with regards to salinity was undertaken, with results summarised below. • The A2I EIS, Technical Paper 13, Appendix B does not state there are any salinity concerns for the work areas proposed in this CA. • The Junee Councill Salinity Mapping Online Tool confirms that the works are not located in areas prone to salinity. • The I2S EIS, Technical Paper 14, states that there were generally no surface salt evident and sample sites within 1km of the I2S site and therefore salinity is not expected to be a major concern. Refer to Appendix I for further details.
Are the works in an area of known contamination risk?	No	The A2I EIS, Technical Paper 13 states there are no Areas of Environmental Concern (AEC), within the Project Area. Further, there are no EPA contaminated sites or unexploded ordinances within the work area proposed by this CA. An additional search of the NSW EPA Contamination land record of notices was undertaken which confirms that there are no known contaminated land records in the work areas proposed by these CA.
Are there any potential air quality impacts associated with the works?	Yes	The works could result in minor air quality impacts associated with: • Dust emissions: the use of plant equipment, excavation, vehicles travelling on haul roads, spoil stockpiling/haulage etc. • Gaseous emissions: inclusive of vehicle emissions and fugitive emissions from equipment and plant. However, the proposed works will have a relatively minimal disturbance footprint and therefore impacts are anticipated to be minimal and consistent with the EIS.
Are there any potential landscape and visual impacts associated with the works?	No	Landscape and visual impacts are not anticipated during the proposed works. There will be minor/negligible visual impacts during construction of the works due to the presence of vehicles, plant and equipment required to complete the works. However, this type of visual impact expected within the existing railway corridor and consistent with impacts detailed in the EIS. The CSR works consist of infrastructure which will be installed underground and will not be visible to the community.

4.1 Matters of national environmental significance

Under the environmental assessment provisions of the *Environment Protection and Biodiversity Conservation Act 1999*, the following matters of national environmental significance and impacts on Commonwealth land are required to be considered for the proposed activity. See Table 4-2 for further details.

Table 4-2 Matters of national environmental significance

FACTOR	IMPACT (YES/NO)	IMPACT DESCRIPTION
Any impact on a World Heritage property?	No	N/A
Any impact on a National Heritage place?	No	N/A
Any impact on a wetland of international importance?	No	N/A
Any impact on a listed threatened species or communities?	No	N/A
Any impacts on listed migratory species?	No	N/A
Any impact on a Commonwealth marine area?	No	N/A
Does the proposal involve a nuclear action (including uranium mining)?	No	N/A
Additionally, any impact (direct or indirect) on Commonwealth land?	No	N/A

4.2 Environmental management measures

Based on the level of impacts described above, the activities included in this assessment will be managed under the Revised Environmental Mitigation Measures (REMMs) as defined in the EIS and the relevant conditions of approval.

Communication of specific REMMs associated with activities will be described and communicated through the planning and implementation documents prepared by John Holland (the AMS, TRA and SEP) as well as this document communicated as part of the sign off process for staff prior to undertaking any work.

In addition to the REMMs and CoA's, the following General Mitigation Measures have been included for works associated with this assessment. Note that as mentioned above, this list is not an exhaustive list:

- All site personnel are to be inducted to the Project. The project induction includes the controls and mitigation measures within this assessment, along with visual depictions of no-go zones.
- Site Environment Plans (SEPs) will be prepared prior to the works which will indicate:
    - Known heritage areas, places and objects
    - Exclusion (no-go) zones
    - Mitigation such as fencing
    - Mitigation measures to be implemented on site.
- Site housekeeping including maintaining a clean and tidy project site will be implemented. This includes the removal of litter.
- Mitigation measures applicable to the proposed works in the Construction Environment Management Framework will be implemented

- All vehicles entering the site will be equipped with portable spill kits and all personnel will have access to these kits, to rapidly address any incidental leaks, ensuring immediate containment and cleanup.
- Concrete washouts (if any) would be contained and removed off-site.
- All spoil generated as a result of the works will be backfilled into excavated areas. Any excess spoil will be disposed of offsite.
- All waste being disposed of offsite must be classified in accordance with the NSW Waste Classification Guidelines. Waste will be disposed of at a facility licensed to accept the waste type.
- Vehicles transitioning from dirt roads onto public asphalted roads will undergo a visual inspection to prevent debris from being transported off-site and to maintain cleanliness on public roadways.
- Erosion and sediment controls must be installed and maintained, as a minimum, in accordance with the publication *Managing Urban Stormwater: Soils & Construction* (4th edition, Landcom 2004) commonly referred to as the 'Blue Book'.
- Appropriate sediment and erosion control devices are to be installed on site to minimise transport of sediment. Indicative control measures to be used as appropriate are outlined the SEPs. In addition, sediment/erosion controls such as the installation of coir logs, sediment fencing and the application of geofabric should be installed in all areas down slope of proposed works and areas of potential erosion and sediment risks (i.e. near drains)
- TEC's and TEC habitat locations will be available electronically and via hard copies of the SEPs to all site personnel. Vegetation within the CIZ will be delineated as required with appropriate barriers such as bollards and bunting.
- The construction corridor and areas declared as 'No Go Zones' shall be clearly protected/delineated. 'No Go Zones' may be identified through the installation of temporary fencing and appropriate signage, or an alternative solution agreed with ARTC.
- Biosecurity measures will be established. Prior to making between-property movements, all personnel's boots and vehicles will undergo a cleanliness inspection to ensure they are clean and free of organic material.
- Pedestrians will be managed at access points to work sites with safe access points established if required
- Right of way will be given to the public (road users and pedestrians) at access points into work areas.
- Appropriate land access approvals will be obtained prior to the commencement of the works, including land access agreements and road occupancy licences were required
- Farm gates encountered during works will be left in the condition specified by the landowner, whether that be open or closed. If no contact with relevant landowner is achieved, the specific gate will be left in the condition it was found in.
- Prior to the initiation of any work, access routes crossing private property will be established in consensus with the respective landowners.
- The utilisation of existing farm tracks will be adhered to as much as reasonably practicable for the proposed activities, thereby reducing the environmental impact of the works.
- All OOHW will be undertaken in accordance with EPL #22021 and the OOHW Permit which will be prepared for the works.
- The Unexpected and Incidental Finds Protocol and Procedures will be implemented on site for potential unexpected heritage, contamination or biodiversity finds. A hard copy will also be available on site to the project construction team.
- Non-tonal reversing alarms must be fitted and used on all construction vehicles and mobile plant.
- Quieter and less noise emitting construction methods will be used whenever possible.
- Shouting and slamming doors to minimise unnecessary noise will be avoided.
- All vehicles accessing the project site must comply with local speed restrictions.
- Plant equipment engines should be turned off when not in use to reduce potential noise impacts on surrounding stakeholders
- Mitigation measures for works in and around AECs must be adhered to. A hard copy of these mitigation measures will be kept on site.

5 Consistency assessment

Table 5-1 presents a set of questions that assist Inland Rail to determine whether the proposed change can be considered consistent with the Minister's approval.

Table 5-1 Consistency questions

CONSISTENCY QUESTION	DISCUSSION	CONSISTENT
Q1) Are the proposed works being carried out as part of an approved project? E.g. Are works "generally in accordance with" project documents and plans, where relevant?	Yes - The CSR works will provide the necessary services which are required for operation of the Project. The works are considered generally in accordance with the project documents and plans.	Yes
Q2) Is the modification such a radical transformation of the project as a whole, as to be, in reality, an entirely new project? Note: If answered Yes, a new project application may be required.	No – the proposed works are required to facilitate CSR utility connections for the approved project and are considered essential to construction and operation of the Project.	Yes
Q3) Are the proposed works a modification that is considered "consistent with" the project as approved? This will require the work in question to have environmental impacts contemplated by the approval (such as EA / EIS, CEMP, spoil management plan, heritage management plan or the like), including documents forming part of the approval, or as a minimum, very few additional impacts.	Yes – The works are considered consistent with the Project as approved. The work is considered minor in nature and involves utility connections which are required for operation of the Project.	Yes
Q4) When considering all previous consistency assessments and the potential cumulative impacts, are the proposed works still considered 'consistent with' the project as approved?	Yes – Cumulative impacts have been considered in relation to these works and, due to the minor nature of work required, the work remains consistent with the project as approved. At the time this consistency assessment was prepared, only minor low impact works were being undertaken for the project, which are not expected to result in a substantial cumulative impacts.	Yes

6 Monitoring and Reporting

The proposed change has been assessed in relation to existing monitoring and reporting requirements in order to determine if there is further monitoring or reporting required. No additional or further monitoring or reporting is required other than what is already described in the Staging Report (doc number TBC), MAF (5-0019-220-EEC-00-RP-0012), LIWA (5-0019-220-EEC-00-RA-0001) and OOHW Permit which will be prepared for the works.

7 Conclusion

Based on the consistency assessment in this report, the proposed change is considered:

Further to the details provided in Table 5-1 above, the proposed activity/design refinement is considered:

☒ Consistent with the Ministers Conditions of Approval, and the Statement of Commitments / Mitigation Measures.

☐ ~~Not consistent with the Ministers Conditions of Approval, and the Statement of Commitments / Mitigation Measures. A modification to the project approval must be prepared and submitted to the Department of Planning Infrastructure and Environment for approval.~~

8 Certification

Author

This consistency assessment provides a true and fair review of the proposed change for the I2S project.

Name: Andy Robertson	**Signature:** 
Position: Environment and Sustainability Manager	**Date:** 08/09/2025
Organisation: John Holland Group	

Inland Rail

The proposed change, subject to the implementation of all the environmental requirements of the project, is consistent with the Division 5.2 approval/is not consistent with the Division 5.2 approval and a modification is required.

[And]

The proposed change, subject to the implementation of all the environmental requirements of the project, is consistent with the EPBC approval/is not consistent with the EPBC approval and consultation with the Australian Government Department of the Environment and Energy is required prior to submitting a request to vary the conditions of approval/a conditioned action management plan/is not consistent with the EPBC approval and a new referral of the project is required.

[Or]

The proposed change is considered a radical transformation of the project as such a new project should be developed with new and separate planning approvals obtained as necessary.

Endorsement

Name:	Wayne Window	**Signature:**	
Position:	Environment Manager - Approvals	**Date:**	10/09/2025
Organisation:	Inland Rail		

I have examined the proposed changes by reference to the Division 5.2 approval in accordance with Section 5.25(2) of the EP&A Act and I have examined the proposed changes by reference to the EPBC approval. I consider that the proposal is consistent with the Division 5.2 approval and EPBC approval.

Approval

Name:	Conrad Strachan	**Signature:**	Conrad Strachan Conrad Strachan (Sep 11, 2025 15:22:42 GMT+10)
Position: (Manager)	Project Director - I2S	**Date:**	10/09/2025
Organisation:	Inland Rail		

I agree with the recommendations of the Environment Manager - Approval and approve of the carrying out the proposed change in accordance with those recommendations.

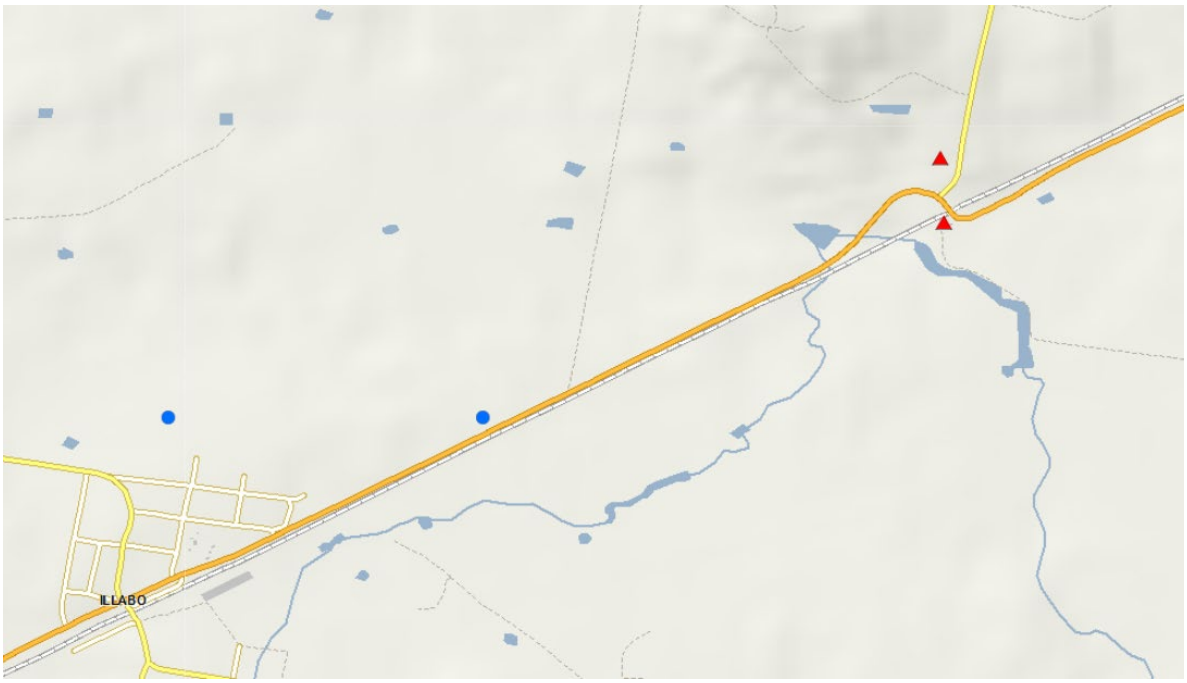
Appendix A – Ecological Constraints Mapping

- Vegetation, PCT and TEC Mapping

- Threatened Species BioAtlas Search results

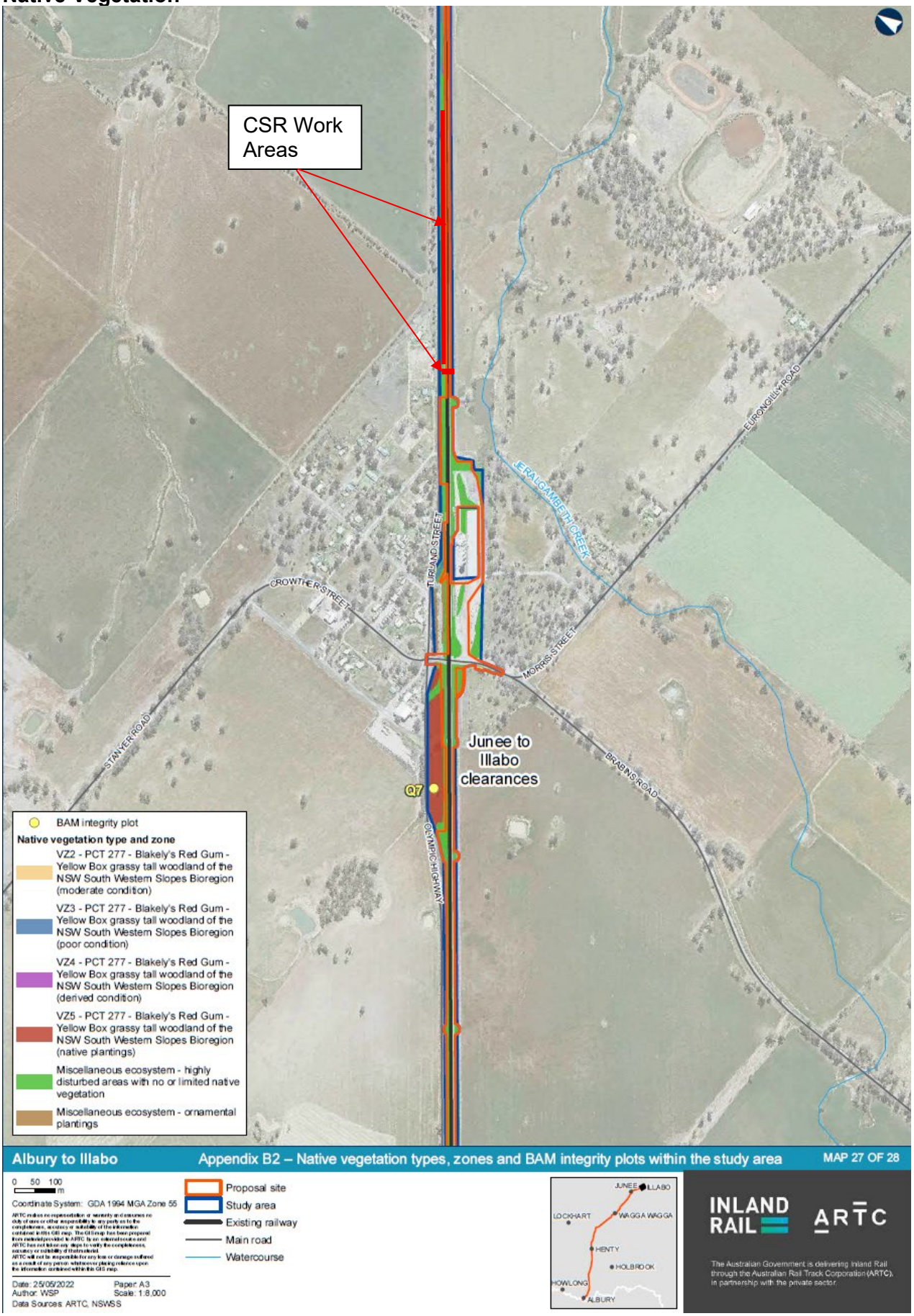
Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Public Report of all Valid Records of Threatened (listed on BC Act 2016) or Commonwealth listed Entities in selected area [North: -34.76 West: 147.70 East: 147.80 South: -34.86] returned a total of 113 Report generated on 7/08/2025 2:59 PM

