Wilcannia Weir Replacement

Traffic and transport impact assessment

Final

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Water Infrastructure NSW

Wilcannia Weir Replacement

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Water Infrastructure NSW proposes to replace the existing Wilcannia Weir on the Darling River (Baaka) at Wilcannia, with a new weir located about five river kilometres downstream of the existing weir (the proposal). The existing weir would also be partially removed and decommissioned as part of the proposal. The proposal is located in the Central Darling local government area and would provide a more reliable long-term town water supply for Wilcannia to meet community needs. The proposal is funded by a $30 million commitment from both the NSW and Commonwealth governments.

The proposal is declared State significant infrastructure under section 2.13 and Schedule 3 of the *State Environmental Planning Policy (Planning Systems) 2021*. The proposal is subject to assessment in accordance with Part 5 Division 5.2 of the *Environmental Planning and Assessment Act, 1979* and the environmental assessment requirements of the Secretary of the NSW Department of Planning and Environment (SSI-10050), dated 28 August 2020. The proposal is also determined to be a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and requires approval from the Australian Minister for the Environment.

This report

This traffic and transport impact assessment has been prepared on behalf of Water Infrastructure NSW to support the environmental impact statement for the proposal and responds to the Secretary's environmental assessment requirements for traffic and transport.

This report provides a description of the existing conditions on the transport network and consideration of the likely impacts of construction and operation activities. Recommended mitigation and management measures are identified in response to the impact assessment findings.

Existing environment

The existing road network near the proposal consists of the Barrier Highway, Reid Street, Union Bend Road, southern access track from the Barrier Highway and Victory Park Caravan Park access road. Traffic volumes on these roads are low due to the remoteness of the area.

The public transport network near the proposal is limited to infrequent coach services and school bus services. The cycling network near the proposal is limited to an off-road shared path on the southern side of the Barrier Highway, which facilitates local cycling access within Wilcannia. Footpaths are generally provided throughout Wilcannia. However, formal pedestrian facilities are not provided on the Barrier Highway and Reid Street near the existing weir or the proposed new weir.

Crash rates are low on roads forming part of the proposed haulage route. In the five-year period from 1 January 2014 to 31 December 2019, a total of 39 crashes were recorded on the Barrier Highway between Iodide Street/Argent Street, Broken Hill and the southern access track in Wilcannia. No crashes were recorded on Reid Street between the Barrier Highway and Union Bend Road.

The Darling River (Baaka) near the proposal does not typically carry maritime traffic as the existing weir is an obstruction to navigation and access is difficult due to steep riverbanks and the absence of defined access points for vessels. However, the Darling River (Baaka) near the proposal caters to some recreational activity including swimming and fishing.

Impacts from the proposal during construction

The potential traffic and transport impacts of the proposal during construction have been identified as follows:

- Construction vehicle movements generated by the proposal are not expected to have a large impact on the operation of the surrounding road network. The Barrier Highway, Reid Street and Union Bend Road currently carry low traffic volumes and have spare capacity to accommodate the relatively low amount of construction traffic that the proposal would generate
- No impacts to parking are expected as parking for construction vehicles would be provided within or next to the construction compound and laydown areas for the duration of the works, away from public roads
- Victory Park Caravan Park would be temporarily closed during partial removal and decommissioning of the existing weir to avoid the safety risk of construction vehicles and plant operating near recreational users at the caravan park. Water Infrastructure NSW will consult with Central Darling Shire Council to minimise the impacts of temporarily closing the caravan park. No other impacts to access are expected during construction of the proposal
- Impacts to buses would be limited to a potential minor increase in travel time due to additional construction vehicles on the road network temporarily
- Impacts to active transport would be limited to minor amenity impacts at town centres due to the addition of construction vehicles on the road network temporarily. Footpaths, pedestrian crossings and cycling facilities near construction vehicle routes would remain open during construction
- Additional construction traffic has the potential to temporarily impact road safety on roads forming part of the proposed construction vehicle route
- Due to the very low number of oversized and/or overmass (OSOM) vehicle movements required for the construction of the proposal, combined with the fact that OSOM vehicles would be required to travel outside of peak periods, the traffic impact of OSOM vehicles on the existing network is expected to be minimal
- No transport of hazardous or dangerous goods is expected to be required for the construction of the proposal
- No impacts to maritime traffic are expected. Construction impacts to recreational maritime activities are expected to be minor due to the availability of nearby alternative locations for swimming and recreational fishing
- Minimal cumulative construction impacts associated with nearby developments or activities that are underway or likely to commence during the proposal's construction timeframe are expected.

Impacts from the proposal during operation

Potential impacts of the proposal during operation have been identified as follows:

- Operational vehicle movements are not expected to have a large impact on the operation of the surrounding road network as roads currently carry low traffic volumes and have spare capacity to accommodate the relatively low increase in operational traffic
- The provision of an informal parking area at the proposed community river place would accommodate any additional parking demand thus no impacts to parking are expected
- Operational impacts of the proposal on public transport, road safety, pedestrians and cyclists are expected to be minimal. No impacts to road access are expected
- No transport of hazardous or dangerous goods is expected to be required for the operation of the proposal
- Operational impacts to maritime activities are expected to be low as the Darling River (Baaka) does not typically carry maritime traffic. The existing weir obstructs navigation and the new weir would also obstruct navigation, thus the operation of the proposal would result in no change to navigability
- No cumulative operational impacts on traffic and transport are expected.

Recommended mitigation and management measures

The following mitigation and management measures will be implemented to minimise the traffic and transport impacts of the proposal during construction and operation:

- Upgrade of the intersection of the Barrier Highway and southern access track to enable safe truck turning into and out of the southern access track
- Preparation and implementation of a construction traffic management plan, including implementation of a driver code of conduct and installation of appropriate signage on the approaches to the southern access track to notify road users of increased traffic volumes turning into and out of the access track
- Placement of appropriate signage at the access points from Union Bend Road to the existing track along the northern bank of the Darling River (Baaka) to advise traffic of access restrictions during construction of the new weir
- During construction of the new weir, a 50-metre sign-posted exclusion zone will be put in place both upstream and downstream of the new weir to restrict any maritime activities and improve safety around the construction site
- Consultation with Central Darling Shire Council will be undertaken to minimise the impacts of the closure of Victory Park Caravan Park during partial removals and decommissioning of the existing weir
- During operation of the proposal, appropriate signage will be placed along the existing track along the northern bank of the Darling River (Baaka) where it passes the new weir site to inform traffic of shared zone conditions
- During operation of the proposal, a sign-posted permanent exclusion zone will be put in place both upstream and downstream of the new weir to restrict any maritime activities and improve safety around the operating weir.

Glossary of terms and abbreviations

Term	Definition
AHD	Australian Height Datum
EIS	Environmental impact statement
km/h	Kilometres per hour
Left and right	Reference to the left and right riverbank is with respect to the view in the downstream direction, in accordance with industry practice
NSW	New South Wales
OSOM	Oversized and/or overmass
River kilometre	Distance along the centreline of a river (i.e. not in a straight line), measured in kilometres
SEARs	Secretary's environmental assessment requirements
The proposal	The Wilcannia Weir Replacement project

1. Introduction

Water Infrastructure NSW proposes to replace the existing Wilcannia Weir on the Darling River (Baaka) at Wilcannia, with a new weir located about five river kilometres downstream of the existing weir (the proposal) (refer to **Figure 1-1**). The existing weir would also be partially removed and decommissioned as part of the proposal. The proposal is located in the Central Darling Shire local government area and would provide a more reliable long-term town water supply for Wilcannia to meet community needs. The proposal is funded by a $30 million commitment from both the NSW and Commonwealth governments.

1.1 Approval and assessment requirements

The proposal involves the construction and operation of a new weir and the partial removal and decommissioning of the existing weir at Wilcannia and is declared State significant infrastructure under section 2.13 and Schedule 3 of the State Environmental Planning Policy (Planning Systems) 2021. The proposal is subject to assessment in accordance with Part 5 Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979* and the environmental assessment requirements of the Secretary of the NSW Department of Planning and Environment (the SEARs) (SSI-10050), dated 28 August 2020.

The Minister for Planning approves State significant infrastructure projects in accordance with section 5.14 of the *Environmental Planning and Assessment Act 1979*.

The proposal is also determined to be a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and requires approval from the Australian Minister for the Environment.

This report has been prepared by Jacobs Group (Australia) Pty Ltd (Jacobs) as part of the environmental impact statement (EIS) for the proposal. The EIS has been prepared to support the application for approval of the proposal and address the SEARs. This traffic and transport impact assessment addresses SEAR number 13 (refer to **Table 1-1**).

The proposal was originally proposed by WaterNSW as the proponent. The proponent changed to Water Infrastructure NSW as of 1 September 2021. This report includes investigations and stakeholder engagement undertaken for the proposal prior to this change.

1.2 Proposal description

The proposed new weir would be located about two kilometres south of the Wilcannia township, and about five river kilometres downstream of the existing weir. The key design features of the proposal are shown in **Figure** 1-2 and include:

- A new weir with storage capacity of about 7,832 megalitres of water when the weir gates and fishway gates are closed
- A fixed crest portion of the weir about five metres high and 21.5 metres wide, next to the left bank (southern side) of the river
- A fishway about 120 metres long and 10.5 metres wide, next to the right bank (northern side) of the river to provide fish passage past the weir
- Remotely operated weir gates (with a manual function) to manage the storage, release and quality of water within the weir pool
- A small recreation area, known as a community river place, at Union Bend
- An upgraded unsealed access track about three kilometres long, between the Barrier Highway and the left (southern) side of the new weir. The access track would be widened from about four metres wide currently to about 7.5 metres wide with three passing bays added to improve construction traffic flow. The access track would be widened where it joins the Barrier Highway to facilitate safe truck turning

- A new unsealed access track about 270 metres long, between Union Bend Road and the right (northern) side of the new weir
- A permanent maintenance access track about 120 metres long, from the top of the right riverbank extending along the length of the fishway
- An electricity easement about 360 metres long and 20 metres wide, from the existing overhead powerlines on Union Bend Road to a new substation on the right side of the new weir. The substation would connect to a main switchboard installed within a prefabricated concrete switch room at the top of the right riverbank near the weir gates
- Conversion of an existing flow gauging station located between the new and existing weirs, into a weir pool height gauging station
- Partial removal and decommissioning of the existing weir on the Darling River (Baaka) in the Wilcannia township, situated between Victory Park Caravan Park (left riverbank) and Field Street (right riverbank).

The existing weir pool extends about 61.79 river kilometres along the Darling River (Baaka) upstream from the existing weir. Construction of the new weir would create a new section of weir pool of about 4.92 river kilometres between the new and existing weirs, to extend the total weir pool to about 66.71 river kilometres when the new weir is at the existing full supply level of 65.71 metres Australian Height Datum (AHD).

The new weir would have dual modes of operation: a normal operation mode when the weir would operate at the existing full supply level (65.71 metres AHD), and a drought security operation mode, when it would operate at a new full supply level of 66.71 metres AHD. This temporary increase in the full supply level of one metre would result in the weir pool being one metre deeper and extending about 18.81 river kilometres further upstream than the existing weir pool, to create a weir pool that is about 85.52 river kilometres long (refer to **Figure 1-1**).

In addition to the proposal features described above, the following temporary construction features would be required:

- Construction compounds and materials laydown areas on both sides of the river near the new weir
- A staging area on the left side of the river near the existing weir
- Access tracks down to the bed of the river from both sides of the river at the new weir
- An access track down to the bed of the river from the southern side of the river at the existing weir site (within the Victory Park Caravan Park)
- Cofferdams to create dry work areas within the river channel.

The key construction features proposed at the new weir and existing weir are shown in **Figure 1-3** and **Figure 1-4** respectively.

Construction would commence once all necessary approvals are obtained, and the detailed design is complete. It is anticipated that construction would start in early 2023 and take about 12 to 18 months to complete, weather permitting. Partial removal and decommissioning of the existing weir would take about 10 weeks and would occur after construction of the new weir is completed.

1.3 Purpose and scope of this report

The purpose of this report is to assess the potential traffic and transport impacts from constructing and operating the proposal. The report:

- Addresses SEAR number 13 as shown in **Table 1-1**
- Describes the existing environment with respect to traffic and transport
- Assesses the potential impacts of constructing and operating the proposal on traffic and transport
- Recommends measures to mitigate and manage the impacts identified.

The methodology for the assessment is described in **Section 3**.

Table 1-1 How this assessment addresses SEAR number 13

Requirements	Where addressed in this report
13. Transport	
Provide a traffic impact assessment prepared by a suitably qualified person in accordance with the *Austroads Guide to Traffic Management Part 12*, *TfNSW Supplements to Austroads* and the *RTA Guide to Traffic Generating Developments*. The traffic impact assessment is to be developed in consultation with Transport for NSW.	**Sections 5 and 6**
Identify controls for transport and use of any dangerous goods in accordance with *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development*, the *Australian Dangerous Goods Code* and *Australian Standard 4452 Storage and Handling of Toxic Substances*.	**Section 5.2.7**
Propose a Driver Code of Conduct for heavy vehicles and peak project employee periods which could include, but not be limited to: ▪ Safety initiatives for project transportation through residential areas and/or school zones ▪ An induction process for vehicle operators and regular toolbox meetings ▪ A public complaint resolution and disciplinary procedure.	**Section 6** and **Appendix A**
Consideration of the safe operation of vessels through navigable waters, both those involved in works and others navigating the area, in consultation with Transport for NSW Maritime.	**Section 5.2.8**

1.4 Report structure

The structure of this report is outlined below:

- **Section 1** provides an introduction to the report
- **Section 2** provides an overview of legislation, policies and guidelines applicable to this assessment
- **Section 3** describes the methodology and approach for the assessment
- **Section 4** describes the existing traffic and transport environment near the proposal
- **Section 5** assesses the potential traffic and transport impacts of construction and operation of the proposal
- **Section 6** discussions engagement with Transport for NSW Maritime during preparation of the EIS for the proposal
- **Section 7** recommends management and mitigation measures
- **Section 8** provides a conclusion to the assessment.