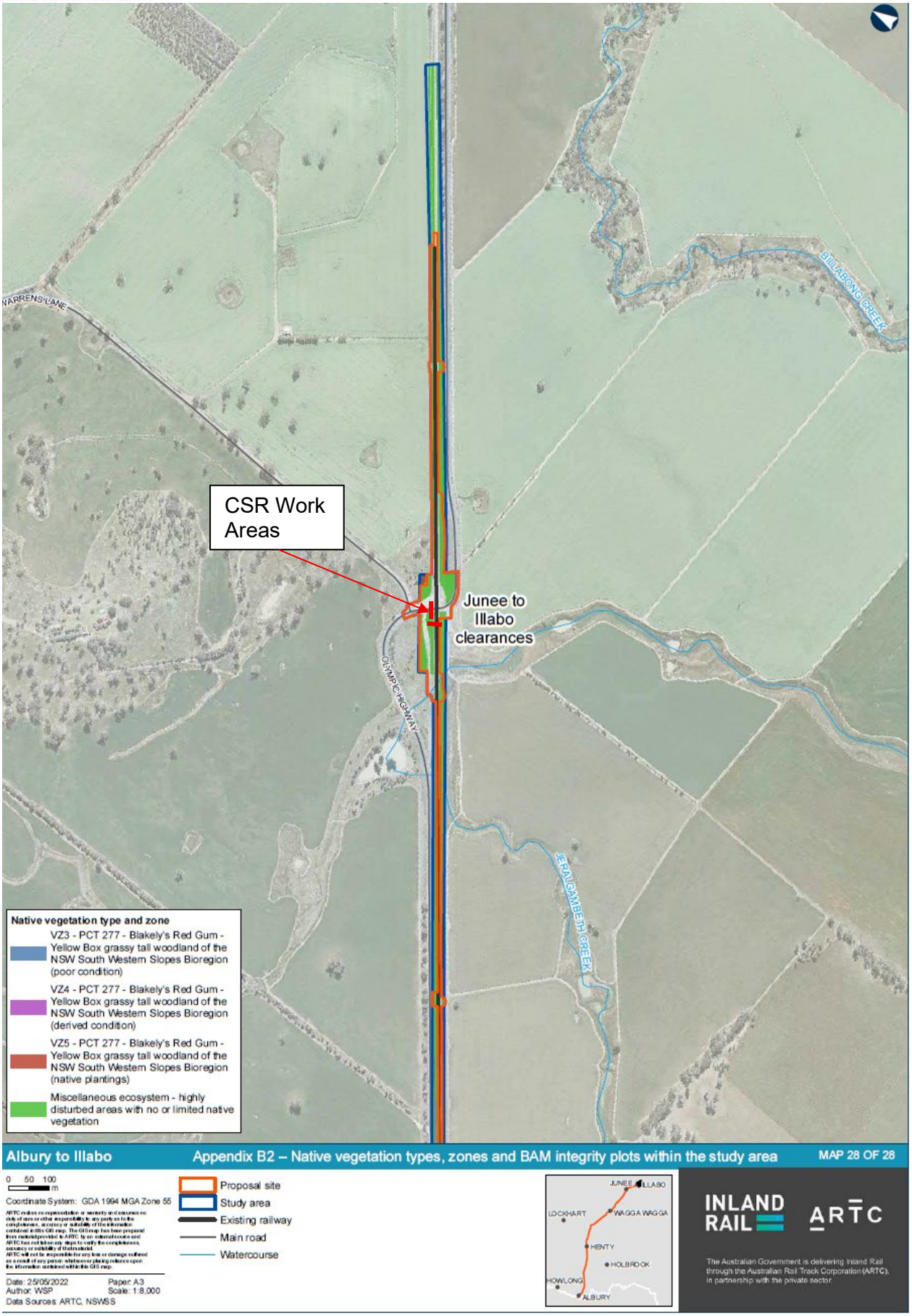
Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records
Animalia	Aves	Accipitridae	0225	*Hieraaetus morphnoides*		Little Eagle	V,P		3
Animalia	Aves	Falconidae	0238	*Falco subniger*		Black Falcon	V,P		1
Animalia	Aves	Psittacidae	0277	^^*Polytelis swainsonii*		Superb Parrot	V,P,3	V	85
Animalia	Aves	Climacteridae	8127	*Climacteris picumnus victoriae*		Brown Treecreeper (eastern subspecies)	V,P	V	10
Animalia	Aves	Pomatostomidae	8388	*Pomatostomus temporalis temporalis*		Grey-crowned Babbler (eastern subspecies)	V,P		1
Animalia	Aves	Artamidae	8519	*Artamus cyanopterus cyanopterus*		Dusky Woodswallow	V,P		1
Animalia	Aves	Petroicidae	0380	*Petroica boodang*		Scarlet Robin	V,P		1
Animalia	Aves	Petroicidae	0382	*Petroica phoenicea*		Flame Robin	V,P		4
Animalia	Aves	Estrildidae	0652	*Stagonopleura guttata*		Diamond Firetail	V,P	V	1
Animalia	Mammalia	Petauridae	1137	*Petaurus norfolcensis*		Squirrel Glider	V,P		3
Animalia	Mammalia	Emballonuridae	1321	*Saccolaimus flaviventris*		Yellow-bellied Sheathtail-bat	V,P		2
Animalia	Mammalia	Vespertilionidae	1357	*Myotis macropus*		Southern Myotis	V,P		1


ILLABO

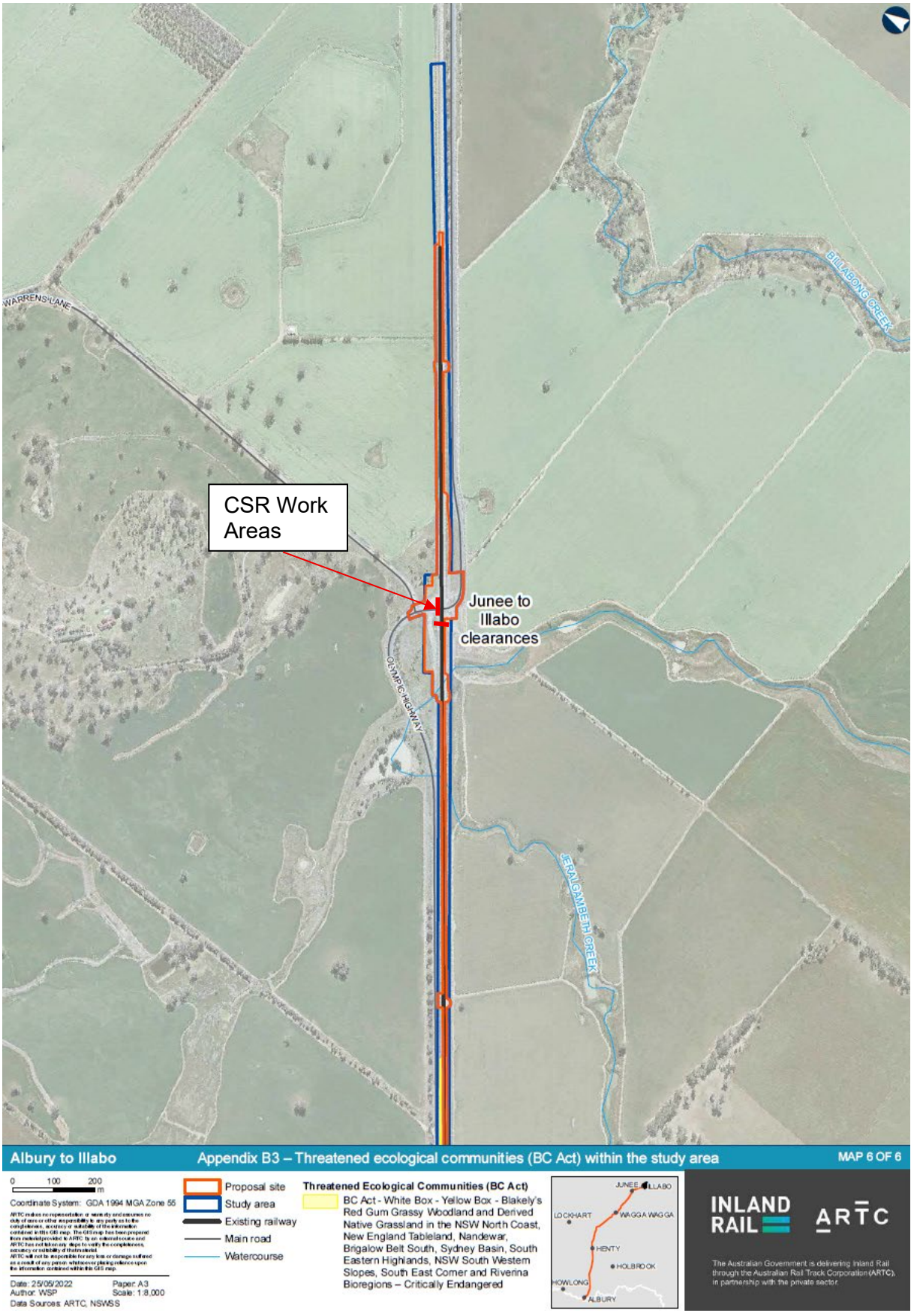
- Inland Rail – Albury to Illabo EIS, extract from Technical Paper 8 (BDAR)

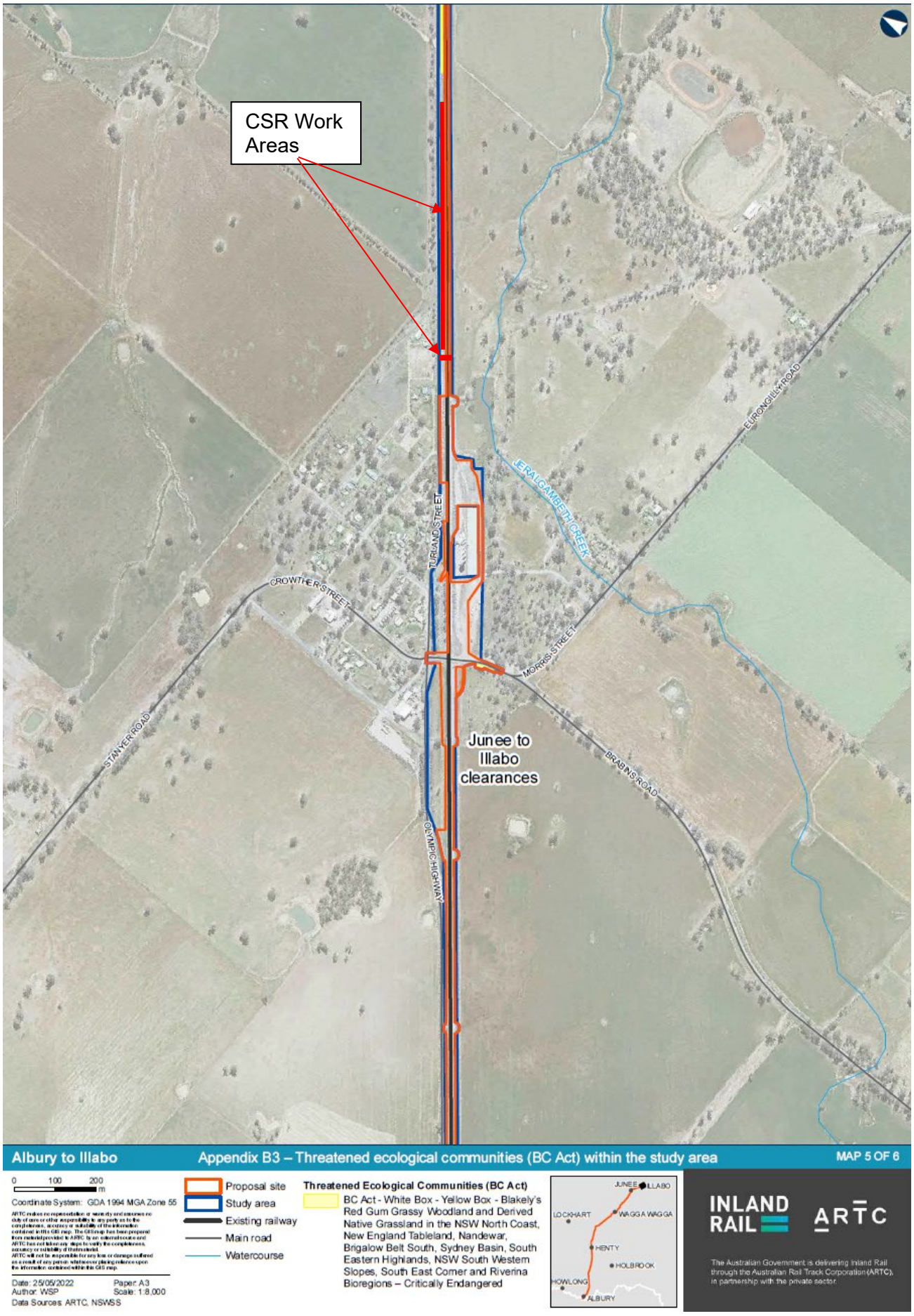
Native Vegetation




CSR Work Areas
Junee to Illabo clearances
BILLABONG CREEK
NARRENS LANE
OLYMPIC HIGHWAY
JERILDERIE CREEK
Native vegetation type and zone
VZ3 - PCT 277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion (poor condition)
VZ4 - PCT 277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion (derived condition)
VZ5 - PCT 277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion (native plantings)
Miscellaneous ecosystem - highly disturbed areas with no or limited native vegetation
Albury to Illabo
Appendix B2 – Native vegetation types, zones and BAM integrity plots within the study area
MAP 28 OF 28
0 50 100 m
Coordinate System: GDA 1994 MGA Zone 55
Proposal site
Study area
Existing railway
Main road
Watercourse
Date: 25/05/2022
Author: WSP
Paper: A3
Scale: 1:8,000
Data Sources: ARTC, NSWSS
JUNEE
ILLABO
LOCKHART
WAGGA WAGGA
HENTY
HOLBROOK
HOWLONG
ALBURY
INLAND RAIL
ARTC
The Australian Government is delivering Inland Rail through the Australian Rail Track Corporation (ARTC), in partnership with the private sector.

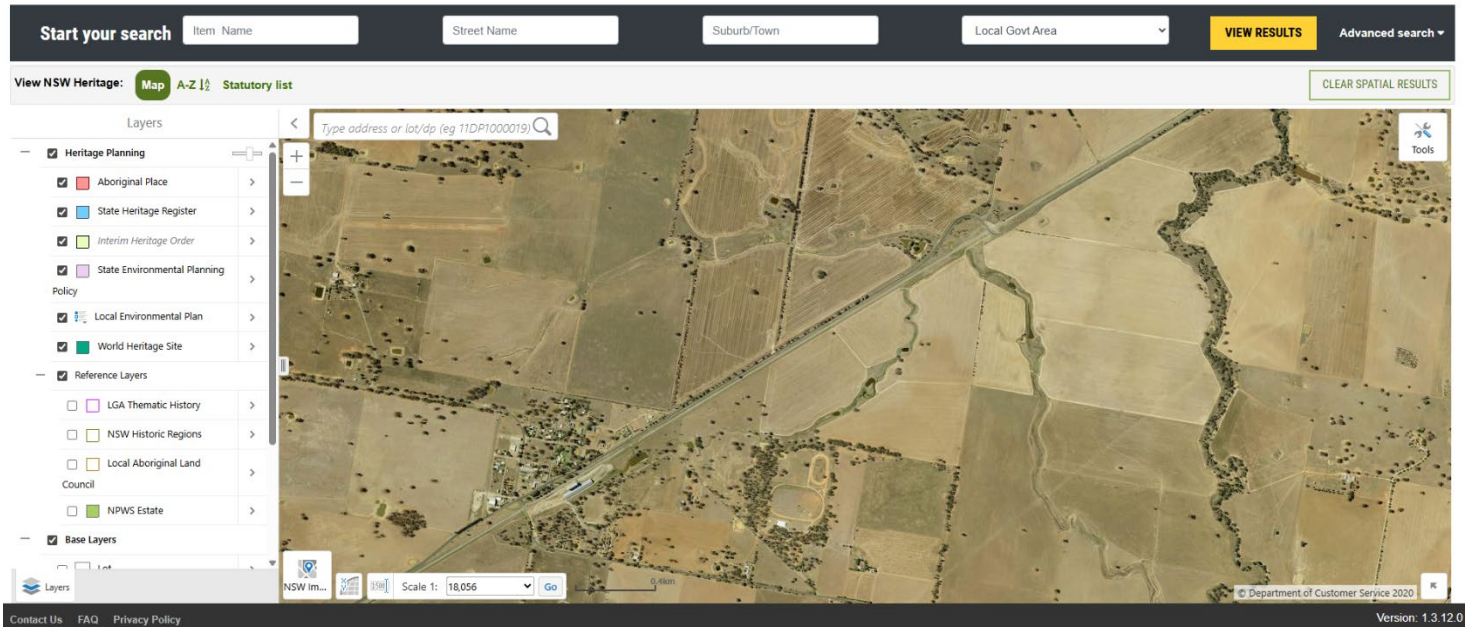
TEC



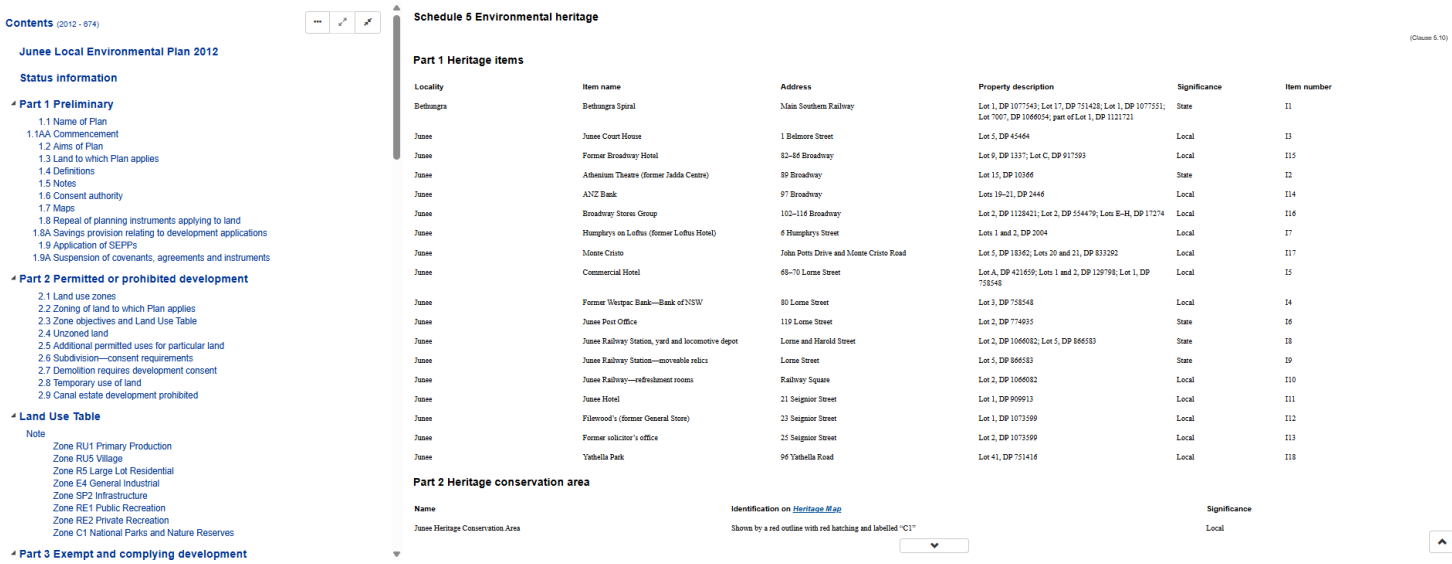


Appendix B – Heritage Searches

- State Heritage Register



- Junee Local Environment Plan 2012



Contents (2012 - 674)

Junee Local Environmental Plan 2012

Status information

Part 1 Preliminary
1.1 Name of Plan
1.1AA Commencement
1.2 Aims of Plan
1.3 Land to which Plan applies
1.4 Definitions
1.5 Notes
1.6 Consent authority
1.7 Maps
1.8 Repeal of planning instruments applying to land
1.8A Savings provision relating to development applications
1.9 Application of SEPPs
1.9A Suspension of covenants, agreements and instruments

Part 2 Permitted or prohibited development
2.1 Land use zones
2.2 Zoning of land to which Plan applies
2.3 Zone objectives and Land Use Table
2.4 Unzoned land
2.5 Additional permitted uses for particular land
2.6 Subdivision—consent requirements
2.7 Demolition requires development consent
2.8 Temporary use of land
2.9 Canal estate development prohibited

Land Use Table
Note
Zone RU1 Primary Production
Zone RU5 Village
Zone R5 Large Lot Residential
Zone E4 General Industrial
Zone SP2 Infrastructure
Zone RE1 Public Recreation
Zone RE2 Private Recreation
Zone C1 National Parks and Nature Reserves

Part 3 Exempt and complying development

Schedule 5 Environmental heritage

(Clause 5.10)

Part 1 Heritage items

Locality	Item name	Address	Property description	Significance	Item number
Bethungra	Bethungra Spiral	Main Southern Railway	Lot 1, DP 1077543; Lot 17, DP 751428; Lot 1, DP 1077551; Lot 7007, DP 1066054; part of Lot 1, DP 1121721	State	I1
Junee	Junee Court House	1 Belmore Street	Lot 5, DP 45464	Local	I3
Junee	Former Broadway Hotel	82–86 Broadway	Lot 9, DP 1337; Lot C, DP 917593	Local	I15
Junee	Athenium Theatre (former Jadda Centre)	89 Broadway	Lot 15, DP 10366	State	I2
Junee	ANZ Bank	97 Broadway	Lots 19–21, DP 2446	Local	I14
Junee	Broadway Stores Group	102–116 Broadway	Lot 2, DP 1128421; Lot 2, DP 554479; Lots E–H, DP 17274	Local	I16
Junee	Humphrys on Loftus (former Loftus Hotel)	6 Humphrys Street	Lots 1 and 2, DP 2004	Local	I7
Junee	Monte Cristo	John Potts Drive and Monte Cristo Road	Lot 5, DP 18362; Lots 20 and 21, DP 833292	Local	I17
Junee	Commercial Hotel	68–70 Lorne Street	Lot A, DP 421659; Lots 1 and 2, DP 129798; Lot 1, DP 758548	Local	I5
Junee	Former Westpac Bank—Bank of NSW	80 Lorne Street	Lot 3, DP 758548	Local	I4
Junee	Junee Post Office	119 Lorne Street	Lot 2, DP 774935	State	I6
Junee	Junee Railway Station, yard and locomotive depot	Lorne and Harold Street	Lot 2, DP 1066082; Lot 5, DP 866583	State	I8
Junee	Junee Railway Station—moveable relics	Lorne Street	Lot 5, DP 866583	State	I9
Junee	Junee Railway—refreshment rooms	Railway Square	Lot 2, DP 1066082	Local	I10
Junee	Junee Hotel	21 Seignior Street	Lot 1, DP 909913	Local	I11
Junee	Filewood's (former General Store)	23 Seignior Street	Lot 1, DP 1073599	Local	I12
Junee	Former solicitor's office	25 Seignior Street	Lot 2, DP 1073599	Local	I13
Junee	Yathella Park	96 Yathella Road	Lot 41, DP 751416	Local	I18

Part 2 Heritage conservation area

Name	Identification on Heritage Map	Significance
Junee Heritage Conservation Area	Shown by a red outline with red hatching and labelled "C1"	Local

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : I2S CSR

Client Service ID : 1031322

Environmental Management Solutions Pty Ltd

6 Yugari Crescent
Daleys Point New South Wales 2257

Attention: Ryan Maxwell

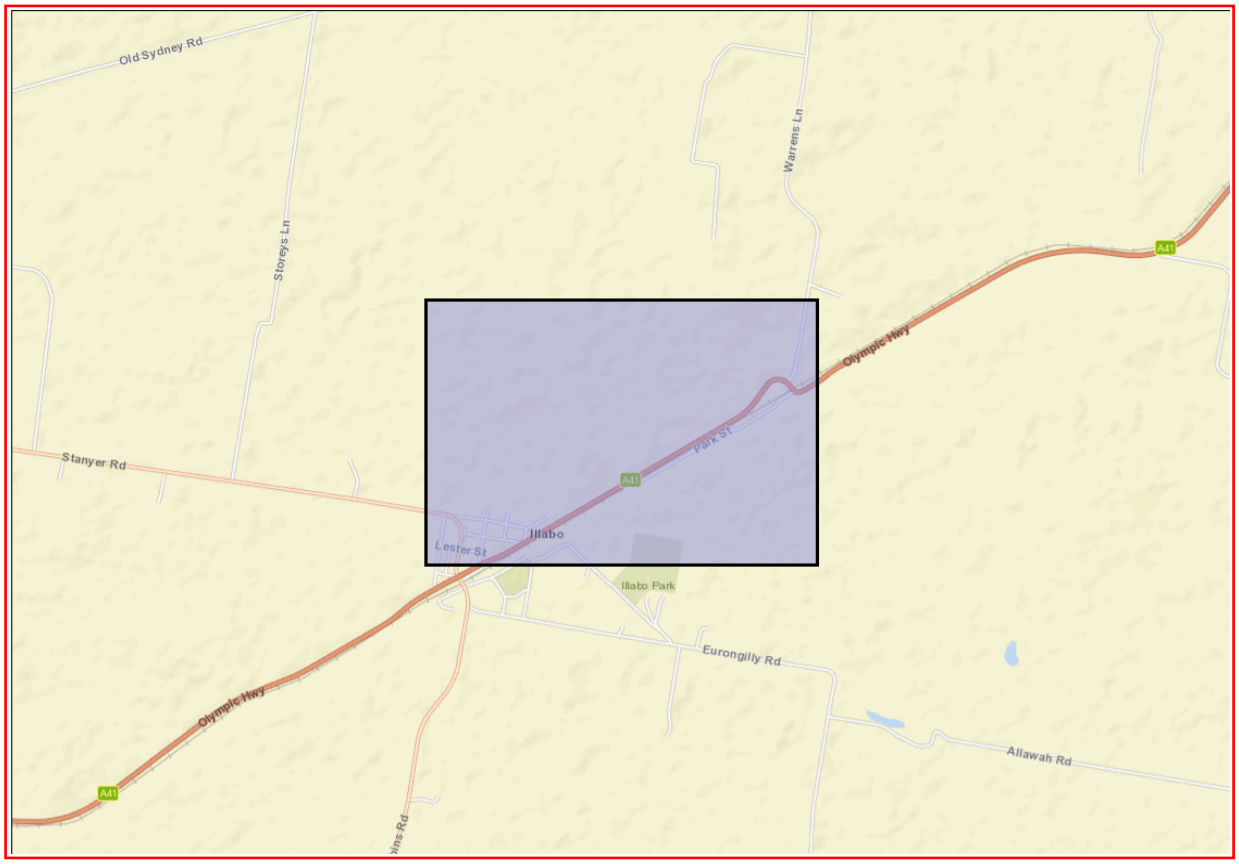
Email: ryan@enviromanagement.com.au

Date: 07 August 2025

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -34.815, 147.7359 - Lat, Long To : -34.7974, 147.7668, conducted by Ryan Maxwell on 07 August 2025.

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:

0	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

Appendix C Noise Model and Assessment

Noise Assessment 1 – ULX and URX at chainage 466.159km Noise Assessment 2 – Olympic Highway ULX and URX

Construction noise and vibration impact assessment

I2S September Possession v2

Proposed works	I2S September Possession v2		
Proponent	JHG I2S		
Assessment Date	08/08/2025		
Prepared by	Ryan Maxwell	**Assessment Id**	01

Introduction

This report has been prepared using the construction noise self-assessment platform KNOWnoise: *Minor Works* and presents an assessment of the likely noise impacts related to proposed works associated with the above project. Where possible, these works would be completed during standard construction hours; however, there may be a need to work outside these hours due to technical, community or access limitations. The location of the proposed works is illustrated in Appendix A.

Planned works

A description of the proposed works is as follows.

I2S September Possession v2

Proposed activities and equipment for the works are summarised in Appendix B.

Though subject to change, the works are expected to commence around 13/09/2025 and would be completed by 15/09/2025.

Assessment criteria and mitigation requirements

Noise

The Interim Construction Noise Guideline (ICNG) (DECC 2009) describes noise more than the background level as potentially having an adverse impact on sensitive receivers and increasing the likelihood of complaint. During standard construction hours, where construction noise is within 10 dB(A) of the RBL, impacts would be acceptable.

Where construction noise is more than 10 dB(A) above the RBL during standard construction hours, a residential receiver is considered noise affected and the proponent should undertake all reasonable and feasible steps necessary to manage the impact and consult with the affected community.

Above a LAeq, 15 minute noise level of 75 dB(A), a receiver is highly affected, requiring consideration of additional mitigation measures including alternative accommodation in the night period.

Outside standard construction hours, construction noise at a residential receiver more than 5 dB(A) above the RBL is taken to be noise affected.

In addition, annoying noise such as rock hammers, impact piling, or other impulsive noise sources usually result in greater annoyance than continuous construction noise. A 5 dB(A) penalty is applicable to such activities prior to comparison with the NMLs.

Other sensitive land uses, such as schools and offices, typically find noise from construction disruptive when the properties are being used (such as during work and school times). Table 2 presents NMLs from the ICNG for sensitive land uses based on the principle that the characteristic activities for each of these land uses should not be unduly disturbed.

Table 1 Non-residential sensitive land uses noise management levels

Land use	Noise assessment location	NML ($L_{Aeq,15min}$)
Classrooms at schools and other educational institutions	Internal	45
Places of worship		
Active recreation areas (such as sporting activities and activities which generate their own noise or focus for participants)	External	65
Passive recreation areas (contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example, reading, meditation)	External	60
Industrial premises	External	75
Office, retail outlets	External	70

Vibration

Effects of vibration from construction may be segregated into:

- Human exposure – disturbance to building occupants: vibration in which the occupants or users of the building are inconvenienced or possibly disturbed.
- Effects on building contents – vibration where the building contents may be affected.
- Effects on building structures – vibration in which the integrity of the building or structure itself may be prejudiced.

Vibration criteria relating to human comfort applicable to this project are taken from the DEC (2006) document Assessing Vibration – A Technical Guideline for intermittent vibration – such as from drilling, compacting or activities that would result in continuous vibration if operated continuously. Intermittent vibration is assessed as a vibration dose value (VDV) and relates to the level of vibration over time (cumulative over the night or day period). VDVs that may result in adverse comment from receivers are summarised in Table 5.

Table 2 Summary of vibration dose values which might result in adverse comment

Time	Low probability of adverse comment ($m/s^{1.75}$)	Adverse comment possible ($m/s^{1.75}$)	Adverse comment probable ($m/s^{1.75}$)
Day (6am to 10pm)	0.2 to 0.4	0.4 to 0.8	0.8 to 1.6
Night (10pm to 6am)	0.1 to 0.2	0.2 to 0.4	0.4 to 0.8

Guidance for the consideration of potential building damage from construction vibration is in line with BS 7385-1 *Evaluation and measurement for vibration in buildings - Guide for measurement of vibration and evaluation of their effects on buildings*. These guideline values are presented in Table 3.

Table 3 Building damage vibration guidelines (BS 7385-1)

Type of building	Guideline values for vibration (PPV mm/s)		
	4Hz to 15Hz	15Hz to 40Hz	40Hz and above
Reinforced or framed structures / Industrial and heavy commercial buildings	50		
Un-reinforced or light framed structures / Residential or light commercial type buildings	15 - 20	20 - 50	50

For heritage structures, criteria are in line with the German Standard *DIN 4150-3: Structural Vibration- effects of vibration on structures,* as summarised in Table 4.

Table 4 Guideline values for vibration velocity to be used when evaluating the effects of short-term vibration on heritage structures (DIN 4150-3).

Type of building	Guideline values for vibration (PPV mm/s)			
	1 Hz to 10 Hz	10 Hz to 50 Hz	50 Hz to 100 Hz	Vibration at horizontal plane of highest floor at all frequencies
Structures that, because of their sensitivity to vibration, cannot be classified under lines 1 and 2 and are of great intrinsic value (e.g. listed buildings under preservation order)	3	3 to 8	8 to 10	8

The safe working distances presented in Table 5 are indicative and will vary depending on the item of plant and local geotechnical conditions. The cosmetic damage thresholds apply to typical buildings under typical geotechnical conditions and vibration monitoring is recommended at specific sites. Where structures are more sensitive, such as heritage items, more stringent conditions are applicable and should be considered individually.

In relation to human response, the safe working distances relate to continuous vibration. For most construction activities, vibration emissions are intermittent and higher vibration levels over shorter periods are acceptable. Additional assessment should be undertaken where the human response criteria are exceeded.

Table 5 Safe working distances for vibration intensive plant

Plant item	Rating/description	Safe working distance	
		Cosmetic damage (BS 7385-1)	Human response (DECCW)
Vibratory roller	<50 kN (typically 1-2 t) <100 kN (typically 2-4 t) <200 kN (typically 4-6 t) <300 kN (typically 7-13 t) >300 kN (typically 13-18 t) >300 kN (> 18 t)	5 m 6 m 12 m 15 m 20 m 25 m	15 m to 20 m 20 m 40 m 100 m 100 m 100 m
Small hydraulic hammer	300 kg – 5 to 12 t excavator	2 m	7 m
Medium hydraulic hammer	900 kg – 12 to 18t excavator	7 m	23 m
Large hydraulic hammer	1600 kg – 18 to 34 t excavator	22 m	73 m
Vibratory pile driver	Sheet piles	2 m to 20 m	20 m
Pile boring	≤800 mm	2 m	n/a
Jackhammer	Hand held	1 m	Avoid contact with structure

Existing environment and noise management levels

The proposed works would be undertaken in a predominantly Rural / Suburban, characterised as:

Areas with negligible transportation or very limited local traffic, typically light vehicles only.

100m or more from the road.

Background noise levels adopted for the project area and associated noise management levels (NMLs) are summarised in Table 6. NMLs have been established in line with the ICNG.

Table 6 Construction NMLs

Land use	**Rural / Suburban**		**Using custom background noise data?**		**Yes**
Criterion	Day	Weekend Day	Evening	Night	Sleep
RBL	35	35	35	35	
NML	45	40	35	35	45

Sleep disturbance

The ICNG recommends where construction works are planned to extend over more than two consecutive nights, the maximum noise level should be considered for the purposes of establishing the likelihood of sleep disturbance. The Road Noise Policy suggests that maximum internal noise levels below 50-55 dB(A) are unlikely to awaken people from sleep and one or two noise events per night, with maximum internal noise levels of 65-70 dB(A) are not likely to affect health and wellbeing significantly.