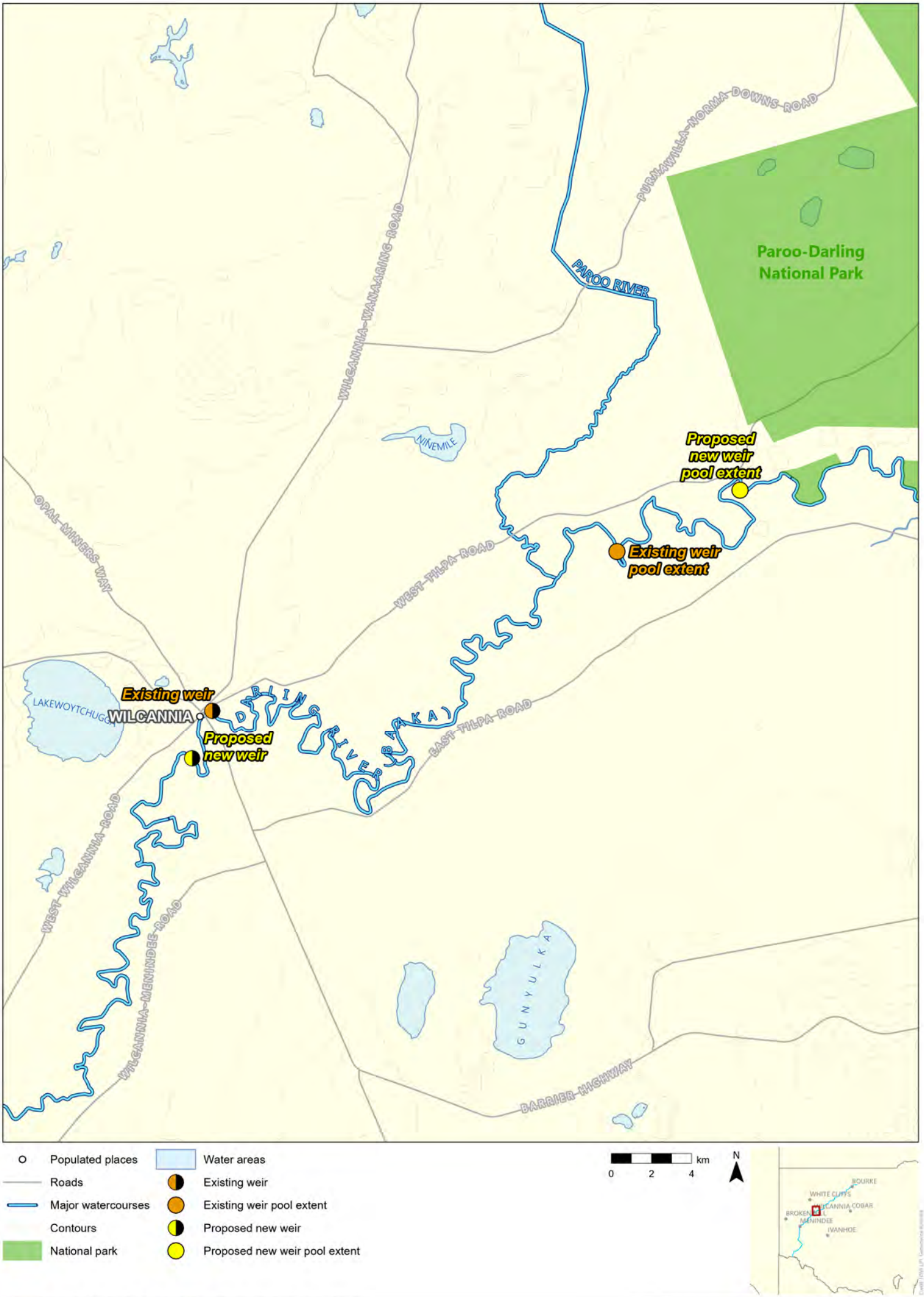

Figure 1-1: Proposal location and regional context

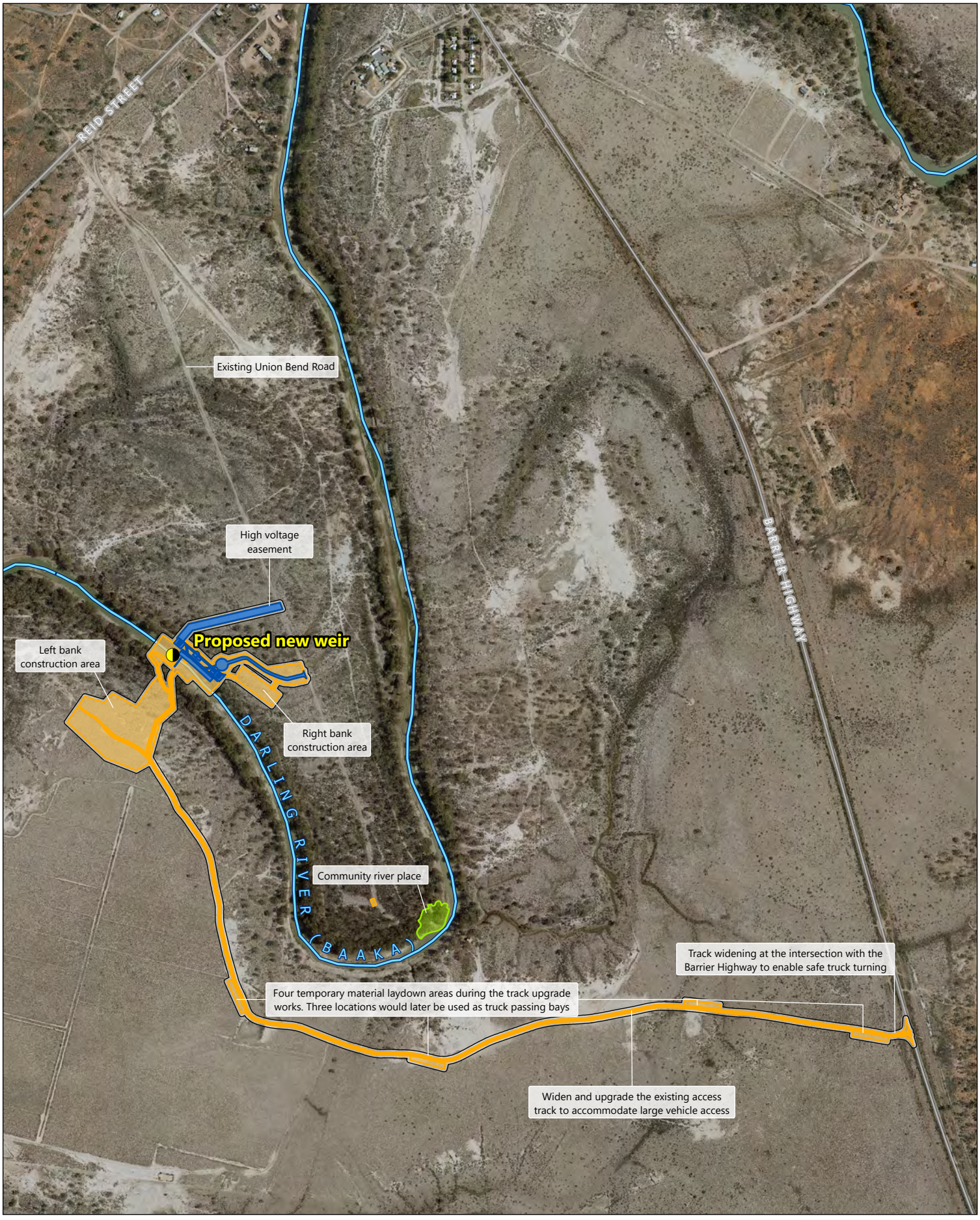

Figure 1-2: Key design features of the proposal – new weir site (overview)

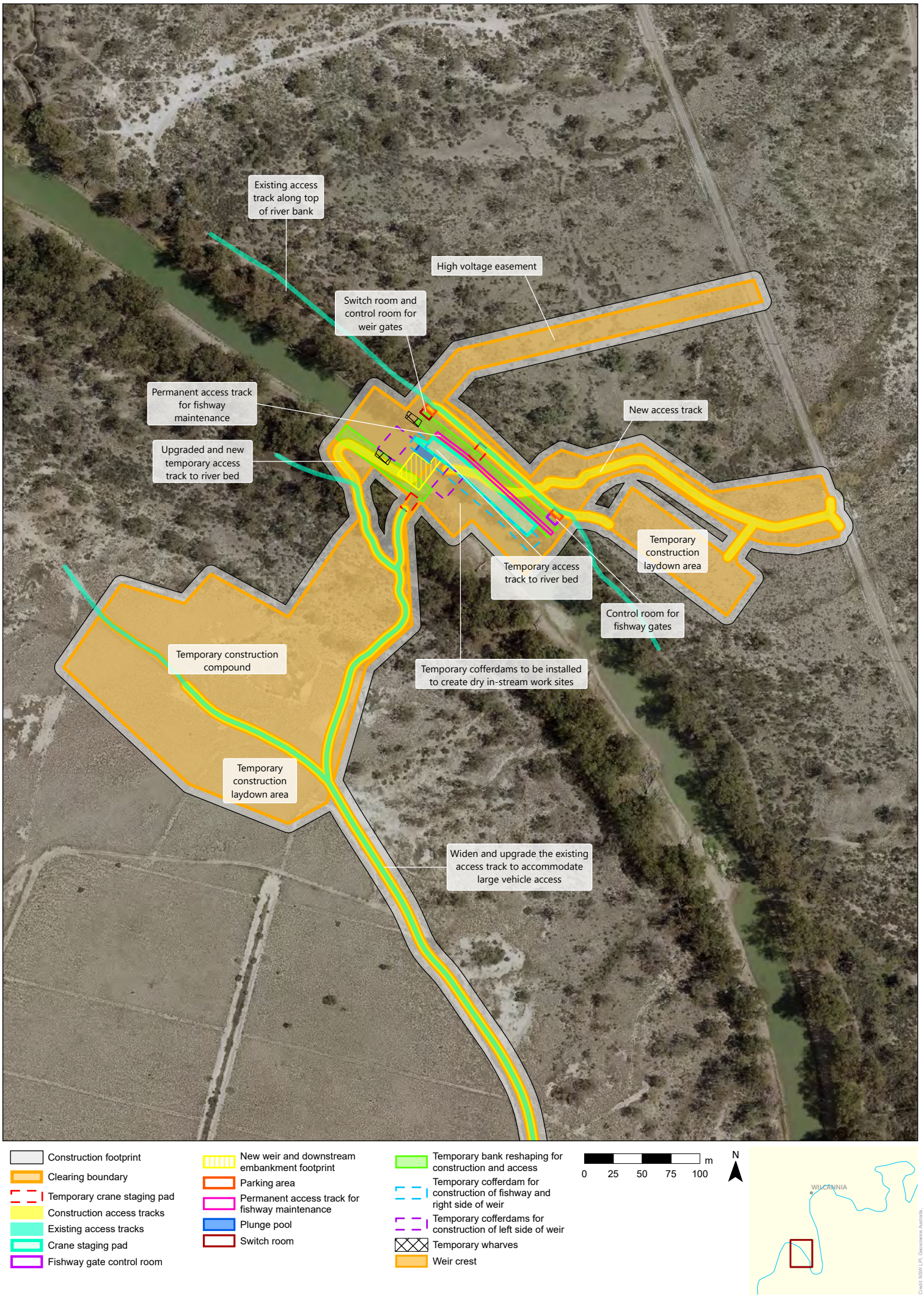

Figure 1-3: Key construction features – new weir site (detail)

Figure 1-4: Key construction features - existing weir site

2. Legislative and policy context

2.1 Legislative requirements

2.1.1 Environmental Planning and Assessment Act 1979

As noted in **Section 1,** the proposal is State significant infrastructure and subject to the provisions of Part 5 Division 5.2 of the *Environmental Planning and Assessment Act 1979*. As State significant infrastructure, the proposal needs to be approved by the NSW Minister for Planning and the application for approval needs to be supported by an EIS. SEARs have been provided to Water Infrastructure NSW by the Department of Planning and Environment. SEAR number 13 is relevant to traffic and transport and is provided in **Table 1-1**.

2.1.2 Roads Act 1993

The NSW *Roads Act 1993* provides guidance on the classification of public roads, the procedures for closure of a public road and procedures to regulate the carrying out of various activities on public roads. It is noted that a section 138 permit is required from the relevant road authority to carry out various works in, on or under a public road. If the road is a classified road under the Act, then the concurrence of Transport for NSW (formerly Roads and Maritime Services) is also required before the roads authority can grant its consent. However, if the works are part of a State significant infrastructure project which has been given planning approval, then the section 138 consent cannot be refused and must be on terms which are consistent with the planning approval.

2.1.3 Maritime Safety Act 1998

Maritime activity in NSW is governed by the *Marine Safety Act 1998*, which has as one of its objectives to ensure the safe operation of vessels in the State's waterways. Section 19 of the act allows for the making of regulations for or with respect to the safety of navigation including provisions for navigation aids.

Part 2 of the Marine Safety Regulation 2016 addresses navigation safety. Part 2 Division 5 of the regulation contains provisions relating to obstruction of navigation. Clause 23 requires that the owner of any obstruction to navigation must ensure that the obstruction is marked and lit so that it does not cause a danger to navigation. Clause 24 allows for Transport for NSW to direct the owner of an obstruction to navigation to mark or light the obstruction to navigation and to maintain the marking or lighting in good condition.

Like the existing Wilcannia Weir, the proposed new weir would be a permanent obstruction to navigation and, accordingly, the proposal would need to comply with the requirements of the Marine Safety Regulation 2016 regarding the installation of navigation aids.

2.1.4 Dangerous Goods (Road and Rail Transport) Act 2008

The purpose of the *Dangerous Goods (Road and Rail Transport) Act 2008* is to regulate the transport of dangerous goods by road and rail in order to promote public safety and protect property and the environment. The Act contains requirements for the licensing of vehicles transporting dangerous goods and licensing of drivers transporting dangerous goods.

As discussed in **Section 5.2.7**, minor quantities of dangerous goods and hazardous substances are expected to be used during construction of the proposal. The construction contractor would be responsible for ensuring that the transport of any dangerous goods and hazardous materials to the work sites occurs in accordance with the requirements of the *Dangerous Goods (Road and Rail Transport) Act 2008*.

2.2 Strategic plans and guidelines

2.2.1 Road Safety Plan 2021

The *Road Safety Plan 2021* (Transport for NSW, 2018) recognises the importance of reducing road trauma on NSW roads and sets out priority areas to bring NSW towards achieving the NSW Government's State Priority Target to reduce fatalities by 30 per cent by 2021. The *Road Safety Plan 2021* features targeted and proven initiatives that will help to progress towards road safety goals, and address key trends, behaviours and the types of crashes occurring on NSW roads.