Based on this, a sleep awakening criterion of 55 dB(A) (internal) is typically adopted for works. Given that noise attenuation of 10 dB(A) is typically provided by an open window, a sleep awakening criterion of LAmax 65 dB(A) (external) has been applied to residential bedroom façades.

Assessment methodology

Based on the nominated works area (illustrated in Appendix A), proposed equipment and the minimum distance from the works to each sensitive receiver, noise levels were calculated based on ISO9613: 2 *Acoustics - Attenuation of sound during propagation outdoors.*

This method considers geometric spreading, atmospheric absorption, ground effects and is valid for meteorological conditions of a gentle breeze from source to receiver and stable atmosphere (temperature inversion).

KNOWnoise: Minor works is a 2-Dimensional assessment platform and does not consider terrain effects (e.g. hills, valleys) or the presence of solid structures such as homes or noise barriers. This will result in a conservative prediction, suitable for the project being assessed.

Considering the nature of the works and the type of surrounding land uses, sensitive receivers up to a radius of 2000 metres from the works have been included in the assessment.

Sound power levels and predicted noise levels depend on the number of plant items operating at any one time and their precise location relative to a sensitive receiver. Equipment was assumed to be working at the worst-case location relative to each receiver and represents a worst-case assessment. Where the activity is further away from receivers or less equipment is used the predicted levels will decrease.

Sound power levels for plant and equipment expected to be used for each activity has been estimated based on guidance in the following standards and guidelines as well as typical measured noise levels for specific equipment.

- AS2436-2010: Guide to noise and vibration control on construction, demolition and maintenance sites
- British Standard 5228-1:2009 Code of practice for noise and vibration control on construction and open sites
- United Kingdom Department for Environment, Food and Rural Affairs (DEFRA) Noise database for prediction of noise on construction and open sites

Construction noise sources and associated sound power levels are listed in Appendix B. The maximum predicted LAeq noise level within the work area was identified for each receiver.

Predicted noise levels

Detailed predicted noise levels for each potentially affected receiver are presented Appendix C.

A summary of predicted noise levels in comparison with ICNG assessment criteria for the Period0 period is presented in Table 4.

Table 7 Summary of predicted noise levels with comparison against ICNG criteria for the Period0 period.

Criterion	Predicted number of receivers
Maximum cumulative predicted $L_{Aeq,\ 15\ minute}$ noise level	41 dB(A)
Number of highly noise affected receivers (>75 dB)	0
1 – 10 dB above NML	0
10 – 20 dB above NML	0
20+ dB above NML	0

Predicted impact classes for the Period0 period are illustrated graphically in Appendix C. Each identified receiver in the study area has been coloured to highlight the predicted level of impact.

Sleep disturbance

In the event works are planned for more than two consecutive nights, sleep disturbance is considered. Table 8 summarises the number of residents predicted to exceed the sleep disturbance screening criterion. Further analysis is also provided to indicate the number of receivers expected to be woken, at LAmax noise levels greater than 65 dBA.

Where exceedances of the awakening criteria are predicted, additional care should be taken and mitigation measures implemented in the with the CNVG.

Table 8 Summary of predicted exceedances of sleep disturbance screening criterion and awakening criterion.

Criterion	Predicted number of receivers
Potentially Sleep Disturbed (exceed RBL + 15 screening criterion)	0
Sleep Disturbed (exceed 65 dBA awakening criterion)	0

Predicted vibration impacts

The level of vibration impact on sensitive receivers (buildings and human comfort) will largely depend on the type of machinery in use and the distance from source to receiver.

Based on the proposed work locations and selected equipment, the following level of vibration impact is expected. A summary of vibration impacts is provided for each sensitive receiver in Appendix C.

Impact classification	Number of potentially affected receivers
Human comfort	0
Cosmetic damage	0
Heritage structure	0

Proposed noise mitigation measures

The safeguards and controls listed in Table 6 will be implemented where reasonable and feasible with the intention of achieving the project noise criteria and to maintain noise impacts at a practical minimum.

Table 9 Safeguards and controls

Action	Description
Community consultation or notification	Notify the affected community. The notification will detail work activities, dates and hours, impacts and mitigation measures, indication of work schedule over the night time period, any operational noise benefits from the works (where applicable) and contact telephone number. Notification should be a minimum of 7 calendar days prior to the start of works. For projects other than maintenance works more advanced consultation or notification may be required.
Site inductions	All employees, contractors and subcontractors are to receive an environmental induction. The induction would at least include: • all project specific and relevant standard noise and vibration mitigation measures • relevant licence and approval conditions • permissible hours of work • any limitations on high noise generating activities • location of nearest sensitive receivers • construction employee parking areas • designated loading/unloading areas and procedures site opening/closing times (including deliveries) environmental incident procedures
Behaviour	No swearing or unnecessary shouting or loud stereos/radios on site. Limit compression braking at night in residential areas. No dropping of materials from height, throwing of metal items and slamming of doors.
Verification	Where indicated in Appendix C, a noise verification program would be undertaken for the duration of the works.
Construction hours	Where feasible and reasonable, construction should be carried out during the standard daytime working hours. Work generating high noise and/or vibration levels should be scheduled during less sensitive time periods.
Respite for out-of-hours works	Respite would be scheduled as indicated in Appendix C and described in the CNVG.
Equipment selection	Use quieter construction methods where feasible and reasonable. Ensure plant including the silencer is well maintained. Plant noise levels will have an operating noise emission level compliant with Appendix F of the CNVG
Use and siting of plant	The offset distance between noisy plant and adjacent sensitive receivers is to be maximised. Plant used intermittently to be throttled down or shut down. Noise-emitting plant to be directed away from sensitive receivers.

Action	Description
Plan worksites and activities to minimise noise and vibration.	Locate compounds away from sensitive receivers and discourage access from local roads. Plan traffic flow, parking and loading/unloading areas to minimise reversing movements within the site. Where additional activities or plant may only result in a marginal noise increase and speed up works, consider limiting duration of impact by concentrating noisy activities at one location and move to another as quickly as possible. Very noise activities should be scheduled for normal working hours. If the work can not be undertaken during the day, it should be completed before 11:00pm. Where practicable, work should be scheduled to avoid major student examination periods when students are studying for examinations such as before or during Higher School Certificate and at the end of higher education semesters.
Non-tonal reverse alarms	Non-tonal reversing beepers (or an equivalent mechanism) must be fitted and used on all construction vehicles and mobile plant regularly used on site and for any out of hours work.
Shield stationary noise sources such as pumps, generators, and compressors	These should be enclosed or shielded where reasonable and feasible.
Implement any project specific mitigation measures	
1	None

Appendix A Project location and predicted level of impact

Appendix B Proposed activities and equipment

Olympic Highway ULX and URX

Equipment	Quantity	Usage	Reduction	SWL
Light vehicle	1	40%	5	76
Dumper (5 tonne)	1	30%	5	91
Excavator (10 tonne)	1	40%	5	90
Excavator with tamper head	1	10%	5	104
Hand Tools (electric)	1	20%	0	87
Vacc truck	1	60%	0	110
Wacker Packer*	1	20%	0	101
Water Tanker (8000 litre)	1	40%	0	99

Activity Sound Power Level: 112

Appendix C Detailed noise predicted for each receiver

Noise

Assessment: I2S September Possession v2				NML, LAeq, 15 minute				Sleep, LAmax		Predicted noise level, dBA		Exceedance summary										
													Exceed NML by (dB):				Exceed sleep disturbance by (dB):		Impact classification			
NCA	Rec	Address	Land use	Day	O/day	Eve	Night	Screen	Awake	Cumulative LAeq, 15 minute	LMax	Highly Affected?	Day	O/day	Eve	Night	Screen	Awake	Day	O/day	Eve	Night

Vibration

NCA	Receiver	Address	Vibration Impact

Noise Assessment 2 – ULX at chainage 468.140km

Construction noise and vibration impact assessment

I2S September Possession v2

Proposed works	I2S September Possession v2		
Proponent	JHG I2S		
Assessment Date	08/08/2025		
Prepared by	Ryan Maxwell	**Assessment Id**	01

Introduction

This report has been prepared using the construction noise self-assessment platform KNOWnoise: *Minor Works* and presents an assessment of the likely noise impacts related to proposed works associated with the above project. Where possible, these works would be completed during standard construction hours; however, there may be a need to work outside these hours due to technical, community or access limitations. The location of the proposed works is illustrated in Appendix A.

Planned works

A description of the proposed works is as follows.

I2S September Possession v2

Proposed activities and equipment for the works are summarised in Appendix B.

Though subject to change, the works are expected to commence around 13/09/2025 and would be completed by 15/09/2025.

Assessment criteria and mitigation requirements

Noise

The Interim Construction Noise Guideline (ICNG) (DECC 2009) describes noise more than the background level as potentially having an adverse impact on sensitive receivers and increasing the likelihood of complaint. During standard construction hours, where construction noise is within 10 dB(A) of the RBL, impacts would be acceptable.

Where construction noise is more than 10 dB(A) above the RBL during standard construction hours, a residential receiver is considered noise affected and the proponent should undertake all reasonable and feasible steps necessary to manage the impact and consult with the affected community.

Above a LAeq, 15 minute noise level of 75 dB(A), a receiver is highly affected, requiring consideration of additional mitigation measures including alternative accommodation in the night period.

Outside standard construction hours, construction noise at a residential receiver more than 5 dB(A) above the RBL is taken to be noise affected.

In addition, annoying noise such as rock hammers, impact piling, or other impulsive noise sources usually result in greater annoyance than continuous construction noise. A 5 dB(A) penalty is applicable to such activities prior to comparison with the NMLs.

Other sensitive land uses, such as schools and offices, typically find noise from construction disruptive when the properties are being used (such as during work and school times). Table 2 presents NMLs from the ICNG for sensitive land uses based on the principle that the characteristic activities for each of these land uses should not be unduly disturbed.

Table 1 Non-residential sensitive land uses noise management levels

Land use	Noise assessment location	NML ($L_{Aeq,15min}$)
Classrooms at schools and other educational institutions	Internal	45
Places of worship		
Active recreation areas (such as sporting activities and activities which generate their own noise or focus for participants)	External	65
Passive recreation areas (contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example, reading, meditation)	External	60
Industrial premises	External	75
Office, retail outlets	External	70

Vibration

Effects of vibration from construction may be segregated into:

- Human exposure – disturbance to building occupants: vibration in which the occupants or users of the building are inconvenienced or possibly disturbed.
- Effects on building contents – vibration where the building contents may be affected.
- Effects on building structures – vibration in which the integrity of the building or structure itself may be prejudiced.

Vibration criteria relating to human comfort applicable to this project are taken from the DEC (2006) document Assessing Vibration – A Technical Guideline for intermittent vibration – such as from drilling, compacting or activities that would result in continuous vibration if operated continuously. Intermittent vibration is assessed as a vibration dose value (VDV) and relates to the level of vibration over time (cumulative over the night or day period). VDVs that may result in adverse comment from receivers are summarised in Table 5.

Table 2 Summary of vibration dose values which might result in adverse comment

Time	Low probability of adverse comment ($m/s^{1.75}$)	Adverse comment possible ($m/s^{1.75}$)	Adverse comment probable ($m/s^{1.75}$)
Day (6am to 10pm)	0.2 to 0.4	0.4 to 0.8	0.8 to 1.6
Night (10pm to 6am)	0.1 to 0.2	0.2 to 0.4	0.4 to 0.8

Guidance for the consideration of potential building damage from construction vibration is in line with BS 7385-1 *Evaluation and measurement for vibration in buildings - Guide for measurement of vibration and evaluation of their effects on buildings*. These guideline values are presented in Table 3.

Table 3 Building damage vibration guidelines (BS 7385-1)

Type of building	Guideline values for vibration (PPV mm/s)		
	4Hz to 15Hz	15Hz to 40Hz	40Hz and above
Reinforced or framed structures / Industrial and heavy commercial buildings	50		
Un-reinforced or light framed structures / Residential or light commercial type buildings	15 - 20	20 - 50	50

For heritage structures, criteria are in line with the German Standard *DIN 4150-3: Structural Vibration- effects of vibration on structures,* as summarised in Table 4.

Table 4 Guideline values for vibration velocity to be used when evaluating the effects of short-term vibration on heritage structures (DIN 4150-3).

Type of building	Guideline values for vibration (PPV mm/s)			
	1 Hz to 10 Hz	10 Hz to 50 Hz	50 Hz to 100 Hz	Vibration at horizontal plane of highest floor at all frequencies
Structures that, because of their sensitivity to vibration, cannot be classified under lines 1 and 2 and are of great intrinsic value (e.g. listed buildings under preservation order)	3	3 to 8	8 to 10	8

The safe working distances presented in Table 5 are indicative and will vary depending on the item of plant and local geotechnical conditions. The cosmetic damage thresholds apply to typical buildings under typical geotechnical conditions and vibration monitoring is recommended at specific sites. Where structures are more sensitive, such as heritage items, more stringent conditions are applicable and should be considered individually.

In relation to human response, the safe working distances relate to continuous vibration. For most construction activities, vibration emissions are intermittent and higher vibration levels over shorter periods are acceptable. Additional assessment should be undertaken where the human response criteria are exceeded.

Table 5 Safe working distances for vibration intensive plant

Plant item	Rating/description	Safe working distance	
		Cosmetic damage (BS 7385-1)	Human response (DECCW)
Vibratory roller	<50 kN (typically 1-2 t) <100 kN (typically 2-4 t) <200 kN (typically 4-6 t) <300 kN (typically 7-13 t) >300 kN (typically 13-18 t) >300 kN (> 18 t)	5 m 6 m 12 m 15 m 20 m 25 m	15 m to 20 m 20 m 40 m 100 m 100 m 100 m
Small hydraulic hammer	300 kg – 5 to 12 t excavator	2 m	7 m
Medium hydraulic hammer	900 kg – 12 to 18t excavator	7 m	23 m
Large hydraulic hammer	1600 kg – 18 to 34 t excavator	22 m	73 m
Vibratory pile driver	Sheet piles	2 m to 20 m	20 m
Pile boring	≤800 mm	2 m	n/a
Jackhammer	Hand held	1 m	Avoid contact with structure

Existing environment and noise management levels

The proposed works would be undertaken in a predominantly Rural / Suburban, characterised as:

Areas with negligible transportation or very limited local traffic, typically light vehicles only.

100m or more from the road.

Background noise levels adopted for the project area and associated noise management levels (NMLs) are summarised in Table 6. NMLs have been established in line with the ICNG.

Table 6 Construction NMLs

Land use	**Rural / Suburban**		**Using custom background noise data?**		**Yes**
Criterion	Day	Weekend Day	Evening	Night	Sleep
RBL	35	35	35	35	
NML	45	40	35	35	45

Sleep disturbance

The ICNG recommends where construction works are planned to extend over more than two consecutive nights, the maximum noise level should be considered for the purposes of establishing the likelihood of sleep disturbance. The Road Noise Policy suggests that maximum internal noise levels below 50-55 dB(A) are unlikely to awaken people from sleep and one or two noise events per night, with maximum internal noise levels of 65-70 dB(A) are not likely to affect health and wellbeing significantly.

Based on this, a sleep awakening criterion of 55 dB(A) (internal) is typically adopted for works. Given that noise attenuation of 10 dB(A) is typically provided by an open window, a sleep awakening criterion of LAmax 65 dB(A) (external) has been applied to residential bedroom façades.

Assessment methodology

Based on the nominated works area (illustrated in Appendix A), proposed equipment and the minimum distance from the works to each sensitive receiver, noise levels were calculated based on ISO9613: 2 *Acoustics - Attenuation of sound during propagation outdoors.*

This method considers geometric spreading, atmospheric absorption, ground effects and is valid for meteorological conditions of a gentle breeze from source to receiver and stable atmosphere (temperature inversion).

KNOWnoise: Minor works is a 2-Dimensional assessment platform and does not consider terrain effects (e.g. hills, valleys) or the presence of solid structures such as homes or noise barriers. This will result in a conservative prediction, suitable for the project being assessed.

Considering the nature of the works and the type of surrounding land uses, sensitive receivers up to a radius of 2000 metres from the works have been included in the assessment.

Sound power levels and predicted noise levels depend on the number of plant items operating at any one time and their precise location relative to a sensitive receiver. Equipment was assumed to be working at the worst-case location relative to each receiver and represents a worst-case assessment. Where the activity is further away from receivers or less equipment is used the predicted levels will decrease.

Sound power levels for plant and equipment expected to be used for each activity has been estimated based on guidance in the following standards and guidelines as well as typical measured noise levels for specific equipment.

- AS2436-2010: Guide to noise and vibration control on construction, demolition and maintenance sites
- British Standard 5228-1:2009 Code of practice for noise and vibration control on construction and open sites
- United Kingdom Department for Environment, Food and Rural Affairs (DEFRA) Noise database for prediction of noise on construction and open sites

Construction noise sources and associated sound power levels are listed in Appendix B. The maximum predicted LAeq noise level within the work area was identified for each receiver.

Predicted noise levels

Detailed predicted noise levels for each potentially affected receiver are presented Appendix C.

A summary of predicted noise levels in comparison with ICNG assessment criteria for the Period0 period is presented in Table 4.

Table 7 Summary of predicted noise levels with comparison against ICNG criteria for the Period0 period.

Criterion	Predicted number of receivers
Maximum cumulative predicted $L_{Aeq,\ 15\ minute}$ noise level	69 dB(A)
Number of highly noise affected receivers (>75 dB)	0
1 – 10 dB above NML	35
10 – 20 dB above NML	6
20+ dB above NML	1

Predicted impact classes for the Period0 period are illustrated graphically in Appendix C. Each identified receiver in the study area has been coloured to highlight the predicted level of impact.

Sleep disturbance

In the event works are planned for more than two consecutive nights, sleep disturbance is considered. Table 8 summarises the number of residents predicted to exceed the sleep disturbance screening criterion. Further analysis is also provided to indicate the number of receivers expected to be woken, at LAmax noise levels greater than 65 dBA.

Where exceedances of the awakening criteria are predicted, additional care should be taken and mitigation measures implemented in the with the CNVG.

Table 8 Summary of predicted exceedances of sleep disturbance screening criterion and awakening criterion.

Criterion	Predicted number of receivers
Potentially Sleep Disturbed (exceed RBL + 15 screening criterion)	0
Sleep Disturbed (exceed 65 dBA awakening criterion)	0

Predicted vibration impacts

The level of vibration impact on sensitive receivers (buildings and human comfort) will largely depend on the type of machinery in use and the distance from source to receiver.

Based on the proposed work locations and selected equipment, the following level of vibration impact is expected. A summary of vibration impacts is provided for each sensitive receiver in Appendix C.

Impact classification	Number of potentially affected receivers
Human comfort	0
Cosmetic damage	0
Heritage structure	0

Proposed noise mitigation measures

The safeguards and controls listed in Table 6 will be implemented where reasonable and feasible with the intention of achieving the project noise criteria and to maintain noise impacts at a practical minimum.

Table 9 Safeguards and controls

Action	Description
Community consultation or notification	Notify the affected community. The notification will detail work activities, dates and hours, impacts and mitigation measures, indication of work schedule over the night time period, any operational noise benefits from the works (where applicable) and contact telephone number. Notification should be a minimum of 7 calendar days prior to the start of works. For projects other than maintenance works more advanced consultation or notification may be required.
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Behaviour	No swearing or unnecessary shouting or loud stereos/radios on site. Limit compression braking at night in residential areas. No dropping of materials from height, throwing of metal items and slamming of doors.
Verification	Where indicated in Appendix C, a noise verification program would be undertaken for the duration of the works.
Construction hours	Where feasible and reasonable, construction should be carried out during the standard daytime working hours. Work generating high noise and/or vibration levels should be scheduled during less sensitive time periods.
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Action	Description
Plan worksites and activities to minimise noise and vibration.	Locate compounds away from sensitive receivers and discourage access from local roads. Plan traffic flow, parking and loading/unloading areas to minimise reversing movements within the site. Where additional activities or plant may only result in a marginal noise increase and speed up works, consider limiting duration of impact by concentrating noisy activities at one location and move to another as quickly as possible. Very noise activities should be scheduled for normal working hours. If the work can not be undertaken during the day, it should be completed before 11:00pm. Where practicable, work should be scheduled to avoid major student examination periods when students are studying for examinations such as before or during Higher School Certificate and at the end of higher education semesters.
Non-tonal reverse alarms	Non-tonal reversing beepers (or an equivalent mechanism) must be fitted and used on all construction vehicles and mobile plant regularly used on site and for any out of hours work.
Shield stationary noise sources such as pumps, generators, and compressors	These should be enclosed or shielded where reasonable and feasible.
Implement any project specific mitigation measures	
1	None

Appendix A Project location and predicted level of impact

Appendix B Proposed activities and equipment

01 - Illabo ULX

Equipment	Quantity	Usage	Reduction	SWL
Light vehicle	1	40%	0	81
Dumper (5 tonne)	1	30%	0	96
Excavator (10 tonne)	1	40%	0	95
Excavator with tamper head	1	10%	0	109
Hand Tools (electric)	1	20%	0	87
Vacc truck	1	60%	0	110
Wacker Packer*	1	20%	0	101
Water Tanker (8000 litre)	1	40%	0	99

Activity Sound Power Level: 113

Appendix C Detailed noise predicted for each receiver

Noise

Assessment: I2S September Possession v2				NML, LAeq, 15 minute				Sleep, LAmax		Predicted noise level, dBA		Exceedance summary										
													Exceed NML by (dB):				Exceed sleep disturbance by (dB):		Impact classification			
NCA	Rec	Address	Land use	Day	O/day	Eve	Night	Screen	Awake	Cumulative LAeq, 15 minute	LMax	Highly Affected?	Day	O/day	Eve	Night	Screen	Awake	Day	O/day	Eve	Night
NCA 1	1676890	7 JUNEE STREET ILLABO	RES	45	40	35	35			45.8	51.7		0.8	5.8	10.8	10.8	-	0.8	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676891	7 BRABINS ROAD ILLABO	RES	45	40	35	35			45.6	51.5		0.6	5.6	10.6	10.6	-	0.6	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676893	30 LAYTON STREET ILLABO	RES	45	40	35	35			45.2	51.1		0.2	5.2	10.2	10.2	-	0.2	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676894	17 TOOHEYS LANE ILLABO	RES	45	40	35	35			64.3	70.3		19.3	24.3	29.3	29.3	-	19.3	Moderately Intrusive	Moderately Intrusive	Highly Intrusive	Highly Intrusive
NCA 1	1676895	10 HOWELL STREET ILLABO	RES	45	40	35	35			46.9	52.8		1.9	6.9	11.9	11.9	-	1.9	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676896	41-45 LAYTON STREET ILLABO	RES	45	40	35	35			46	52		1	6	11	11	-	1	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676897		RES	45	40	35	35			46	52		1	6	11	11	-	1	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676898	10 HOWELL STREET ILLABO	RES	45	40	35	35			48.2	54.1		3.2	8.2	13.2	13.2	-	3.2	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676899		RES	45	40	35	35			48.2	54.1		3.2	8.2	13.2	13.2	-	3.2	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676900	9-11 HOWELL STREET ILLABO	RES	45	40	35	35			50	55.9		5	10	15	15	-	5	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676903	7 TOOHEYS LANE ILLABO	RES	45	40	35	35			59.4	65.3		14.4	19.4	24.4	24.4	-	14.4	Moderately Intrusive	Moderately Intrusive	Moderately Intrusive	Moderately Intrusive
NCA 1	1676904	81 SHOWGROUND ROAD ILLABO	RES	45	40	35	35			47.5	53.4		2.5	7.5	12.5	12.5	-	2.5	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676905	30 LAYTON STREET ILLABO	RES	45	40	35	35			45.1	51		0.1	5.1	10.1	10.1	-	0.1	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676906		RES	45	40	35	35			46.8	52.8		1.8	6.8	11.8	11.8	-	1.8	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676907		RES	45	40	35	35			49.5	55.4		4.5	9.5	14.5	14.5	-	4.5	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676908	11 LAYTON STREET ILLABO	RES	45	40	35	35			45.8	51.7		0.8	5.8	10.8	10.8	-	0.8	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676909		RES	45	40	35	35			50.1	56		5.1	10.1	15.1	15.1	-	5.1	Clearly Audible	Clearly Audible	Moderately Intrusive	Moderately Intrusive
NCA 1	1676911	25 LAYTON STREET ILLABO	RES	45	40	35	35			45.9	51.8		0.9	5.9	10.9	10.9	-	0.9	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676912	10 HOWELL STREET ILLABO	RES	45	40	35	35			47.3	53.2		2.3	7.3	12.3	12.3	-	2.3	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676914	81 ILLABO SHOWGROUND ROAD ILLABO	RES	45	40	35	35			47.2	53.2		2.2	7.2	12.2	12.2	-	2.2	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676915	81 SHOWGROUND ROAD ILLABO	RES	45	40	35	35			47.1	53		2.1	7.1	12.1	12.1	-	2.1	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676917	41-45 LAYTON STREET ILLABO	RES	45	40	35	35			46.3	52.3		1.3	6.3	11.3	11.3	-	1.3	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676918	81 WOOD STREET ILLABO	RES	45	40	35	35			51.1	57.1		6.1	11.1	16.1	16.1	-	6.1	Clearly Audible	Clearly Audible	Moderately Intrusive	Moderately Intrusive
NCA 1	1676919	11 LAYTON STREET ILLABO	RES	45	40	35	35			45.5	51.5		0.5	5.5	10.5	10.5	-	0.5	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676921	33 LAYTON STREET ILLABO	RES	45	40	35	35			46.1	52		1.1	6.1	11.1	11.1	-	1.1	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676923	9 TOOHEYS LANE ILLABO	RES	45	40	35	35			64.9	70.8		19.9	24.9	29.9	29.9	-	19.9	Moderately Intrusive	Moderately Intrusive	Highly Intrusive	Highly Intrusive
NCA 1	1676924		RES	45	40	35	35			45.8	51.8		0.8	5.8	10.8	10.8	-	0.8	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676925	11 LAYTON STREET ILLABO	RES	45	40	35	35			45	51		0	5	10	10	-	0	Noticable	Noticable	Clearly Audible	Clearly Audible
NCA 1	1676926		RES	45	40	35	35			46.1	52		1.1	6.1	11.1	11.1	-	1.1	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676927	2 HOWELL STREET ILLABO	RES	45	40	35	35			47.9	53.8		2.9	7.9	12.9	12.9	-	2.9	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676928	17 TOOHEYS LANE ILLABO	RES	45	40	35	35			69.4	75.3		24.4	29.4	34.4	34.4	-	24.4	Highly Intrusive	Highly Intrusive	Highly Intrusive	Highly Intrusive
NCA 1	1676929	21 WOOD STREET ILLABO	RES	45	40	35	35			47.8	53.7		2.8	7.8	12.8	12.8	-	2.8	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible

NCA 1	1676 930	11 LAYTON STREET ILLABO	RES	45	40	35	35			45.8	51.8		0.8	5.8	10.8	10.8	-	0.8	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676 931	5 TOOHEYS LANE ILLABO	RES	45	40	35	35			57	63		12	17	22	22	-	12	Moderately Intrusive	Moderately Intrusive	Moderately Intrusive	Moderately Intrusive
NCA 1	1676 934	81 SHOWGROUND ROAD ILLABO	RES	45	40	35	35			46.8	52.7		1.8	6.8	11.8	11.8	-	1.8	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676 936	11 LAYTON STREET ILLABO	RES	45	40	35	35			45.2	51.1		0.2	5.2	10.2	10.2	-	0.2	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676 937		RES	45	40	35	35			48.3	54.2		3.3	8.3	13.3	13.3	-	3.3	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676 938		RES	45	40	35	35			46.4	52.4		1.4	6.4	11.4	11.4	-	1.4	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676 939	41-45 LAYTON STREET ILLABO	RES	45	40	35	35			46.6	52.5		1.6	6.6	11.6	11.6	-	1.6	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676 941		RES	45	40	35	35			46.5	52.4		1.5	6.5	11.5	11.5	-	1.5	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676 942	41-45 LAYTON STREET ILLABO	RES	45	40	35	35			46.1	52		1.1	6.1	11.1	11.1	-	1.1	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676 943	11 LAYTON STREET ILLABO	RES	45	40	35	35			45.5	51.4		0.5	5.5	10.5	10.5	-	0.5	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676 944		RES	45	40	35	35			46.3	52.2		1.3	6.3	11.3	11.3	-	1.3	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676 945	2 HOWELL STREET ILLABO	RES	45	40	35	35			47.2	53.1		2.2	7.2	12.2	12.2	-	2.2	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676 946	2 HOWELL STREET ILLABO	RES	45	40	35	35			47.4	53.3		2.4	7.4	12.4	12.4	-	2.4	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676 947	41-45 LAYTON STREET ILLABO	RES	45	40	35	35			46.3	52.2		1.3	6.3	11.3	11.3	-	1.3	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676 948	81 SHOWGROUND ROAD ILLABO	RES	45	40	35	35			49.1	55		4.1	9.1	14.1	14.1	-	4.1	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676 950		RES	45	40	35	35			47.5	53.4		2.5	7.5	12.5	12.5	-	2.5	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676 951	25 LAYTON STREET ILLABO	RES	45	40	35	35			46.1	52.1		1.1	6.1	11.1	11.1	-	1.1	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676 952	10 HOWELL STREET ILLABO	RES	45	40	35	35			47.3	53.2		2.3	7.3	12.3	12.3	-	2.3	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676 953		RES	45	40	35	35			61.6	67.6		16.6	21.6	26.6	26.6	-	16.6	Moderately Intrusive	Moderately Intrusive	Highly Intrusive	Highly Intrusive
NCA 1	1676 954	7 TOOHEYS LANE ILLABO	RES	45	40	35	35			58.4	64.3		13.4	18.4	23.4	23.4	-	13.4	Moderately Intrusive	Moderately Intrusive	Moderately Intrusive	Moderately Intrusive
NCA 1	1676 955	33 LAYTON STREET ILLABO	RES	45	40	35	35			46.6	52.6		1.6	6.6	11.6	11.6	-	1.6	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676 956		RES	45	40	35	35			46.3	52.3		1.3	6.3	11.3	11.3	-	1.3	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible

Vibration

NCA	Receiver	Address	Vibration Impact

Noise Assessment 3 – CSR longitudinal trench between chainages 467.600km to 468.140km

Construction noise and vibration impact assessment

I2S September Possession v2

Proposed works	I2S September Possession v2		
Proponent	JHG I2S		
Assessment Date	08/08/2025		
Prepared by	Ryan Maxwell	**Assessment Id**	01

Introduction

This report has been prepared using the construction noise self-assessment platform KNOWnoise: *Minor Works* and presents an assessment of the likely noise impacts related to proposed works associated with the above project. Where possible, these works would be completed during standard construction hours; however, there may be a need to work outside these hours due to technical, community or access limitations. The location of the proposed works is illustrated in Appendix A.

Planned works

A description of the proposed works is as follows.

I2S September Possession v2

Proposed activities and equipment for the works are summarised in Appendix B.

Though subject to change, the works are expected to commence around 13/09/2025 and would be completed by 15/09/2025.

Assessment criteria and mitigation requirements

Noise

The Interim Construction Noise Guideline (ICNG) (DECC 2009) describes noise more than the background level as potentially having an adverse impact on sensitive receivers and increasing the likelihood of complaint. During standard construction hours, where construction noise is within 10 dB(A) of the RBL, impacts would be acceptable.

Where construction noise is more than 10 dB(A) above the RBL during standard construction hours, a residential receiver is considered noise affected and the proponent should undertake all reasonable and feasible steps necessary to manage the impact and consult with the affected community.

Above a LAeq, 15 minute noise level of 75 dB(A), a receiver is highly affected, requiring consideration of additional mitigation measures including alternative accommodation in the night period.

Outside standard construction hours, construction noise at a residential receiver more than 5 dB(A) above the RBL is taken to be noise affected.

In addition, annoying noise such as rock hammers, impact piling, or other impulsive noise sources usually result in greater annoyance than continuous construction noise. A 5 dB(A) penalty is applicable to such activities prior to comparison with the NMLs.

Other sensitive land uses, such as schools and offices, typically find noise from construction disruptive when the properties are being used (such as during work and school times). Table 2 presents NMLs from the ICNG for sensitive land uses based on the principle that the characteristic activities for each of these land uses should not be unduly disturbed.

Table 1 Non-residential sensitive land uses noise management levels

Land use	Noise assessment location	NML ($L_{Aeq,15min}$)
Classrooms at schools and other educational institutions	Internal	45
Places of worship		
Active recreation areas (such as sporting activities and activities which generate their own noise or focus for participants)	External	65
Passive recreation areas (contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example, reading, meditation)	External	60
Industrial premises	External	75
Office, retail outlets	External	70

Vibration

Effects of vibration from construction may be segregated into:

- Human exposure – disturbance to building occupants: vibration in which the occupants or users of the building are inconvenienced or possibly disturbed.
- Effects on building contents – vibration where the building contents may be affected.
- Effects on building structures – vibration in which the integrity of the building or structure itself may be prejudiced.

Vibration criteria relating to human comfort applicable to this project are taken from the DEC (2006) document Assessing Vibration – A Technical Guideline for intermittent vibration – such as from drilling, compacting or activities that would result in continuous vibration if operated continuously. Intermittent vibration is assessed as a vibration dose value (VDV) and relates to the level of vibration over time (cumulative over the night or day period). VDVs that may result in adverse comment from receivers are summarised in Table 5.

Table 2 Summary of vibration dose values which might result in adverse comment

Time	Low probability of adverse comment ($m/s^{1.75}$)	Adverse comment possible ($m/s^{1.75}$)	Adverse comment probable ($m/s^{1.75}$)
Day (6am to 10pm)	0.2 to 0.4	0.4 to 0.8	0.8 to 1.6
Night (10pm to 6am)	0.1 to 0.2	0.2 to 0.4	0.4 to 0.8

Guidance for the consideration of potential building damage from construction vibration is in line with BS 7385-1 *Evaluation and measurement for vibration in buildings - Guide for measurement of vibration and evaluation of their effects on buildings*. These guideline values are presented in Table 3.

Table 3 Building damage vibration guidelines (BS 7385-1)

Type of building	Guideline values for vibration (PPV mm/s)		
	4Hz to 15Hz	15Hz to 40Hz	40Hz and above
Reinforced or framed structures / Industrial and heavy commercial buildings	50		
Un-reinforced or light framed structures / Residential or light commercial type buildings	15 - 20	20 - 50	50

For heritage structures, criteria are in line with the German Standard *DIN 4150-3: Structural Vibration- effects of vibration on structures,* as summarised in Table 4.

Table 4 Guideline values for vibration velocity to be used when evaluating the effects of short-term vibration on heritage structures (DIN 4150-3).