The proposal seeks to support the objectives of the *Road Safety Plan 2021* by ensuring that road safety is prioritised at all times during construction and operation of the proposal. In particular, the proposal supports the following priority areas of the *Road Safety Plan 2021*:

- Saving lives on country roads – as the proposal is located in rural NSW, consideration and management of road safety would contribute to reducing trauma on country roads
- Using the roads safely/building a safer community culture – construction and operation vehicle drivers would be trained and managed to ensure that they are sharing roads safely with others
- Building a safe future – access tracks on the proposed haulage routes would be assessed and upgraded (where required) to improve safety and facilitate safe access for construction and operation vehicles.

2.2.2 Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments and Roads and Maritime Supplements to Austroads Guides

The *Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments* (Austroads, 2020a) is concerned with identifying and managing the impacts on the road system arising from land use developments. It provides guidance for planners and engineers associated with the design, development and management of a variety of land use developments. The aim is to ensure consistency in the assessment and treatment of traffic impacts, including addressing the needs of all road users and the effect upon the broader community. The *Supplements to Austroads Guides* (Roads and Maritime, 2013) were produced to support the Austroads Guides and address specific issues concerning the design, construction, maintenance, operation and safety of road network issues in NSW.

The *Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments* and relevant Supplements have been used to guide the structure and development of this traffic and transport impact assessment.

2.2.3 Guide to Traffic Generating Developments

The *Guide to Traffic Generating Developments* (Version 2.2) (Roads and Traffic Authority, 2002) outlines the purpose for, and the process to complete traffic impact studies. It also includes the traffic generation rates for various surveyed land uses and their impacts, as well as parking requirements, design and access.

The *Guide to Traffic Generating Developments* has been used to guide the structure and development of this traffic and transport impact assessment.

2.2.4 EIS Guidelines – Roads and Related Facilities

The *EIS Guidelines – Roads and Related Facilities* (Department of Urban Affairs and Planning, 1996) outlines the factors to be considered when preparing the traffic and transport component of an EIS. The key issues for roads and related facilities includes:

- Strategic planning context
- Traffic issues

- Community issues, including noise and visual impacts
- Air and water quality issues.

The EIS Guidelines also outline commitments to the ongoing environmental management of the proposal, including monitoring.

The EIS Guidelines have been used to guide the structure and development of this traffic and transport impact assessment.

2.2.5 NSW Planning Guidelines for Walking and Cycling

The *NSW Planning Guidelines for Walking and Cycling* (Department of Infrastructure, Planning and Natural Resources, 2004) aim to assist land-use planners and related professionals to improve consideration of walking and cycling in their network. It is anticipated that improving practice in planning for walking and cycling will create more opportunities for people to live in places with easy walking and cycling access to urban services and public transport. The Guidelines outline the city-scale design principles that assist the creation of walkable and cyclable cities and neighbourhoods as well as methods to achieve this including Transport Management and Accessibility Plans and Transport Access Guides.

The *NSW Planning Guidelines for Walking and Cycling* have not been used in this assessment as the proposal is not expected to involve changes to the pedestrian or cycling network (discussed further in **Section 5**).

3. Assessment approach and methodology

3.1 Study area

The study area for this assessment is comprised of the transport network surrounding the proposal site including the roads which form part of the proposed access routes for construction and operational vehicles. The study area is shown in **Figure 3-1.**

3.2 Methodology

A summary of the methodology used to assess the impact of the proposal on the transport network is provided in **Table 3-1**.

Table 3-1 Summary of the traffic and transport assessment approach

Component of transport and traffic assessment	Assessment approach
Impacts on the road network	Analysis of the expected performance of road network with construction and operation of the proposal. A qualitative analysis was undertaken as existing traffic volumes are low given the remoteness of the area
Impacts on parking	Analysis of existing parking provisions compared with parking provision during construction and operation of the proposal
Impacts on access	Analysis of existing access provisions compared with access provisions during construction and operation of the proposal
Impacts on public transport	Analysis of proposed changes to public transport operations including bus routes and stops to determine potential impacts on public transport customers during construction and operation of the proposal
Impacts on pedestrians and cyclists	Analysis of proposed changes to cycleways and footpaths to determine potential impacts on access to and availability of pedestrian and cycle infrastructure during construction and operation of the proposal
Impacts on safety	Analysis of expected impacts to road safety for roads forming part of the proposed construction vehicle route
Impacts of oversized and/or overmass (OSOM) vehicles and transport of hazardous or dangerous goods	Analysis of expected impacts of OSOM vehicles and transport of hazardous or dangerous goods as well as controls required to manage these impacts
Impacts on maritime activities through navigable waters	Analysis of proposed changes to maritime traffic access and operation during construction and operation of the proposal
Cumulative impacts	Qualitative analysis to determine impacts on the transport network resulting from construction and operation of the proposal in conjunction with other major projects expected to be occurring at the same time, based on current publicly available information

3.3 Assumptions and limitations

This report has been prepared with the following assumptions and limitations:

- Traffic surveys were not conducted as traffic volumes on the surrounding road network are low due to the remoteness of the area

- Construction and operational traffic generation has been estimated based on the assumed design methodology and program discussed in the EIS. The traffic generation rate in the peak periods is expected to be one light vehicle per worker. It is assumed each worker would arrive one hour prior to shift commencement and leave one hour after shift ending
- Heavy vehicle movements would be distributed evenly throughout construction hours
- OSOM vehicles, where required, would be transported outside of peak traffic periods to minimise impacts on the road network.

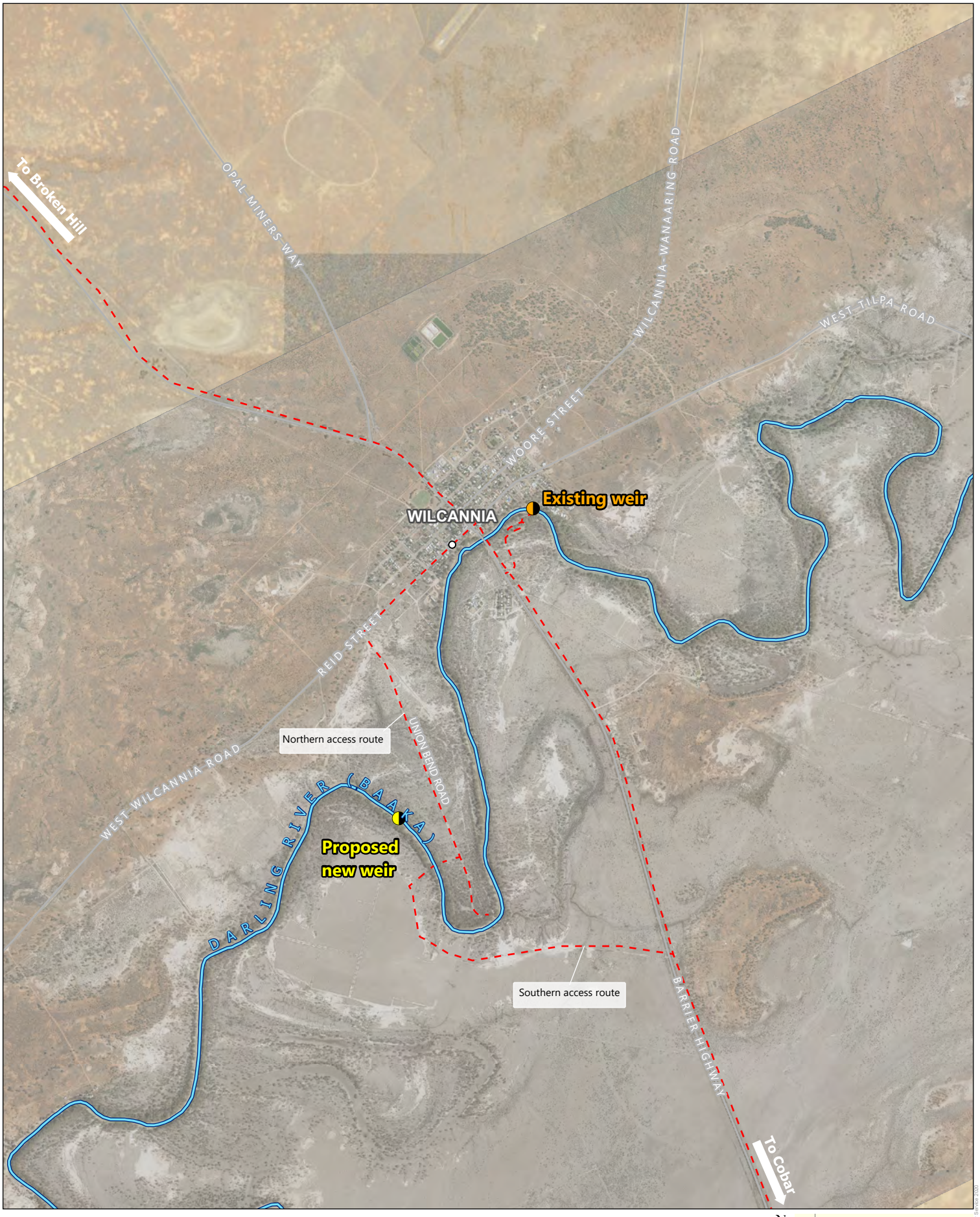

Figure 3-1 Study area showing construction access routes

4. Existing traffic and transport environment

4.1 Road network

The road network at Wilcannia is shown in **Figure 4-1**. Key roads that would be used to access the proposal site are described in the following sections.

Barrier Highway

The Barrier Highway is a State highway (State road number HW8) that forms part of Route A32 linking Sydney to South Australia via the Far West Region of NSW. At its eastern end, the Barrier Highway connects to the Mitchell Highway at Nyngan before traversing west to Broken Hill and south-west into South Australia. The Barrier Highway connects with the Sturt Highway at Hewett at its western end.

Within Wilcannia, the Barrier Highway operates as a two-lane, single carriageway road with a sign-posted speed limit of 50 kilometres per hour (km/h). On the eastern side of Wilcannia, the Barrier Highway bridges over the Darling River (Baaka) at Wilcannia Bridge and proceeds in a south-east direction towards Cobar. The sign-posted speed limit on the Barrier Highway increases to 80 km/h immediately after the intersection with Warrali Avenue, about 400 metres from Wilcannia Bridge. The sign-posted speed limit increases further to 110 km/h zone about 900 metres from Wilcannia Bridge (refer to **Photo 4.1)**.

Photo 4.1 The Barrier Highway about 3.5 kilometres south-east of Wilcannia Bridge, facing south-east

Source: Google Street View, 2015

As per Transport for NSW's *NSW Combined Higher Mass Limits and Restricted Access Vehicle Map,* the Barrier Highway is a 25/26 metre B-double vehicle approved route, allowing for heavy vehicle access to the proposal site (Transport for NSW, 2020a).

Figure 4-1 Wilcannia road network

Traffic volumes on the Barrier Highway were obtained from the nearest Transport for NSW permanent count station (ID T0236) located to the west of the proposal, 3.26 kilometres east of Silver Peak Road, Broken Hill. Average annual weekday traffic volumes are shown in **Table 4-1** and indicate that traffic volumes on the Barrier Highway are very low. This is further supported by site observations, which identified that traffic volumes on the Barrier Highway in the vicinity of the proposal site are low due to the remoteness of the area and as Wilcannia is a small regional town with low tourist volumes.

Table 4-1 Average annual weekday total traffic volumes on the Barrier Highway

	2018	2019	2020
Eastbound	352	354	325
Westbound	348	364	335
Total	700	718	660

Source: Transport for NSW Traffic Volume Viewer (November 2020)

Reid Street

Reid Street is a local road that extends perpendicular to the Barrier Highway at Wilcannia. At its western end, Reid Street continues as West Wilcannia Road and connects to Menindee Road and Menindee. The road operates with a sign-posted speed limit of 50 km/h east of Adams Street and 100 km/h west of Adams Street and has one lane in each direction (refer to **Photo 4.2**). As per Transport for NSW's *NSW Combined Higher Mass Limits and Restricted Access Vehicle Map*, Reid Street permits 25/26 metre B-double vehicles for heavy vehicle access to the proposal site (Transport for NSW, 2020a). Site observations identified that traffic volumes on Reid Street in the vicinity of the proposal site are low due to the remoteness of the area and as Wilcannia is a small regional town with low tourist volumes.

Photo 4.2 Reid Street east of Adams Street, facing west

Source: Google Street View, 2010

Union Bend Road

Union Bend Road is an unsealed local road that provides north-south access between Reid Street and the bores at Union Bend (refer to **Photo 4.3**). The road has no sign-posted speed limit. At two locations (at about 1.1 and 1.9 kilometres south of Reid Street), Union Bend Road also provides access to an existing track that travels along the northern bank of the Darling River (Baaka). Traffic volumes on these roads are low and are limited to local traffic accessing recreational fishing spots along the Darling River (Baaka) and traffic associated with maintenance of bores in the area.

Photo 4.3 Union Bend Road, facing south

Source: Jacobs site visit, 14 October 2020

Southern access track from the Barrier Highway

Access to the southern side of the Darling River (Baaka) at the new weir site is propose via an existing access track that joins the Barrier Highway about 3.5 kilometres from Wilcannia Bridge. The access track is an unsealed private road and about four metres wide. The access track is referred to as the 'southern access track' in this assessment.

Vehicles travelling on the Barrier Highway have long sight distances to vehicles turning into the southern access track. However, vehicles approaching the Barrier Highway from the southern access track have poor sight distances to vehicles travelling on the Barrier Highway due to nearby vegetation and the grade of the southern access track (refer to **Photo 4.4**).

Photo 4.4 Southern access track for proposed primary access off the Barrier Highway, facing south

Source: Jacobs site visit, 14 October 2020

Victory Park Caravan Park access road

The Victory Park Caravan Park access road is a sealed private road that provides connectivity between the Barrier Highway and the Victory Park Caravan Park. The intersection of the Barrier Highway and the Victory Park Caravan Park access road is give-way controlled with long sight distances along the Barrier Highway (refer to **Photo 4.5**). The posted speed limit is 50 km/h.

Photo 4.5 Barrier Highway/Victory Park Caravan Park intersection, facing west

Source: Jacobs site visit, 14 October 2020

4.2 Public transport

There are no local bus services provided within Wilcannia. However, coach services operated by NSW TrainLink provide services to Wilcannia via the Barrier Highway twice daily at 6:15am (service from Broken Hill to Dubbo) and 8:55pm (service from Dubbo to Broken Hill) (Transport for NSW, 2020b). In addition, a community coach operated by Broken Hill Bus Service provides weekday bus services between Wilcannia and Broken Hill. The Broken Hill service departs from Reid Street, Wilcannia at 8:00am and returns at 5:30pm (Central Darling Shire Council, 2020).

Further, a school bus service is provided by Wilcannia Central School for local preschool and school students (Wilcannia Central School, 2020). The school bus service operates twice each weekday with the morning pick-up route commencing at 8:20am and the afternoon drop-off route departing the school at 3:00pm. Bus services for preschool students also run twice each weekday, with the morning route commencing at 9:00am and the afternoon route commencing at 2:00pm.

Train services are not provided at Wilcannia. The closest train station is located at Menindee Station, about 130 kilometres south-west of Wilcannia.

4.3 Pedestrians and cyclists

The cycle network in the study area is limited to an off-road shared path on the southern side of the Barrier Highway, which facilitates local cycling access within Wilcannia (Transport for NSW, 2020c). The shared path extends between Reid Street to the north and Warrali Avenue to the south before continuing in a south-west direction to St Therese's Community Parish School. Users of the shared path are able to cross the Darling River (Baaka) via a dedicated pedestrian bridge located adjacent to the Wilcannia Bridge.

Footpaths are generally provided throughout Wilcannia. However, formal pedestrian facilities are not provided on the Barrier Highway and Reid Street near the existing weir or the proposed location of the new weir. Site observations identified that pedestrian activity is generally low at these locations.

4.4 Crash history

Crash data for roads forming part of the proposed construction vehicle access route was sourced from Transport for NSW's CrashLink database. The crash records comprise self-reported crashes in the most recent five-year period of available data from 1 January 2014 to 31 December 2019.

Key crash statistics include:

- In the five-year period from 1 January 2014 to 31 December 2019, a total of 39 crashes were recorded. No crashes were recorded on Reid Street between the Barrier Highway and Union Bend Road
- 64 per cent of all crashes resulted in an injury
- One fatal crash was recorded on the Barrier Highway between Iodide Street/Argent Street Broken Hill and Wilcannia. The crash involved a head-on crash between a car and heavy truck where the car travelled into the opposing traffic lane while speeding
- The most common crash type involved vehicles travelling off the carriageway on a straight section of road (38 per cent of all crashes)
- Eight per cent of crashes occurred in wet surface conditions and 38 per cent of crashes occurred in dark lighting conditions
- Crash rates are low on roads forming part of the proposed haulage route.

Crashes by injury severity are shown in **Table 4-2**. Crashes by road user movement group are shown in **Table 4-3**. Crashes by surface and lighting conditions are shown in **Table 4-4**. Crash rates per kilometre per year are shown in **Table 4-5**.

Table 4-2 Crashes by injury severity, 2014 to 2019

Road	Number of crashes					
	Fatal	Serious injury	Moderate injury	Minor injury	Non-casualty	Total
Barrier Highway between Iodide Street/Argent Street, Broken Hill and southern access track, Wilcannia	1	11	12	1	14	**39**
Reid Street, Wilcannia between Barrier Highway and Union Bend Road	0	0	0	0	0	**0**
Total	**1**	**11**	**12**	**1**	**14**	**39**

Source: Crashlink Database: Transport for NSW (2014-2019)

Table 4-3 Crashes by road user movement group, 2014 to 2019

Road	Road user movement group										Total
	Pedestrians (00-09)	Adjacent direction (10-19)	Opposing direction (20-29)	Same direction (30-39)	Manoeuvring (40-49)	Overtaking (50-59)	On path (60-69)	Off path on straight (70-79)	Off path on curve (80-89)	Miscellaneous (90-99)	
Barrier Highway between Iodide Street/Argent Street, Broken Hill and southern access track, Wilcannia	0	2	3	3	2	2	6	15	6	0	**39**
Reid Street, Wilcannia between Barrier Highway and Union Bend Road	0	0	0	0	0	0	0	0	0	0	**0**
Total	**0**	**2**	**3**	**3**	**2**	**2**	**6**	**15**	**6**	**0**	**39**

Source: Crashlink Database: Transport for NSW (2014-2019)

Table 4-4 Crashes by surface and lighting conditions, 2014 to 2019

Road	Wet surface conditions	Dark lighting conditions[1]
Barrier Highway between Iodide Street/Argent Street, Broken Hill and southern access track, Wilcannia	3 (8%)	15 (38%)
Reid Street, Wilcannia between Barrier Highway and Union Bend Road	0 (0%)	0 (0%)
Total	**3 (8%)**	**15 (38%)**

Source: Crashlink Database: Transport for NSW (2014-2019)

Table 4-5 Crash rates per kilometre per year, 2014 to 2019

Road	Length (km)	FSI crash rate	Casualty crash rate	Crash rate
Barrier Highway between Iodide Street/Argent Street, Broken Hill and southern access track, Wilcannia	200	0.01	0.03	0.04
Reid Street, Wilcannia between Barrier Highway and Union Bend Road	1.2	0.00	0.00	0.00

Source: Crashlink Database: Transport for NSW (2014-2019)

4.5 Maritime activities

The proposal is located on the Darling River (Baaka), which is part of the Barwon-Darling river system and a subcatchment of the Murray-Darling Basin, the largest and most complex river system in Australia. Flows along the Darling River are highly variable, with median annual flows forming less than 30 percent of the mean annual discharge. During increasingly extended periods when there is no tributary inflow, the Darling River (Baaka) can dry to a series of standing pools (GHD, 2020).