Type of building	Guideline values for vibration (PPV mm/s)			
	1 Hz to 10 Hz	10 Hz to 50 Hz	50 Hz to 100 Hz	Vibration at horizontal plane of highest floor at all frequencies
Structures that, because of their sensitivity to vibration, cannot be classified under lines 1 and 2 and are of great intrinsic value (e.g. listed buildings under preservation order)	3	3 to 8	8 to 10	8

The safe working distances presented in Table 5 are indicative and will vary depending on the item of plant and local geotechnical conditions. The cosmetic damage thresholds apply to typical buildings under typical geotechnical conditions and vibration monitoring is recommended at specific sites. Where structures are more sensitive, such as heritage items, more stringent conditions are applicable and should be considered individually.

In relation to human response, the safe working distances relate to continuous vibration. For most construction activities, vibration emissions are intermittent and higher vibration levels over shorter periods are acceptable. Additional assessment should be undertaken where the human response criteria are exceeded.

Table 5 Safe working distances for vibration intensive plant

Plant item	Rating/description	Safe working distance	
		Cosmetic damage (BS 7385-1)	Human response (DECCW)
Vibratory roller	<50 kN (typically 1-2 t) <100 kN (typically 2-4 t) <200 kN (typically 4-6 t) <300 kN (typically 7-13 t) >300 kN (typically 13-18 t) >300 kN (> 18 t)	5 m 6 m 12 m 15 m 20 m 25 m	15 m to 20 m 20 m 40 m 100 m 100 m 100 m
Small hydraulic hammer	300 kg – 5 to 12 t excavator	2 m	7 m
Medium hydraulic hammer	900 kg – 12 to 18t excavator	7 m	23 m
Large hydraulic hammer	1600 kg – 18 to 34 t excavator	22 m	73 m
Vibratory pile driver	Sheet piles	2 m to 20 m	20 m
Pile boring	≤800 mm	2 m	n/a
Jackhammer	Hand held	1 m	Avoid contact with structure

Existing environment and noise management levels

The proposed works would be undertaken in a predominantly Rural / Suburban, characterised as:

Areas with negligible transportation or very limited local traffic, typically light vehicles only.

100m or more from the road.

Background noise levels adopted for the project area and associated noise management levels (NMLs) are summarised in Table 6. NMLs have been established in line with the ICNG.

Table 6 Construction NMLs

Land use	**Rural / Suburban**		**Using custom background noise data?**		**Yes**
Criterion	Day	Weekend Day	Evening	Night	Sleep
RBL	35	35	35	35	
NML	45	40	35	35	45

Sleep disturbance

The ICNG recommends where construction works are planned to extend over more than two consecutive nights, the maximum noise level should be considered for the purposes of establishing the likelihood of sleep disturbance. The Road Noise Policy suggests that maximum internal noise levels below 50-55 dB(A) are unlikely to awaken people from sleep and one or two noise events per night, with maximum internal noise levels of 65-70 dB(A) are not likely to affect health and wellbeing significantly.

Based on this, a sleep awakening criterion of 55 dB(A) (internal) is typically adopted for works. Given that noise attenuation of 10 dB(A) is typically provided by an open window, a sleep awakening criterion of LAmax 65 dB(A) (external) has been applied to residential bedroom façades.

Assessment methodology

Based on the nominated works area (illustrated in Appendix A), proposed equipment and the minimum distance from the works to each sensitive receiver, noise levels were calculated based on ISO9613: 2 *Acoustics - Attenuation of sound during propagation outdoors.*

This method considers geometric spreading, atmospheric absorption, ground effects and is valid for meteorological conditions of a gentle breeze from source to receiver and stable atmosphere (temperature inversion).

KNOWnoise: Minor works is a 2-Dimensional assessment platform and does not consider terrain effects (e.g. hills, valleys) or the presence of solid structures such as homes or noise barriers. This will result in a conservative prediction, suitable for the project being assessed.

Considering the nature of the works and the type of surrounding land uses, sensitive receivers up to a radius of 2000 metres from the works have been included in the assessment.

Sound power levels and predicted noise levels depend on the number of plant items operating at any one time and their precise location relative to a sensitive receiver. Equipment was assumed to be working at the worst-case location relative to each receiver and represents a worst-case assessment. Where the activity is further away from receivers or less equipment is used the predicted levels will decrease.

Sound power levels for plant and equipment expected to be used for each activity has been estimated based on guidance in the following standards and guidelines as well as typical measured noise levels for specific equipment.

- AS2436-2010: Guide to noise and vibration control on construction, demolition and maintenance sites
- British Standard 5228-1:2009 Code of practice for noise and vibration control on construction and open sites
- United Kingdom Department for Environment, Food and Rural Affairs (DEFRA) Noise database for prediction of noise on construction and open sites

Construction noise sources and associated sound power levels are listed in Appendix B. The maximum predicted LAeq noise level within the work area was identified for each receiver.

Predicted noise levels

Detailed predicted noise levels for each potentially affected receiver are presented Appendix C.

A summary of predicted noise levels in comparison with ICNG assessment criteria for the Period0 period is presented in Table 4.

Table 7 Summary of predicted noise levels with comparison against ICNG criteria for the Period0 period.

Criterion	Predicted number of receivers
Maximum cumulative predicted $L_{Aeq,\ 15\ minute}$ noise level	71 dB(A)
Number of highly noise affected receivers (>75 dB)	0
1 – 10 dB above NML	7
10 – 20 dB above NML	3
20+ dB above NML	2

Predicted impact classes for the Period0 period are illustrated graphically in Appendix C. Each identified receiver in the study area has been coloured to highlight the predicted level of impact.

Sleep disturbance

In the event works are planned for more than two consecutive nights, sleep disturbance is considered. Table 8 summarises the number of residents predicted to exceed the sleep disturbance screening criterion. Further analysis is also provided to indicate the number of receivers expected to be woken, at LAmax noise levels greater than 65 dBA.

Where exceedances of the awakening criteria are predicted, additional care should be taken and mitigation measures implemented in the with the CNVG.

Table 8 Summary of predicted exceedances of sleep disturbance screening criterion and awakening criterion.

Criterion	Predicted number of receivers
Potentially Sleep Disturbed (exceed RBL + 15 screening criterion)	0
Sleep Disturbed (exceed 65 dBA awakening criterion)	0

Predicted vibration impacts

The level of vibration impact on sensitive receivers (buildings and human comfort) will largely depend on the type of machinery in use and the distance from source to receiver.

Based on the proposed work locations and selected equipment, the following level of vibration impact is expected. A summary of vibration impacts is provided for each sensitive receiver in Appendix C.

Impact classification	Number of potentially affected receivers
Human comfort	0
Cosmetic damage	0
Heritage structure	0

Proposed noise mitigation measures

The safeguards and controls listed in Table 6 will be implemented where reasonable and feasible with the intention of achieving the project noise criteria and to maintain noise impacts at a practical minimum.

Table 9 Safeguards and controls

Action	Description
Community consultation or notification	Notify the affected community. The notification will detail work activities, dates and hours, impacts and mitigation measures, indication of work schedule over the night time period, any operational noise benefits from the works (where applicable) and contact telephone number. Notification should be a minimum of 7 calendar days prior to the start of works. For projects other than maintenance works more advanced consultation or notification may be required.
Site inductions	All employees, contractors and subcontractors are to receive an environmental induction. The induction would at least include: • all project specific and relevant standard noise and vibration mitigation measures • relevant licence and approval conditions • permissible hours of work • any limitations on high noise generating activities • location of nearest sensitive receivers • construction employee parking areas • designated loading/unloading areas and procedures site opening/closing times (including deliveries) environmental incident procedures
Behaviour	No swearing or unnecessary shouting or loud stereos/radios on site. Limit compression braking at night in residential areas. No dropping of materials from height, throwing of metal items and slamming of doors.
Verification	Where indicated in Appendix C, a noise verification program would be undertaken for the duration of the works.
Construction hours	Where feasible and reasonable, construction should be carried out during the standard daytime working hours. Work generating high noise and/or vibration levels should be scheduled during less sensitive time periods.
Respite for out-of-hours works	Respite would be scheduled as indicated in Appendix C and described in the CNVG.
Equipment selection	Use quieter construction methods where feasible and reasonable. Ensure plant including the silencer is well maintained. Plant noise levels will have an operating noise emission level compliant with Appendix F of the CNVG
Use and siting of plant	The offset distance between noisy plant and adjacent sensitive receivers is to be maximised. Plant used intermittently to be throttled down or shut down. Noise-emitting plant to be directed away from sensitive receivers.

Action	Description
Plan worksites and activities to minimise noise and vibration.	Locate compounds away from sensitive receivers and discourage access from local roads. Plan traffic flow, parking and loading/unloading areas to minimise reversing movements within the site. Where additional activities or plant may only result in a marginal noise increase and speed up works, consider limiting duration of impact by concentrating noisy activities at one location and move to another as quickly as possible. Very noise activities should be scheduled for normal working hours. If the work can not be undertaken during the day, it should be completed before 11:00pm. Where practicable, work should be scheduled to avoid major student examination periods when students are studying for examinations such as before or during Higher School Certificate and at the end of higher education semesters.
Non-tonal reverse alarms	Non-tonal reversing beepers (or an equivalent mechanism) must be fitted and used on all construction vehicles and mobile plant regularly used on site and for any out of hours work.
Shield stationary noise sources such as pumps, generators, and compressors	These should be enclosed or shielded where reasonable and feasible.
Implement any project specific mitigation measures	
1	None

Appendix A Project location and predicted level of impact

Appendix B Proposed activities and equipment

CSR Trench

Equipment	Quantity	Usage	Reduction	SWL
Excavator (10 tonne)	1	40%	0	95
Light vehicle	1	40%	0	81
Hand Tools (electric)	1	20%	0	87
Vacc truck	1	60%	0	110
Wacker Packer*	1	20%	0	101
Water Tanker (8000 litre)	1	40%	0	99

Activity Sound Power Level: 111

Appendix C Detailed noise predicted for each receiver

Noise

Assessment: I2S September Possession v2				NML, LAeq, 15 minute				Sleep, LAmax		Predicted noise level, dBA		Exceedance summary										
													Exceed NML by (dB):				Exceed sleep disturbance by (dB):		Impact classification			
NCA	Rec	Address	Land use	Day	O/day	Eve	Night	Screen	Awake	Cumulative LAeq, 15 minute	LMax	Highly Affected?	Day	O/day	Eve	Night	Screen	Awake	Day	O/day	Eve	Night
NCA 1	1676894	17 TOOHEYS LANE ILLABO	RES	45	40	35	35			64.1	70.3		19.1	24.1	29.1	29.1	-	19.1	Moderately Intrusive	Moderately Intrusive	Highly Intrusive	Highly Intrusive
NCA 1	1676898	10 HOWELL STREET ILLABO	RES	45	40	35	35			45.4	51.6		0.4	5.4	10.4	10.4	-	0.4	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676899		RES	45	40	35	35			45.5	51.7		0.5	5.5	10.5	10.5	-	0.5	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676900	9-11 HOWELL STREET ILLABO	RES	45	40	35	35			47.1	53.3		2.1	7.1	12.1	12.1	-	2.1	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676903	7 TOOHEYS LANE ILLABO	RES	45	40	35	35			55.1	61.4		10.1	15.1	20.1	20.1	-	10.1	Moderately Intrusive	Moderately Intrusive	Moderately Intrusive	Moderately Intrusive
NCA 1	1676907		RES	45	40	35	35			46.7	53		1.7	6.7	11.7	11.7	-	1.7	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676909		RES	45	40	35	35			47.2	53.5		2.2	7.2	12.2	12.2	-	2.2	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676918	81 WOOD STREET ILLABO	RES	45	40	35	35			48	54.2		3	8	13	13	-	3	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676923	9 TOOHEYS LANE ILLABO	RES	45	40	35	35			59.4	65.7		14.4	19.4	24.4	24.4	-	14.4	Moderately Intrusive	Moderately Intrusive	Moderately Intrusive	Moderately Intrusive
NCA 1	1676927	2 HOWELL STREET ILLABO	RES	45	40	35	35			45.1	51.3		0.1	5.1	10.1	10.1	-	0.1	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676928	17 TOOHEYS LANE ILLABO	RES	45	40	35	35			68.2	74.4		23.2	28.2	33.2	33.2	-	23.2	Highly Intrusive	Highly Intrusive	Highly Intrusive	Highly Intrusive
NCA 1	1676931	5 TOOHEYS LANE ILLABO	RES	45	40	35	35			53.3	59.6		8.3	13.3	18.3	18.3	-	8.3	Clearly Audible	Clearly Audible	Moderately Intrusive	Moderately Intrusive
NCA 1	1676937		RES	45	40	35	35			45.6	51.8		0.6	5.6	10.6	10.6	-	0.6	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676948	81 SHOWGROUND ROAD ILLABO	RES	45	40	35	35			46.4	52.7		1.4	6.4	11.4	11.4	-	1.4	Clearly Audible	Clearly Audible	Clearly Audible	Clearly Audible
NCA 1	1676953		RES	45	40	35	35			71.3	77.5		26.3	31.3	36.3	36.3	-	26.3	Highly Intrusive	Highly Intrusive	Highly Intrusive	Highly Intrusive
NCA 1	1676954	7 TOOHEYS LANE ILLABO	RES	45	40	35	35			54.6	60.8		9.6	14.6	19.6	19.6	-	9.6	Clearly Audible	Clearly Audible	Moderately Intrusive	Moderately Intrusive

Vibration

NCA	Receiver	Address	Vibration Impact

Appendix D September Possession MAF – Endorsed

Refer to the approved MAF Aconex reference 5-0019-220-EEC-00-RP-0012_0

Appendix E Site Environment Plan

General

Misc. Construction Controls to avoid Environmental Incidents
Out of Hours Work (OOHW) as approved by Inland Rail and the ER. OOHW as described in the Out of Hours Work Protocol *(5-0019-220-EEC-00-PO-0001)*.
No works to be undertaken outside of standard construction hours without prior approval from the ER.
Fatigue monitored to ensure environmental & safety incidents are avoided.
Plant and equipment to be operated by a trained competent and authorised person only.
Pre-mobilisation Inspection for all plant and equipment.
Licensed Asbestos Contractor Class A for removal of friable asbestos and Class B for bonded asbestos.

Environmental Risks

Impact	Risk
Noise Pollution	[L]
Water Pollution	[L]
Air Quality	[L]
Chemical Spills	[L]
Waste and Resource	[L]
Flora & Flora	[L]
Housekeeping	[L]
Traffic Management	[L]
Heritage	[L]

EVENT MANAGEMENT

All environmental incidents to be reported immediately to Inland Rail and Environmental Representative and entered into Horizon360 within 24 hours of the event.

Air Quality Management

Avoid works during unfavourable weather conditions, i.e., following BOM weather alerts and/or warnings.	**Site Supervisor**
Plant/equipment will cease where excessive emission of black smoke from the responsible plant/equipment is observed.	**Site Supervisor**

Contamination

Controls / Actions	Responsibility
Upon identification/suspicion of contaminants, work must cease and the procedure in the Unexpected and Incidental Finds Protocol be adhered to (*5-0019-220-PES-00-PR-0001*).	**Site Personnel**

Project Contacts

Project Title	Name	Contact No.
Superintendent	Malcom Gerrish	0439 631 524
Site Supervisor	Matt Estens	0407 310 353
JHG Rail Systems Manager	Nirmalya Chakraborty	0419 327 884
JHG Construction Manager	William Manolas	0425 316 781
JHG Environment Manager	Andy Robertson	0400 185 520
JHG Environment Delegate	Tess Anastakis	0427 275 193
JHG Safety Manager	Kevin Hasler	0483 308 737
IRPL Project Manager	Michael Matthews	0411 324 445
EPA Pollution Hotline		131 555
WIRES – Animal rescue		1300 094 737
Project Information Line		1800 732 761
Riverina Fire Brigade		6929 5700
Emergency – Police, Fire and Rescue		000 OR 112

Working Hours

Standard Construction Hours:
Mon – Sat 07:00 to 18:00

ALL HOURS OUTSIDE OF THESE TIMES ARE TO BE CONSIDERED AS OUT OF HOURS WORK (OOHW) AND MUST BE APPROVED BY THE ER PRIOR TO OOHW COMMENCING

Traffic Management

Controls / Actions	Responsibility
Ensure safe exit and entry to the site is maintained at all times.	**Site Supervisor**
Site vehicles will be parked within or in close proximity to the CIZ to support project activities and minimise public disruption and overall impact.	**Site Supervisor**
Ensure public/pedestrian access is maintained.	**Site Supervisor**
Site access is only permitted via routes that have been approved by the ER, IRPL and relevant landowners.	**Site Supervisor**
Adhere to speed limit restrictions on all roads to minimise dust generation	**Site Supervisor**

Soil and Water Management

Controls / Actions	Responsibility
Appropriate erosion and sediment controls will be installed in accordance with Blue Book for stormwater/rail corridor drains (as required). Monitor the sediment and erosion controls – repair and reinstate where these are damaged. Refer to the September Possession ESED Plan for specific details.	**Site Supervisor** **Project Manager**
Water will not be discharged unless approved by the JHG Environment Team.	**Project Engineer**
Inspection of the erosion and sediment controls to be completed after 20mm in 24hours.	**Site Supervisor**
Groundwater would be managed in accordance with the requirements of the Waste Classification Guidelines (EPA, 2014)	**Site Supervisor**

Refuelling / Servicing

Spill kits to be located in close proximity to refuelling operations.	**Site Supervisor**
If required, only minor servicing activities are to be undertaken on site. >50m from drainage lines.	**Site Personnel**
Ground protection measures (drip trays and plastic sheeting) must be installed prior to servicing / refuelling activities.	**Site Personnel**
Prevent the discharge of pollutants to stormwater. Undertake regular checks of equipment to ensure leaks and spills are rectified and cleaned immediately.	**Site Supervisor** **Site Personnel**
Report all environmental incidents to the JHG Environment Team.	**Site Personnel**