The Barkandji people have long used bark canoes along the Darling River (Baaka) at Wilcannia for fishing, recreation and cultural activities. After European settlement, the Darling River (Baaka) was initially explored by Charles Sturt and Major Thomas Mitchell from 1828 to 1844. By 1853, the riverboat trade had begun on the Murray River (Tongala) and Darling River (Baaka)[2], where bark canoes and eventually steamboats/paddle steamers transported wool, flour and other goods along the river between Wilcannia and other river ports[3].

[1] Crashes occurring in dark lighting conditions includes crashes occurring in darkness or at dawn or dusk.
[2] Heritage Office and Department of Urban Affairs and Planning 1996. Regional Histories: Regional Histories of New South Wales. NSW Heritage Office, Sydney.
[3] https://www.environment.nsw.gov.au/bioregions/BioregionsNswoutlineAboriginalWestern.htm

Maritime traffic was prolific until droughts in the 1890s[4] reduced maritime activity. Maritime traffic in Wilcannia eventually ceased as rail networks such as the Great Western Line became a cheaper and more reliable form of transport[5]. The Darling River (Baaka) no longer supports maritime traffic.

In the vicinity of the proposal site the existing weir is an obstruction to navigation and access to the river is difficult due to the steep riverbanks and no defined access points for vessels. However, the Darling River (Baaka) caters to some recreational activity including swimming and recreational fishing.

[4] Northern Star 1897, p. 4 - SOHI
[5] McDougall & Vines 2017, p. 5 - SOHI

5. Impact assessment

5.1 Construction of the new weir and partial removal and decommissioning of the existing weir

5.1.1 Construction program and working hours

Water Infrastructure NSW proposes to commence construction of the proposal in late 2022 and take about nine to 12 months to complete. Partial removal and decommissioning of the existing weir would be undertaken once the new weir starts operation and is expected to take about 10 weeks to complete.

The following standard construction hours are proposed:

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

The proposed hours of work may vary during the warmer months (i.e. from November to March) to reduce the hours worked during the hottest times of the day. The proposed hours on hot days (days above 40 degrees Celsius) are:

- Monday to Saturday 5:00 am to 3:00 pm
- No work on Sundays or public holidays.

5.1.2 Construction vehicles

During construction, peak light vehicle generation is expected to be up to 20 two-way movements per day to facilitate the transportation of a peak workforce of 20 personnel. The workforce is anticipated to travel from the local area and light vehicle movements would occur in the hour prior to shift commencement and after shift end.

Some heavy vehicle movements may be required for the mobilisation and demobilisation of the site compound prior to the commencement and after the completion of the construction works.

Heavy vehicle construction traffic during construction would mostly comprise delivery of materials (e.g. rock and concrete materials for the construction of the new weir) and fill material for earth cofferdams. These heavy vehicles would likely travel to and from Broken Hill to the west or Cobar to the east via the Barrier Highway. Other deliveries may include prefabricated materials, weir gates, sheet piles for cofferdams and construction plant and equipment. During construction, peak heavy vehicle generation is expected to be up to 10 two-way movements per day, or about one truck per hour.

Furthermore, a low number of heavy vehicle volumes would be required to transport water to and from the concrete batching plant to transport water for construction. These movements would travel locally from the water filling station point in town to the construction compound located on the right bank where the temporary concrete batching plant is proposed to be located. In addition, a few heavy vehicle movements may be required to transport excess spoil and materials from the construction site to the Wilcannia waste and recycling centre located at the southern end of Hood Street or to a location identified by the Central Darling Shire Council.

5.1.3 Construction vehicle access and parking

New weir site left riverbank

The primary construction access to the new weir site and construction compound would be from the south using the existing southern access track from the Barrier Highway (about 3.15 kilometres south of Warrali Avenue) across the private property to the left riverbank of the Darling River (Baaka) (refer to **Photo 5.1**). The southern

access track is currently about four metres wide. The track would be upgraded by widening it to about 7.5-metres wide and constructing three passing bays at intervals along the track to improve construction traffic flow. The intersection of the southern access track with the Barrier Highway would be widened to facilitate safer egress and ingress of heavy vehicles. This would include changing the angle of the intersection of the access track with the highway to as close to 90-degrees as possible to optimise driver views of the intersection layout and other vehicles. A concept design for the upgrading of the intersection has been prepared based on 36.2-metre long A-double trucks operating at a turning speed of five to 15 km/h.

Furthermore, the existing grey cracking clays severely restrict access along the track when wet. Therefore, the southern access track would be upgraded to provide all weather access for construction vehicles. Water Infrastructure NSW has lease arrangements in place with the property owner (Wilcannia Local Aboriginal Land Council) for construction use and access across this land.

The proposed upgrade works at the intersection of the southern access track and the Barrier Highway would not impact the bitumen surface of the highway. Traffic management would be required during the intersection upgrade works. The intersection upgrade works are estimated to take about four weeks to complete.

Photo 5.1 Existing southern access track to the southern side of the new weir site

Source: Jacobs site visit, 14 October 2020

New weir site – right riverbank

Access from the north to the new weir site would be via Union Bend Road (about 480 metres west of Adams Street), which is an unsealed road that extends south off Reid Street (refer to **Photo 5.2**). A new 270-metre-long unsealed track would be constructed to link Union Bend Road to the right bank of the Darling River (Baaka) and would be about eight metres wide to allow for two-way traffic flow. This track would form part of a secondary access route to the new weir site and would be primarily used by light vehicles. A car park for construction worker vehicles would be provided adjacent to Union Bend Road.

Photo 5.2 Existing access track off Union Bend Road facing the northern bank of the Darling River (Baaka)

Source: Jacobs site visit, 14 October 2020

Union Bend Road

In December 2021, Water Infrastructure NSW started an upgrade of Union Bend Road to improve the condition of the road and its suitability for use as an access road for construction vehicles to the new weir site. Water Infrastructure NSW prepared a separate environmental impact assessment for these works.

Existing weir site

Access to the existing weir for partial removal and decommissioning is proposed to be through the Central Darling Shire Council-operated Victory Park Caravan Park from the Barrier Highway (refer to **Photo 5.3**). This would provide access to the left bank of the Darling River (Baaka) and enable the high and steep right bank to be avoided. A temporary access track would be constructed from the internal loop road down to the edge of the existing weir wall. Water Infrastructure NSW would lease the caravan park for the duration of the works at the existing weir, to remove the potential safety and amenity impacts for visitors to the caravan park while construction vehicles are operating.

Photo 5.3 Caravan site adjacent to Darling River (Baaka) off Victory Park Caravan Park internal road

Source: Jacobs site visit, 14 October 2020

Parking

Car parking for construction workers and visitors to the new weir work site would be provided within or next to the construction compound and laydown areas. The car parking area would be located within the proposed construction footprint and located to minimise potential for disturbance to vegetation and cultural heritage sites.

The proposed construction vehicle access routes are shown in **Figure 3-1**.

5.2 Construction impact assessment

5.2.1 Impacts on road network performance

During peak construction periods, the morning and evening peak hours of construction traffic generation would be the hours prior to shift commencement and after shift end. Accordingly, the peak hours of construction traffic generation would be as follows:

- 6:00 am to 7:00 am and 6:00 pm to 7:00 pm from Monday to Friday
- 7:00 am to 8:00 am and 1:00 pm to 2:00 pm on Saturday
- On hot days from November to March – 4:00 am to 5:00 am and 3:00 pm to 4:00 pm.

A peak of up to 20 two-way light vehicle movements are expected during these peak hours.

Additional construction vehicle movements generated by the proposal are not expected to have a large impact on the operation of the Barrier Highway, Reid Street and Union Bend Road. These roads currently carry low traffic volumes and have spare capacity to accommodate the relatively low increase in construction traffic.

5.2.2 Impacts on parking and access

As discussed in **Section 5.1.3**, no impacts to parking are expected due to the low volumes of construction vehicles and as parking for construction vehicles would be provided within or next to the construction compound and laydown areas, away from public roads.

During construction of the new weir, vehicle access would be restricted along about 300 metres of the existing track along the northern bank of the Darling River (Baaka) to facilitate construction works. However, access would be maintained on either side of the work site via the existing access points from Union Bend Road. Appropriate signage would be placed at the access points from Union Bend Road to advise local track users of these restrictions. Access along Union Bend Road would be maintained during construction to provide public access to recreational fishing locations along the Darling River (Baaka). However, public access into the work site would not be permitted and recreational fishing activities would not be allowed within a 50-metre exclusion zone upstream and downstream of the new weir.

Users of Union Bend Road during construction of the new weir may encounter construction vehicles and could experience short delays due to trucks and other construction vehicles turning into and out of Union Bend Road. Any delays experienced would be very minor given the low number of construction vehicles expected and the low existing traffic volumes on Union Bend Road.

Victory Park Caravan Park would be temporarily closed during the partial removal and decommissioning of the existing weir to avoid safety risks involving construction vehicles and plant operating near recreational users at the caravan park. Consultation with Central Darling Shire Council will be undertaken to minimise the impacts of this closure.

Otherwise, no impacts to access are expected during construction.

5.2.3 Impacts on public transport

As discussed **in Section 5.2.1**, roads surrounding the construction site currently carry low traffic volumes and have spare capacity to accommodate the relatively low increase in construction traffic. Therefore, the proposal is expected to have a minor impact on the operation of public transport. Impacts to buses would be limited to a very minor increase in travel time due to additional construction vehicles on the road network. No impacts are anticipated on the operation of bus stops.

5.2.4 Impacts on pedestrians and cyclists

Impacts to active transport would be limited to minor amenity impacts at Wilcannia town centre due to the addition of construction vehicles on the road network. Footpaths, pedestrian crossings and cycling facilities near construction vehicle routes would remain open during construction.

5.2.5 Impacts on safety

During construction, additional construction traffic has the potential to impact road safety on roads forming part of the proposed construction vehicle route. This includes construction personnel commuting between local accommodation and the work sites as well as heavy vehicles transporting materials, equipment and spoil. However, as discussed in **Section 4.4**, existing crash rates on roads forming part of the proposed construction vehicle routes are low. To minimise the impacts of additional construction vehicles on road safety, appropriate driver induction, training, safety measures and protocols would be outlined in the construction traffic management plan and adhered to by construction personnel.

The entrance to the southern access track joins the Barrier Highway in a 110 km/h speed zone. There would be a potential safety risk associated with heavy vehicles turning onto and off the Barrier Highway in a 110 km/h speed zone. Table 5.6 of the *Austroads Guide to Road Design Part 3: Geometric Design* (Austroads, 2020b)

specifies the stopping sight distances for single unit trucks, semi-trailers and B-doubles. For an assumed operating speed of 110 km/h and an assumed reaction time of 2.5 seconds, the required stopping sight distance is 241 metres. As discussed in **Section 4.1**, vehicles travelling on the Barrier Highway have long sight distances to vehicles turning into the southern access track which satisfy the Austroads requirement. However, to minimise safety risks, it is recommended that signage is installed at appropriate locations on the approaches to the southern access track to notify road users of increased traffic volumes turning into and out of the access track. The types and location of signage would be outlined in the construction traffic management plan.

Furthermore, vehicles approaching the Barrier Highway from the southern access track have poor sight distances to vehicles travelling on the Barrier Highway due to vegetation and the grade of the access track. The intersection of the southern access track with the Barrier Highway would be upgraded to include widening of the access track to increase sight distance as well as to facilitate safe egress and ingress of heavy vehicles.

Deliveries of construction materials to the proposal site would involve road haulage over long distances, which would have road safety risks. This risk would be managed by implementation of fatigue management systems for all drivers associated with the proposal, which would be outlined in the construction traffic management plan and driver code of conduct (discussed further in **Section 7.1** and **Appendix A**).

5.2.6 Impacts of oversized and/or overmass vehicles

OSOM vehicles may be required for the transportation of plant, such as excavators, loaders, and cranes and site sheds and offices to and from the work sites. These OSOM movements would occur at the start and end of the construction period and the total movements are expected to be very low.

To manage OSOM vehicles, an over dimensional permit would be sought from the National Heavy Vehicle Regulator. This permit would undergo a separate approval process and a suitable contractor would be engaged for transportation. As part of the permit, the subcontractor would develop a traffic management plan and determine a suitable route and required road upgrades via a detailed route survey in consultation with the National Heavy Vehicle Regulator. These traffic movements would be undertaken outside of peak periods under police escort and in accordance with any OSOM permit conditions.

Due to the very low number of OSOM movements, combined with the fact that OSOM vehicles would travel outside of peak periods, the traffic impact of OSOM vehicles on the existing network is expected to be minimal.

5.2.7 Impacts of transport of hazardous or dangerous goods

Minor quantities of dangerous goods and hazardous substances are expected to be used during construction of the proposal. The types of dangerous goods and hazardous substances that would be transported to the construction site and used during construction may include, but are not limited to:

- Diesel fuels
- Oils, greases and lubricants.

Dangerous goods and hazardous substances would be appropriately and temporarily stored in the construction laydown areas.

The quantity and type of dangerous goods and hazardous substances that would be stored and used during construction would be confirmed by the construction contractor and addressed in the construction environmental management plan.

The transport of dangerous goods will be undertaken in accordance with the Australian Code for the Transport of Dangerous Goods by Road & Rail (National Transport Commission 2020) and the *Dangerous Goods (Road and Rail Transport) Act 2008.*

5.2.8 Impacts on maritime activities

During construction, a 50-metre sign-posted exclusion zone would be put in place both upstream and downstream of the new weir to restrict any maritime activities and improve safety around the work site. As discussed in **Section 4.5**, the Darling River (Baaka) at Wilcannia does not typically carry maritime traffic and maritime activities are limited to some recreational activities including swimming and fishing. Therefore, construction of the proposal is not expected to have any impact to maritime traffic. Construction impacts to recreational maritime activities are expected to be minor due to the availability of alternative nearby locations for swimming and recreational fishing.

5.2.9 Cumulative construction impact assessment

Cumulative construction impacts of nearby developments or activities that are underway or likely to commence during the proposal's construction timeframe have been summarised in **Table 5-1**.

Table 5-1 Cumulative construction impacts

Project and proponent	Description	Status	Timing	Location
New Wilcannia Water Treatment Plant – Central Darling Shire Council	A new water filtration plant is proposed to be built in Wilcannia as the existing plant has reached the end of its service life. The project is funded by the NSW State Government's Safe and Secure Water Program.	A contract for construction of the new water treatment plan was awarded in July 2021.	The start of construction is yet to be confirmed, but could potentially be in 2022. Construction would take 12 to 24 months.	16-34 Hood Street, Wilcannia
Wilcannia Township Gravity Sewer Scheme – Central Darling Shire Council	New gravity sewerage system to replace the existing pumped common effluent drainage system.	Scoping study	The Department of Planning and Environment are currently developing a proposal for funding approval. It is expected that work would not commence until after the new weir is completed.	Throughout Wilcannia
Wilcannia Stormwater Mitigation Works – Water Infrastructure NSW	Installation of diesel-powered back-up pumps at pumping stations numbers 1 and 2.	Detailed design	Construction is scheduled to occur from May to July 2022.	Pumping station number 1 – Corner of Hood Street and Field Street, Wilcannia Pumping station number 2 – Martin Street, midblock between Hood Street and Woore Street, Wilcannia
Victory Park Caravan Park Amenities Block Refurbishment	Refurbishment of the existing amenities block including installing a new sewage pumping station and storage tank.	Pre-construction	Construction is scheduled to start in about April 2022 and be completed in about August 2022.	Victory Park Caravan Park, on the left bank of the Darling River

Project and proponent	Description	Status	Timing	Location
– Central Darling Shire Council				(Baaka) at the existing weir
Baaka Cultural Heritage Centre Wilcannia – National Indigenous Australians Agency	A new cultural centre in Wilcannia for the Barkandji people to practise their living culture, including their art, recorded history and tradition.	Construction	The Centre is expected to be completed and operational in early 2022.	Barrier Highway and Reid Street

The traffic generation and construction vehicle routes associated with these projects are not yet known or not publicly available. However, construction vehicle movements generated by these projects are assumed to be relatively low and not expected have a large impact on the operation of the surrounding road network. As discussed in **Section 5.2.1**, the surrounding road network currently carries low traffic volumes and has spare capacity to accommodate the assumed increase in cumulative construction traffic.

5.3 Operational impact assessment

Once operational, the new weir would be managed by WaterNSW's existing workforce in the region. Operation and maintenance of the new weir would generate a low number of light traffic movements. Operational light vehicles would access the new weir via Union Bend Road and a new 280-metre-long all-weather access track between Union Bend Road and the northern bank of the river at the new weir site. Additional light traffic movements associated with the proposed community river place are also expected along Reid Street and Union Bend Road. However, operational vehicle movements are not expected to have a large impact on the operation of the surrounding road network as roads currently carry low traffic volumes and have spare capacity to accommodate the relatively low increase in operational traffic. Furthermore, the provision of the new car park at the proposed community river place would increase parking provision and service expected additional parking demand.

During operation, visitation to the proposed community river place would result in a minor increase in local traffic on Union Bend Road. Visitors to the community river place would be able to walk to the new weir along the existing track along the northern bank of the river. The section of this track at the new weir would operate as a shared zone between vehicles and pedestrians. Appropriate signage will be placed to inform traffic of shared zone conditions along this section of track.

A permanent sign-posted exclusion zone would be put in place both upstream and downstream of the new weir and fishway to restrict maritime activities, including fishing and swimming, and improve safety around the new weir. However, operational impacts to maritime activities are expected to be low as the Darling River (Baaka) does not typically carry maritime traffic as well as the availability of alternative nearby locations for swimming and recreational fishing.

As with construction, operational and cumulative operational impacts of the proposal on public transport, safety and pedestrians and cyclists are expected to be minimal. No impacts to road access are expected and no transport of hazardous or dangerous goods is expected during operation of the proposal.

6. Engagement with Transport for NSW Maritime

Water Infrastructure NSW met with Transport for NSW Marine in November 2020 to discuss the proposal and the SEARs that relate to traffic and transport including navigation. Water Infrastructure NSW provided a presentation of the proposal to Transport for NSW Maritime which included an overview of the need for the proposal, the functional design of the new weir, a comparison of the operation of the new weir against the operation of the existing weir, and a timeline for the delivery of the proposal. Transport for NSW Maritime did not raise any concerns about the proposal during the meeting.

7. Mitigation and management measures

The following proposal components will be implemented to facilitate the safe access and egress of vehicles during construction and operation of the proposal:

- Upgrade of the southern access track from the Barrier Highway to accommodate all-weather traffic, including construction of passing bays to improve traffic flow
- Construction of an all-weather access track between Union Bend Road and the right side of the new weir to facilitate access to the new weir site
- Construction of a permanent maintenance access track about 120 metres long, from the top of the right riverbank extending along the length of the fishway
- Upgrade of the intersection of the Barrier Highway and southern access track to improve sight distance from the southern access track onto the highway and the safety of egress and ingress of heavy vehicles.