Waste and Resource Consumption

Prevent waste being blown or washed outside of the construction boundary (CIZ).	**Site Supervisor**
Waste generated from workers consumables to be disposed of in bins.	**Site Supervisor**
All waste will be classified and managed in accordance with the NSW Environment Protection Agency (EPA) *Waste Classification Guidelines*.	**Project Engineer**

Chemical Storage

Chemicals, fuels and oils to be stored in the securely bunded area within the storage area.	**All personnel**
Spill kits and absorbent material to be located in the site plant, light vehicles and in work area.	**Site Supervisor**

Heritage Management

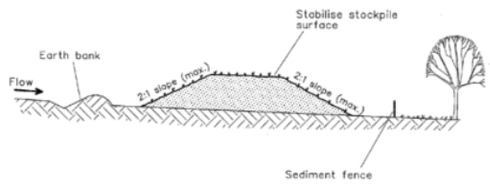
Controls / Actions	Responsibility
No impact to heritage items detailed in this SEP and the LIWA. Heritage items to be demarcated and signed.	**Site Supervisor** **Project Manager**
No works within 10m of Stockinbingal Heritage Conservation Area.	
Unexpected Heritage finds must be managed in accordance with the Unexpected and Incidental Finds Protocol (*5-0019-220-PES-00-PR-0001*).	**Site Personnel**

Flora and Fauna Management

No ground disturbance within TEC, unsurveyed areas and native vegetation zones prior to endorsement of the Project ecologist	**Site Personnel**
Contact project ecologist to have fauna relocated if found.	**Site Personnel**
NO VEGETATION IS TO BE REMOVED OR TRIMMED.	**Site Personnel**
Unexpected biodiversity finds must be managed in accordance with the Unexpected and Incidental Finds Protocol (*5-0019-220-PES-00-PR-0001*).	**Site Personnel**
Where no TEC polygons are present on the SEPs, all trees are to be avoided and protected where required.	**Site Personnel**
Vehicles to be inspected before movement between different landowners' properties.	**Site Personnel**
Vehicles to be brushed down of any mud/soil material and tires sprayed with disinfectant prior to making between between-property movements.	**Site Personnel**

Noise Management

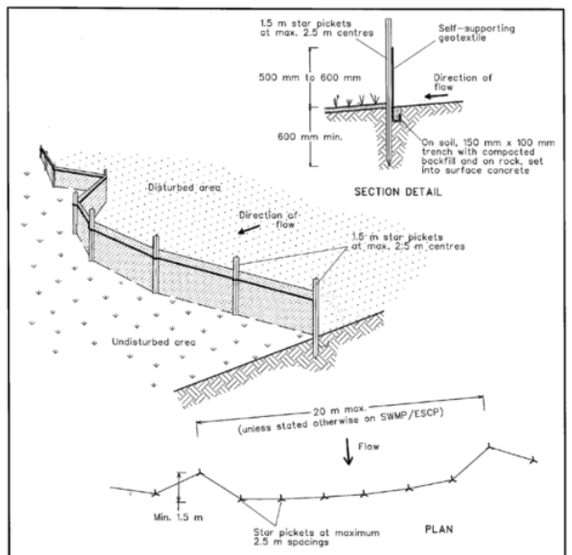
No works to occur outside standard construction hours, unless otherwise approved by Inland Rail and the ER. Comply with Out of Hours Protocol conditions of approval, if applicable.	**Project Manager** **Site Engineer** **Site Supervisor** **Environmental Representative**
All plant equipment engines, including delivery vehicles, must be turned off when not in use to reduce potential noise impacts to the surrounding community.	
Non-tonal reverse mechanisms will be installed on plant.	
No unnecessary shouting, slamming doors	



Construction Notes

1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
2. Construct on the contour as low, flat, elongated mounds.
3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
4. Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
5. Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

STOCKPILES **SD 4-1**



Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE **SD 6-8**

This SEP should be read in conjunction with the LIWA assessment, ERSED Plan and the full list of requirements which need to be implemented.

EROSION & SEDIMENT CONTOLS

- Refer to the ERSED Plan for the September possession which has been developed by the Project CPESC.
- All erosion and sediment controls are to follow the requirements of the Blue Book Managing Urban Stormwater, Volume 1, 4th Edition, March 2004.
- Additional ERSED control equipment will be available to site teams if required. The orientation and position of ERSED controls indicated in maps must be determined appropriately on site (i.e. downslope of work activity, covering a drain, etc.).

Monitoring of ESC:

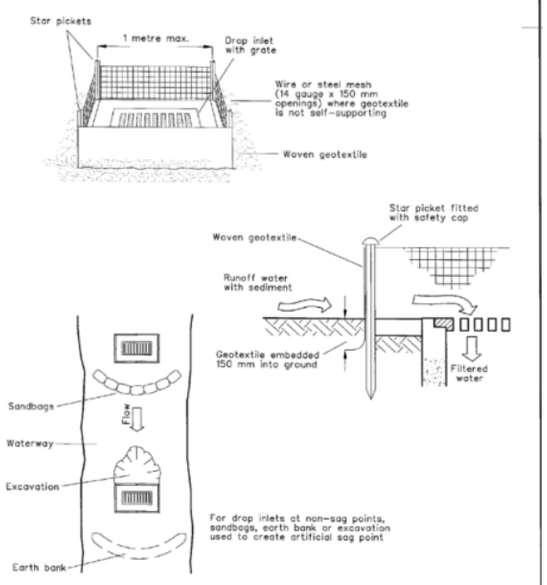
- Periodic monitoring of the effectiveness of the ESC to be undertaken as part of environmental inspections, prior to unfavourable weather conditions and after heavy rainfall events (>20mm in 24-hour period).

INDIGENOUS HERITAGE

- Works will not impact heritage items as identified in this SEP and in the LIWA.
- All applicable indigenous heritage items are to be appropriately demarcated including a 5m buffer zone.

FLORA AND FAUNA:

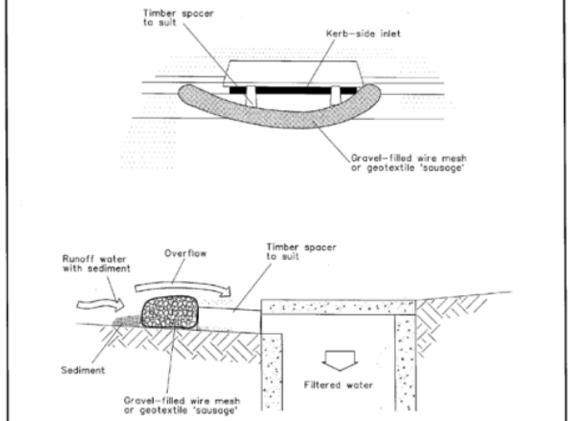
- No works to occur in areas mapped as native vegetation or TEC prior to an ecologist making an assessment through the process provided in the LIWA.



Construction Notes

1. Fabricate a sediment barrier made from geotextile or straw bales.
2. Follow Standard Drawing 6-7 and Standard Drawing 6-8 for installation procedures for the straw bales or geofabric. Reduce the picket spacing to 1 metre centres.
3. In waterways, artificial sag points can be created with sandbags or earth banks as shown in the drawing.
4. Do not cover the inlet with geotextile unless the design is adequate to allow for all waters to bypass it.

GEOTEXTILE INLET FILTER **SD 6-12**



NOTE: This practice only to be used where specified in an approved SWMP/ESCP.

Construction Notes

1. Install filters to kerb inlets only at sag points.
2. Fabricate a sleeve made from geotextile or wire mesh longer than the length of the inlet pit and fill it with 25 mm to 50 mm gravel.
3. Form an elliptical cross-section about 150 mm high x 400 mm wide.
4. Place the filter at the opening leaving at least a 100-mm space between it and the kerb inlet. Maintain the opening with spacer blocks.
5. Form a seal with the kerb to prevent sediment bypassing the filter.
6. Sandbags filled with gravel can substitute for the mesh or geotextile providing they are placed so that they firmly abut each other and sediment-laden waters cannot pass between.

MESH AND GRAVEL INLET FILTER **SD 6-11**

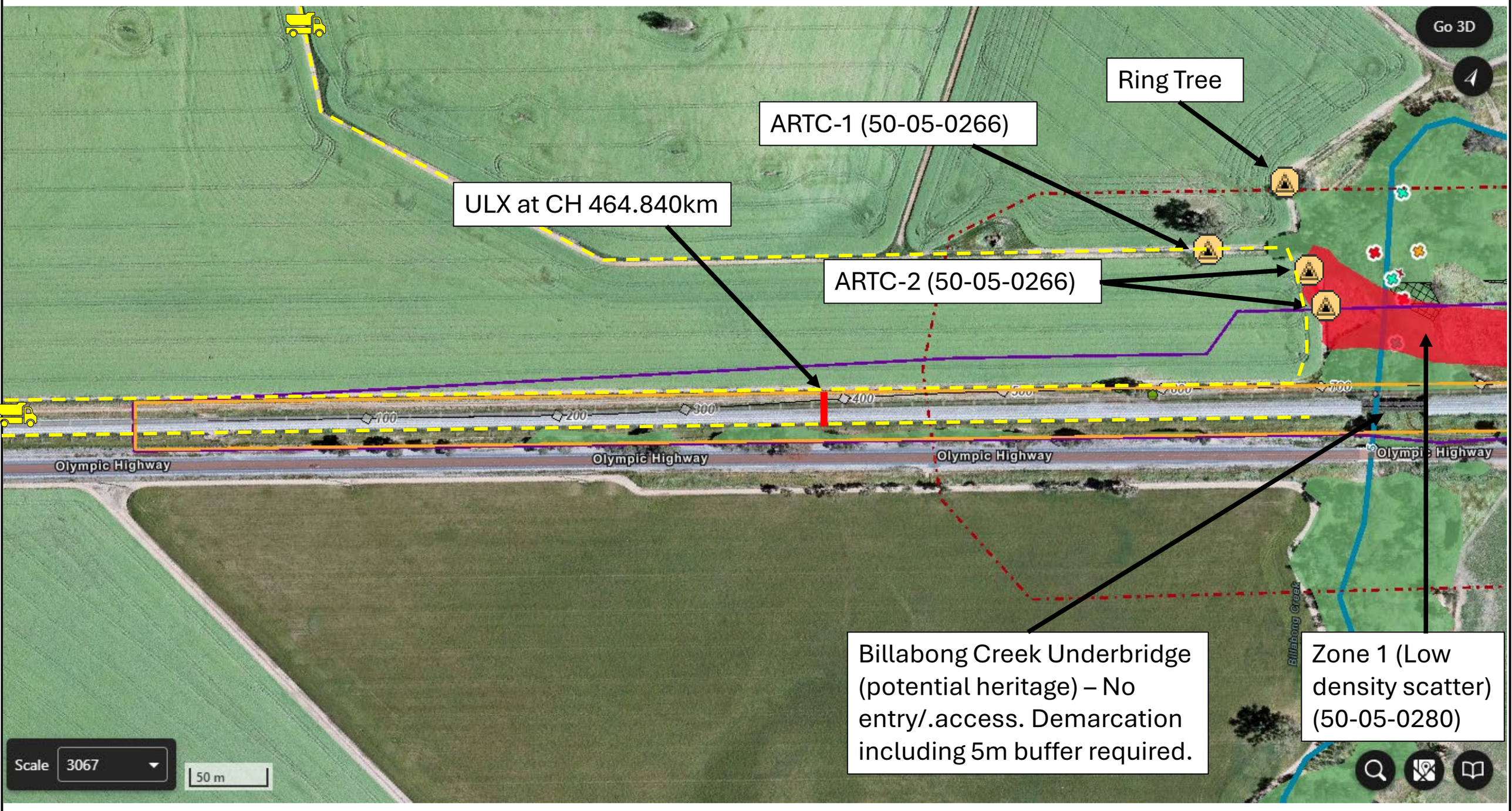
Note: Figures from the Blue Book

Site Environment Plan – September Possession – ULX CH 464.840

Site Access Point – I, XLVIII

Property #1 – Pam McInerney and Peter Curran

JOHN HOLLAND



CIZ boundary

Waterway and drainage line

Indigenous Survey Zones

Aboriginal Heritage artefact

TEC vegetation

AEC (Contamination)

Existing access gate

Sensitive Receivers

Scattered Paddock Tree

Possession work area

Little Eagle – Nest

Little Eagle

Dusk Woodswallow

Squirrel Glider

Access route

Indigenous Heritage No-Go Zone

ULX

Possession work area

Scale 8518
200 m

- CIZ boundary
- Waterway and drainage line
- Indigenous Survey Zones
- Aboriginal Heritage artefact
- TEC vegetation
- AEC (Contamination)
- Existing access gate
- Sensitive Receivers
- Scattered Paddock Tree
- Possession work area
- Little Eagle – Nest
- Little Eagle
- Dusk Woodswallow
- Squirrel Glider
- Access route

SAP ID: XLVIII

SAP ID: XLVIII

Zone 1 (Low density scatter) (50-05-0280)

Ring Tree

ARTC-3 (50-05-0274

ARTC-4 (50-05-0276)

ULX at CH 464.260km

Site Zone 1 (High density scatter) (50-05-0280)

Olympic Highway

Olympic Highway

Olympic Highway

Olympic Highway

Billabong Creek

Scale 2012

50 m

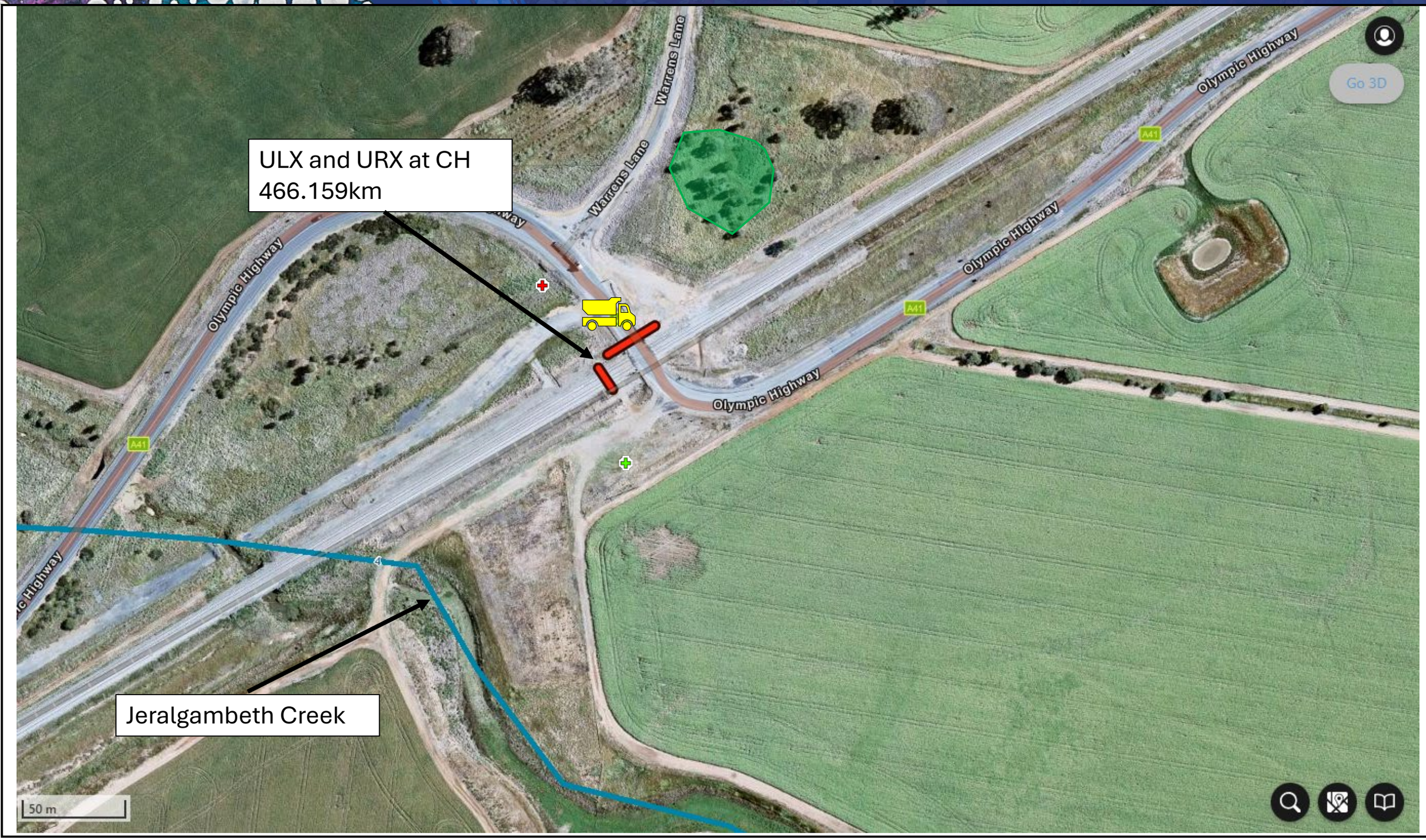
- CIZ boundary
- Waterway and drainage line
- Unsurveyed land (ecological)
- Indigenous Survey Zones
- Aboriginal Heritage artefact
- Indigenous PAD (No-go Zone)
- Fencing
- ULX
- Pothole
- Test pit
- Bore hole
- Pavement Core
- Access gate to construct
- AEC (Contamination)
- Existing access gate
- Sensitive Receivers
- TEC vegetation
- Native vegetation
- Scattered Paddock Tree
- Black Falcon
- Brown Treecreeper
- Diamond Firetail
- Dusk Woodswallow
- Flame Robin
- Grey-crowned Babbler
- Superb Parrot
- Superb Parrot - Nesting
- Spotted Harrier – Nest
- White-fronted Chat
- Spotted Harrier
- Square-tailed Kite
- Little Eagle – Nest
- Little Eagle
- Squirrel Glider

Site Environment Plan – September Possession – ULX/URX CH 466.159

Site Access Point – i

Property – ARTC

JOHN HOLLAND



CIZ boundary

Waterway and drainage line

Indigenous Survey Zones

Aboriginal Heritage artefact

TEC vegetation

AEC (Contamination)

Existing access gate

Sensitive Receivers

Native vegetation

Scattered Paddock Tree

Little Eagle – Nest

Little Eagle

Dusk Woodswallow

Squirrel Glider

Access route

Indigenous Heritage No-Go Zone

ULX/URX

Diamond Firetail

Site Environment Plan – September Possession – ULX CH 468.140 and CSR trench between CH 467.600 and 468.140

Site Access Point - CSR 1

Property - ARTC

JOHN HOLLAND

CSR trench between CH 467.600 and 468.140

ULX at CH 468.140

Jeralgambeth Creek

CSR 1

Go 3D

Olympic Highway

Stratton Street

Tooheys Lane

Jubilee Street

Cowley Street E

100 m

- CIZ boundary
- Waterway and drainage line
- Indigenous Survey Zones
- Aboriginal Heritage artefact
- TEC vegetation
- AEC (Contamination)
- Existing access gate
- Sensitive Receivers
- Native vegetation
- Scattered Paddock Tree
- Little Eagle – Nest
- Little Eagle
- Dusk Woodswallow
- Squirrel Glider
- Access route
- Indigenous Heritage No-Go Zone
- ULX/CSR trench
- Diamond Firetail

Appendix F Ecological Assessment

Outlook

Re: I2S habitat tree survey progress

From Ian Griffith <Ian@ozarkehm.com.au>
Date Tue 2025-09-02 11:54
To Ryan Maxwell-JHG <Ryan.Maxwell2@jhg.com.au>
Cc Tess Anastakis-JHG <Tess.Anastakis@jhg.com.au>; Jane Book <jane@ozarkehm.com.au>

Good morning Ryan and Tess

Please find below my brief summary for the assessment of biodiversity values at two additional sites outside of the CIZ for the I2S section of the inland rail.