Measure T1 – Construction traffic management plan

A construction traffic management plan will be prepared as part of the construction environmental management plan to minimise potential temporary impacts of construction on the surrounding transport network. The construction traffic management plan will include the following:

- A driver code of conduct (discussed further in **Section 7.1**)
- Confirmation of haulage routes and access locations
- Measures to maintain access and capacity to existing roads where possible
- Measures to minimise conflicts with pedestrians and cyclists
- Traffic control measures including signage at appropriate locations to notify road users of increased traffic volumes turning into and out of the southern access track from the Barrier Highway
- Management of oversized vehicles, including movements being undertaken outside of peak periods under police escort and in accordance with any OSOM permit conditions
- Requirements and methods to consult and inform the local community of impacts on the local road network due to construction and operation of the proposal
- Consultation with Transport for NSW, Central Darling Shire Council and Wilcannia Local Aboriginal Land Council to minimise traffic conflicts on roads surrounding the proposal
- Consultation with emergency services to ensure that procedures are in place to maintain safe, priority access for emergency vehicles
- A response plan for any construction-related traffic incident.

Furthermore, as the area is bushfire-prone land, evacuation routes will be included in a bushfire emergency management plan as part of the construction environmental management plan. The bushfire emergency management plan will be prepared and implemented in accordance with *Planning for Bush Fire Protection* (NSW Rural Fire Service, 2019) and in consultation with NSW Rural Fire Service.

Measure T2 – Construction traffic management at the new weir site

Appropriate signage will be placed at the access points from Union Bend Road to the existing track along the northern bank of the Darling River (Baaka) to advise traffic of access restrictions during construction of the new weir.

Measure T3 – Maritime traffic management during construction of the new weir

During construction of the new weir, a 50-metre sign-posted exclusion zone will be put in place both upstream and downstream of the new weir to restrict any maritime activities and improve safety around the construction site.

Measure T4 – Construction traffic management at Victory Park Caravan Park

Consultation with Central Darling Shire Council will be undertaken to minimise the impacts of the temporary closure of Victory Park Caravan Park during the partial removal and decommissioning of the existing weir. Traffic management measures agreed in consultation with Central Darling Shire Council will be incorporated into the construction traffic management plan.

Measure T5 – Operational traffic management at the new weir

During operation of the proposal, appropriate signage will be placed along the existing track along the northern bank of the Darling River (Baaka) where it passes the new weir site to inform traffic of shared zone conditions.

Measure T6 – Operational exclusion zone at the new weir

Water Infrastructure NSW will identify an appropriate exclusion zone for the proposed new weir as part of a safety in design process carried out during the detailed design phase of the proposal. Water Infrastructure NSW will involve relevant stakeholders in this process, including WaterNSW.

Awareness of the exclusion zone and its location will be raised through signage. Fishing, swimming, canoeing, boating and other water-based recreational activities will be prohibited within the exclusion zone.

7.1 Driver code of conduct

A driver code of conduct will be prepared by the construction contractor and used to outline the rules and behaviours which drivers associated with the proposal would be required to adhere to. The driver code of conduct will form part of the site induction training for all workers and will outline arrangements for light and heavy vehicle drivers including:

- General requirements including site induction requirements
- Travelling speeds and safe driving practices, particularly through residential areas and school zones
- Fatigue management
- Adherence to designated transport routes and heavy vehicle noise
- Public complaint resolution and penalties and disciplinary action.

An example driver code of conduct is attached in **Appendix A**.

8. Conclusion

This report details the traffic and transport impact assessment for the Wilcannia Weir replacement project and addresses SEAR number 13 for the proposal. This report provides an overview of the existing traffic and transport environment, an assessment of potential traffic and transport impacts of the proposal and the required mitigation and management measures.

The potential impacts on road network performance, parking, access, public transport, pedestrians and cyclists, safety and maritime activities during construction and operation of the proposal are expected to be minimal.

The following mitigation and management measures will be implemented to minimise the impacts of the proposal during construction and operation:

- Upgrade of the intersection of the Barrier Highway and southern access track to improve safety for trucks turning into and out of the southern access track
- Preparation and implementation of a construction traffic management plan, including implementation of a driver code of conduct and installation of appropriate signage on the approaches to the southern access track to notify road users of increased traffic volumes turning into and out of the access track
- Placement of appropriate signage at the access points from Union Bend Road to the existing track along the northern bank of the Darling River (Baaka) to advise traffic of access restrictions during construction of the new weir
- During construction, a 50-metre sign-posted exclusion zone would be put in place both upstream and downstream of the new weir to restrict any maritime activities and improve safety around the construction site
- During operation of the proposal, placement of appropriate signage along the section of road near the new weir and proposed community river place to inform traffic of shared zone conditions along this section of road
- Consultation with Central Darling Shire Council to minimise the impacts of the closure of Victory Park Caravan Park during the partial removal and decommissioning of the existing weir.

9. References

AS/NZS 4452:1997 The storage and handling of toxic substances (Joint Standards Australia/Standards New Zealand), viewed 25 November 2020

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Appendix A. Example Driver Code of Conduct

Driver Code of Conduct

The Driver Code of Conduct is to ensure that light and heavy vehicle drivers adhere to safe driving practices, particularly when using local roads through Wilcannia.

All employees and contractors are to drive responsibly and adhering to the Code of Conduct.

1. General requirements

Light and heavy vehicle drivers hauling to and from the project site must:

- Have undertaken a site induction carried out by a suitably qualified employee
- Hold a valid driver's licence for the class of vehicle that they are operating and carry a current driver's licence while operating a vehicle
- Operate the vehicle in a safe manner to, from and within the site in accordance with all road rules pertaining to the vehicle, particularly in residential areas or at school zones
- Comply with the direction of authorised site personnel when within the site
- Comply with the requirements outlined in the construction traffic management plan.

All incidents, hazards and near misses, whether resulting in an injury or not, must be reported to site management immediately. This includes incidents, hazards and near misses which have occurred on or while travelling to and from the site.

Regular toolbox meetings will be held to outline the potential hazards of travel on the designated routes including locations with increased collision risk, damaged road infrastructure, potential noise impacts and school zones.

2. Light and heavy vehicle speed

Light and heavy vehicle drivers are to be made aware of two types of speeding:

- Where a vehicle driver travels faster than the posted speed limit
- Where a vehicle driver travels within the posted speed limit but at a speed which is inappropriate for road conditions e.g. rain, fog, unsealed roads.

All vehicle drivers are to observe the posted speed limits to comply with Australian Road Rules. Drivers must adjust their speed appropriately to suit the road environment and weather conditions. Drivers must adjust their speed appropriately through residential areas and school zones.

3. Light and heavy vehicle driver fatigue

Site personnel fatigue will be managed via the following:

- Unless under exceptional circumstances, work periods shall not exceed 12 hours
- Any extension of this period shall require the approval of site management and where possible alternative transport shall be arranged
- The monitoring of fatigue experienced by employees working extended hours shall rely not only on reporting by employees, but also on observation and assessment by site managers
- Carpooling and bus management will be considered to ensure the drivers are within the 12-hour timeframe to manage fatigue.

Under the *Heavy Vehicle Driver Fatigue Reform* (National Transport Commission 2008), all drivers of trucks and truck combinations over 12 tonne gross vehicle mass (except for Ministerial Exemption Notices that may apply) are required to operate under one of three fatigue management schemes:

- Standard Hours of Operation
- Basic Fatigue Management
- Advanced Fatigue Management.

All heavy vehicle operators are to be aware of their adopted fatigue management scheme and operate within its requirements.

4. Adherence to designated transport routes

Light and heavy drivers must follow the designated transport routes agreed upon with site personnel to and from the project site. Heavy vehicles must travel only on heavy vehicle-approved roads and must access the site from Barrier Highway, Reid Street and/or Union Bend Road.

5. Safety in residential areas and school zones

Drivers are required to be aware and show care when driving through residential areas and near schools, including between the morning (8:00am to 9:30am) and afternoon (2:30pm to 4:00pm) periods. Drivers are to be mindful of children being dropped off and picked up at bus stops and at schools during these periods. Drivers are to comply with 40 km/h speed limit for traffic passing a school bus as well as within school zones. Drivers are to give pedestrians a wide berth and be aware of the pedestrians' safety, road users' safety and their own safety at all times.

Construction vehicle movements will be managed to minimise movements during periods of higher traffic volumes and outside of school pick up and drop off periods.

6. Heavy vehicle noise

If possible, heavy vehicle drivers should not use compression brakes near residential areas as compression brakes can cause excessive noise, especially at night. Compression braking throughout residential areas is only to be used if required for safety reasons. When driving near residential areas, a reduction in speed is recommended to minimise the need to use compression brakes.

All heavy vehicles must be fitted with audible reversing alarms for the safety of all personnel. However, audible reversing alarms can be noisy and heavy vehicle drivers should minimise reversing near residential areas.

7. Public complaint resolution

To assist in the orderly resolution of complaints, site management will keep a register itemising all reported incidents relating to complaints in regard to heavy vehicle driver conduct external to the site.

The incident register is to include (where possible):

1) Date of the complaint
2) Time of the complaint
3) Name of the complainant (if available)
4) How the complaint was received
5) Detailed description of the complaint (including location, driver/heavy vehicle details)
6) What/when actions were taken to resolve the issue

7) The reply to the person/organisation that made the complaint.

Once site management is satisfied that the complaint is substantiated, an investigation of the location and causes of the complaint will be undertaken. Following investigation of the issue, site management will provide feedback to the complainant that details the investigations undertaken, the result of the investigation and measures implemented to ensure that operations remain compliant. A description of any follow-up investigations and the response provided to the complainant will also be recorded in the Complaints Register upon closure of the issue.

8. Penalties and disciplinary action

Failure to comply with this Driver Code of Conduct will lead to either the issue of a warning notice or disciplinary action if the offending party represents another company then disciplinary action may be treated as suspension or cancellation of a service contract or arrangement with that company.

A warning notice may be issued for a number of reasons, which may include (but not limited to):

- Driving at excessive speed
- Abuse of other road users or customers
- Not carrying out instructions as advised
- Not observing the site speed restrictions
- Not reporting incidents, accidents or near misses.