ULX and URX at chainage 466.159km

This site was inspected by OzArk Ecologist Ian Griffith.
No biodiversity values were present at this site. The vegetation present was non-native and cannot be assigned into a Plant community type (PCT).
No threatened Ecological communities (TECs) or threatened species are likely to be present.
As long as the nearby vegetation remains intact, no significant biodiversity values will be impacted by the proposed works.

ULX chainage at 467.140km and CSR longitudinal trench between chainages 467.600 to 468.140km.

This site could not be accessed as it was within a rail corridor.
A drive by inspection by OzArk Ecologist Ian Griffith did not observe any native vegetation within the rail corridor. The site is unlikely to contain a TEC or provide ideal habitat for a threatened species.

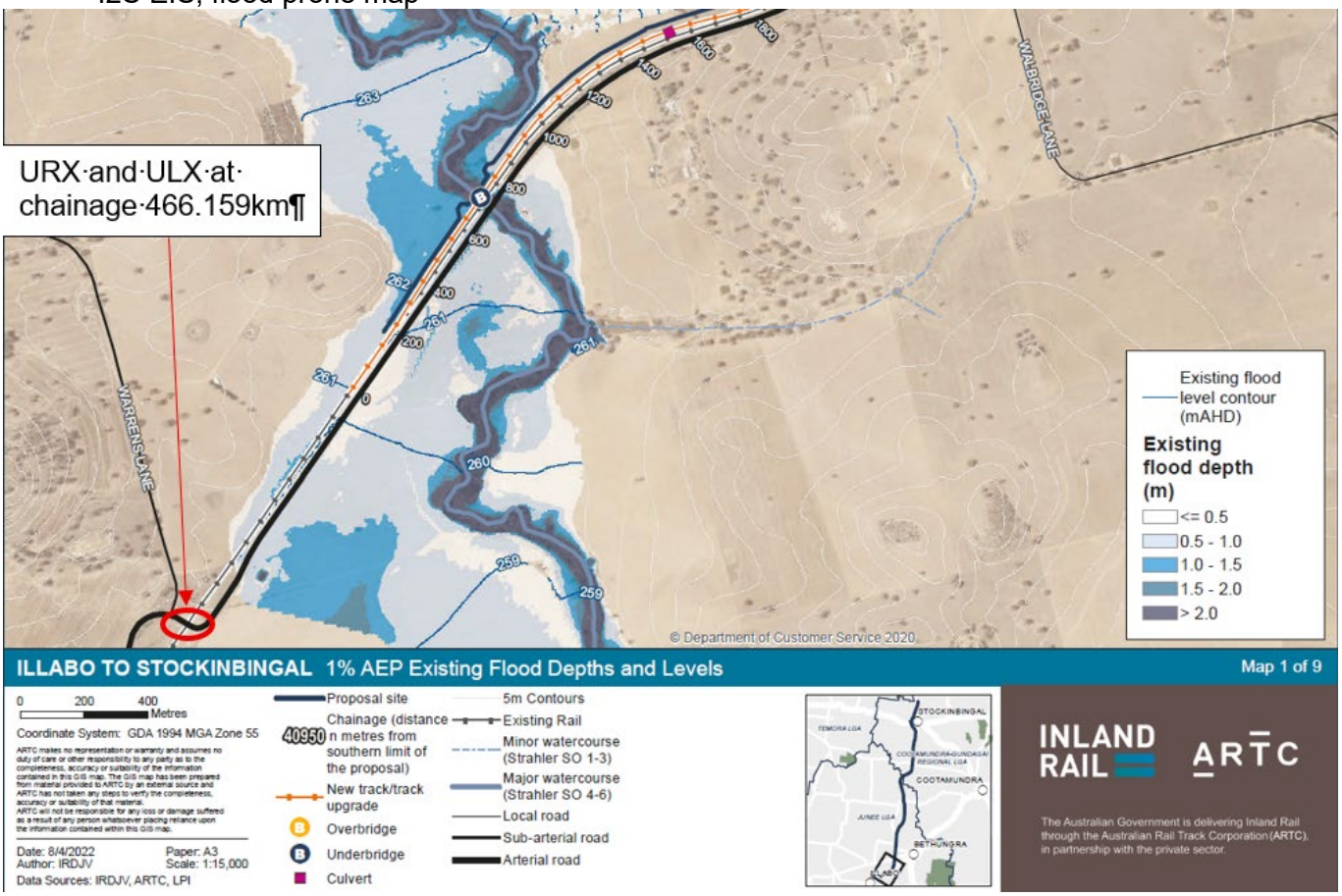
Some native vegetation was observed along the roadside vegetation. As long as this roadside vegetation remains intact and no trees will be removed, no significant biodiversity values are likely to be impacted by the proposed works.

Regards

Ian Griffith
OzArk Environment & Heritage
Project Ecologist
02 6882 0118

Appendix G Flood information

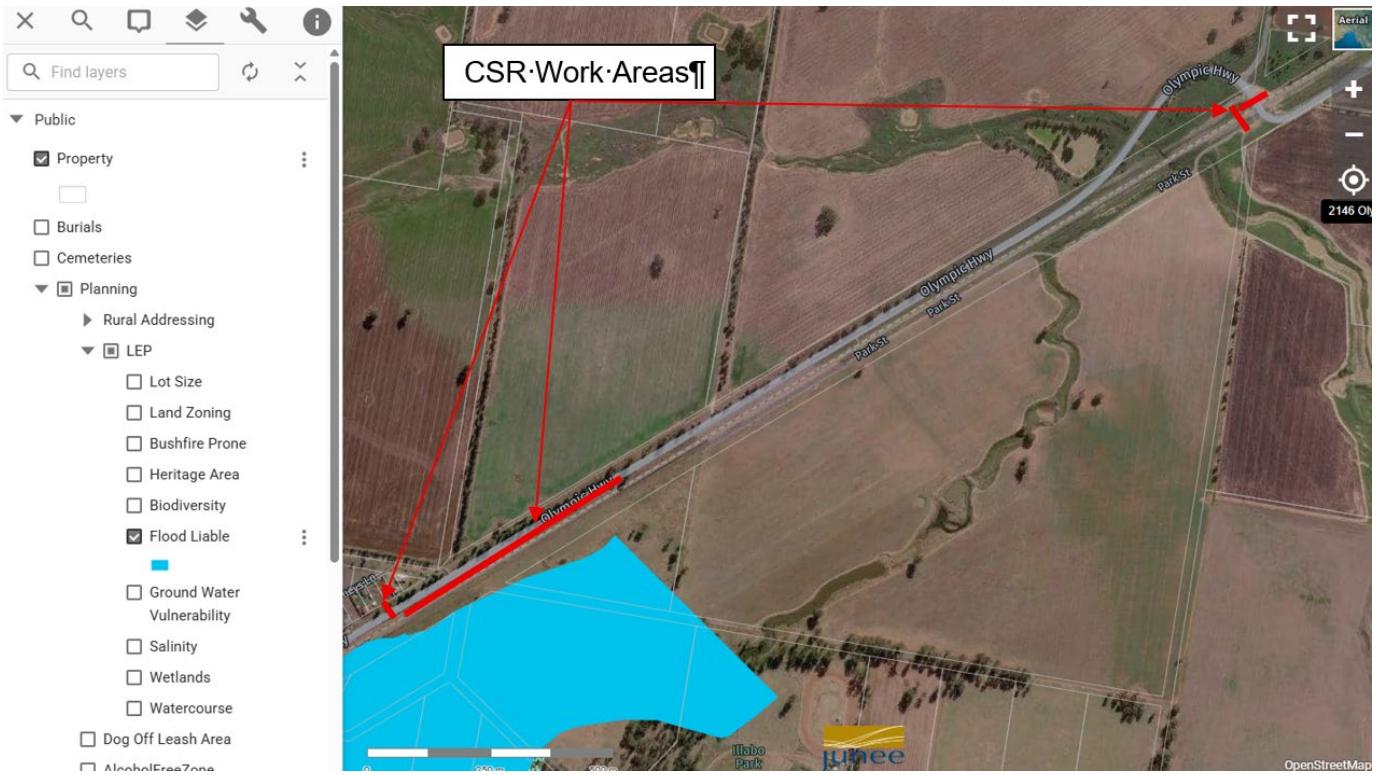
- I2S EIS, flood prone map



- A2I EIS, Chapter 18, Table 18-7

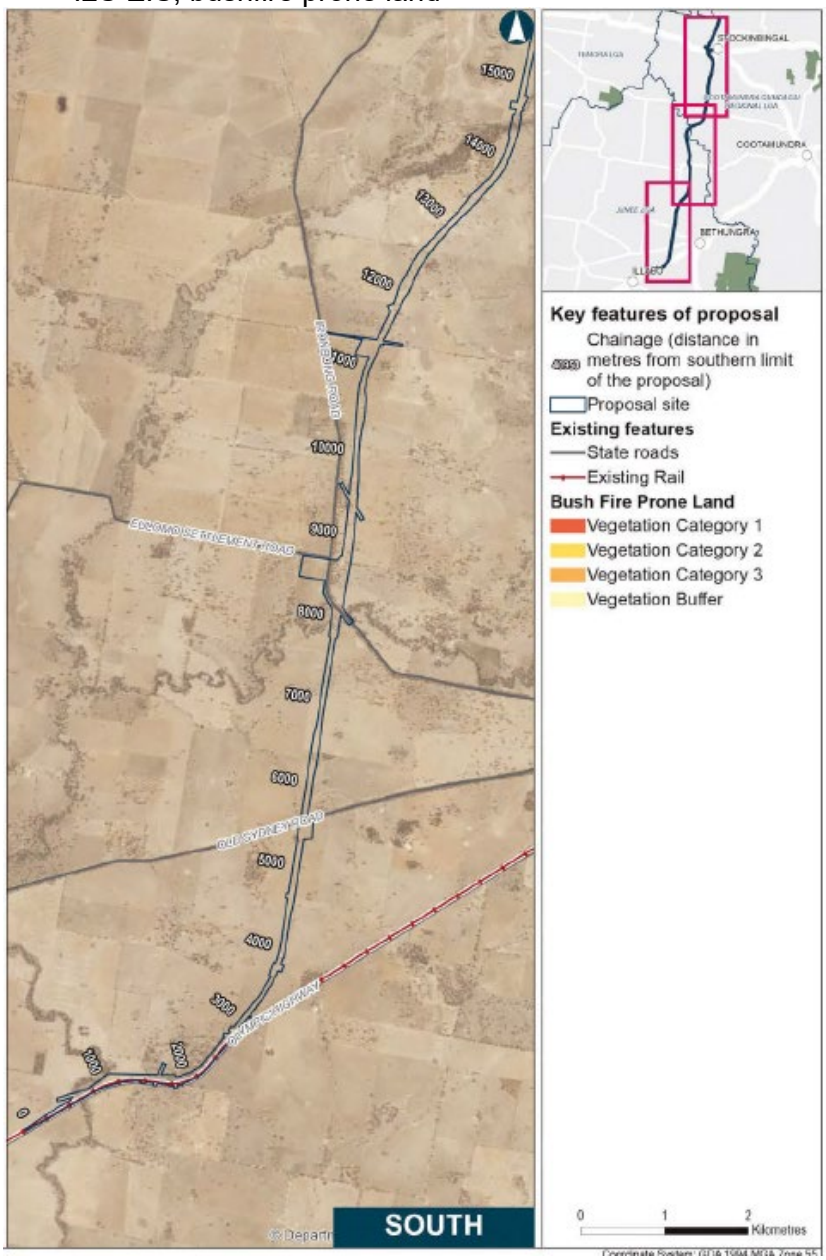
Enhancement site	Key features	Existing flood conditions	Drainage	Flood risk within and around the enhancement site for events up to the 1% AEP	PMF flood depth
	▸ Rail bridge alterations	▸ No flood impacts within the rail corridor.	conveying Rock Creek		
Junee to Illabo clearances	▸ Track realignment ▸ Culvert replacement	▸ Not located on flood-prone land	▸ Four bridges and nine culverts allow water to pass under the rail corridor	Not affected	No information available

- Junee Shire Council – Flood Mapping Tool – https://www.junee.nsw.gov.au/projects/mapping-portal/



Appendix H Bushfire information

- I2S EIS, bushfire prone land



- A2I EIS, Section 24.3.1

Precinct	Enhancement site	Indicative proximity to bushfire prone land
Wagga Wagga	Uranquinty Yard clearances	Within the proposal site
	Pearson Street bridge	1.5 km
	Cassidy Parade pedestrian bridge	800 m
	Edmondson Street bridge	600 m
	Wagga Wagga Station pedestrian bridge	400 m
	Wagga Wagga Yard clearances	250 m
	Bomen Yard clearances	3.5 km
Junee	Harefield Yard clearances	1.0 km
	Kemp Street bridge	900 m
	Junee Station pedestrian bridge	800 m
	Junee Yard clearances	1.0 km
	Olympic Highway underbridge	1.5 km
	Junee to Illabo clearances	2.8 km

- Junee Shire Council – Bushfire Prone Land Mapping Tool – https://www.junee.nsw.gov.au/projects/mapping-portal/

Appendix I Salinity Information

- Junee Shire Council – Salinity Mapping Tool – https://www.junee.nsw.gov.au/projects/mapping-portal/

Appendix J Contamination Information

- A2I EIS information on contamination

Table 4.23 Results of regulatory database and summary of review site history – Junee to Illabo clearances

DATABASE SEARCH	RESULTS
EPA environmental protection licenses	Online searches of the NSW EPA POEO Act public register indicated that the enhancement site was not on record or other properties within two kilometres of the enhancement site.
EPA contaminated sites registers	Online searches of the NSW EPA contaminated land record database indicated that no notices were on record for the enhancement site or any site within two kilometres. No sites have been notified to the NSW EPA under Section 60 of the CLM Act within two kilometres of the enhancement site.
Unexploded ordinances	No unexploded ordinance information found within a two kilometres radius of the enhancement site.
Summary of aerial imagery	The rail corridor was visible in its current location in 1961 aerial photograph. The area surrounding the enhancement site was developed with low density residential properties visually consistent with the current surrounding land use. The enhancement site and surrounding area remain largely unchanged in the 1987, 1994 and 2015 aerial photographs.

Home Public registers Contaminated land record of notices

Search results

Your search for: Suburb: ILLABO

Search Again Refine Search

did not find any records in our database.

Search TIP

To search for a specific site, search by LGA (local government area) and carefully review all sites listed.

... more search tips

f a site does not appear on the record it may still be affected by contamination. For example:

- Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.
- The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).
- Contamination at the site may be being managed under the planning process.

More information about particular sites may be available from:

- The POEO public register
- The appropriate planning authority: for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act.

See What's in the record and What's not in the record.

f you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.
This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact that a site does not appear on the record does not necessarily mean that it is not affected by contamination. The site may have been notified to the EPA but not yet assessed, or contamination may be present but the site is not yet being regulated by the EPA. Further information about particular sites may be available from the appropriate planning authority, for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act. In addition the EPA may be regulating contamination at the site through a licence under the Protection of the Environment Operations Act 1997. You may wish to search the POEO public register.POEO public register

1 September 2025