Bulk Water Alliance

M2G Traffic Management Plan

BWA-M2G-CO-PLN-002

September 2010

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Certificate of approval for issue of documents

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Abbreviations

Abbreviation	
ACTEW	ACTEW Corporation Limited
ACTPLA	ACT Planning and Land Authority
AEMP	Aquatic Ecology Management Plan
AQMP	Air Quality Management Plan
BWA	Bulk Water Alliance
CEMP	Construction Environment Management Plan
CESM	Community Engagement and Stakeholder Management
CMS	Construction Method Statement
DECCW	NSW Department of Environment, Climate Change and Water
DECCEW	ACT Department of Environment, Climate Change, Energy and Water
ECP	Environmental Control Plan
EMS	Environmental Management System
EPA	Environment Protection Authority
EPBC ACT 1999	*Environmental Protection and Biodiversity Conservation ACT 1999*
ESCP	Erosion and Sediment Control Plan
HLPS	High Lift Pump Station
IRMP	Incident Response Management Plan
LALC	Local Aboriginal Land Council
LLPS	Low Lift Pump Station
M2G	Murrumbidgee to Googong
NVMP	Noise and Vibration Management Plan
PCL	Parks, Conservation and Lands
PER	Public Environment Report
POEO	NSW *Protection of the Environment Operations ACT 1997*
RAO's	Representative Aboriginal Organisations
SAD	Sensitive Area Diagram
SEP	Site Environmental Plan
SWMP	Soil and Water Management Plan
TCP	Traffic Control Plan
TEMP	Terrestrial Ecology Management Plan
TMP	Traffic Management Plan
WMP	Waste Management Plan

Environmental Commitments and Conditions of Approval / Licences

Table 1.1 M2G EIS Commitments

Condition No.	Commitment /Condition	Reference within TMP
169	The local community would be advised in advance of traffic disruptions and controls, noisy work activities eg. piling or rock breaking, construction of temporary detours and work required outside the nominated working hours prior to such works being undertaken.	**7.3**
254	Stabilised access point and site traffic – including establishing stabilised access points, limiting the number of entry/exit points, keeping vehicles to well defined haul roads and the use of grid or vehicle wash bays;	**6.1.1**
281	• Traffic management measures to account for the special needs of the equine owners;	**5.12 / 6 / 7.3**
295 (Roads, Traffic & Transport)	Approved traffic management plans will be developed in consultation with relevant government agencies, including Palerang Shire Council. These will form part of the CEMP and will be implemented throughout the construction period to regulate traffic movements and speeds. All restrictions on traffic movements and traffic speeds will only be in place for the duration of the construction period.	**6.5**
296	Road dilapidation surveys will be conducted on all public roads along the pipeline alignment prior to and following the construction period. The development and implementation of these surveys will be done in consultation with Palerang Shire Council.	**5.3**
297	The construction of pump stations may require road closures of Angle Crossing Road for short periods when, for example, large pieces of equipment such as the pumps are being delivered and unloaded by crane. Such road closures will be a last resort and will only be used when lane closures and traffic management will not be adequate to ensure public safety. Traffic will be diverted via Tharwa Bridge. When road closures are needed warning signs will be in place and the proponent will provide adequate notice to the local community via advertising using a wide range of media outlets in consultation with TAMS (Roads ACT).	**5.11**
298	As discussed in Section 6.11.10 it is proposed to open trench at the location the pipeline crosses the Monaro Highway. This will require part road closure during daytime construction hours. One lane will remain open at all times and will be managed through appropriate traffic control and warning. Both lanes of the Monaro Highway will be open in the evening.	**5.10**
299	(Monaro HWY) - It is proposed that the crossing be undertaken using an open trench method of construction. This will involve a part road closure	**5.10**

Condition No.	Commitment /Condition	Reference within TMP
	during construction hours (managed by appropriate traffic control). The trench will be covered outside of construction hours, and both lanes of the Monaro Highway re-opened to traffic.	
300	Trenching and pipe laying work will occur along Williamsdale Road during the construction period. To ensure the safety of all road users, traffic control measures would be in place at all times.	6.4 / 6.5
301	Regular users of the affected areas of Wiliamsdale Road will be consulted on the proposed dates for closure prior to formal application to Palerang Shire Council for the closure. Should the closure of Williamsdale Road be required, the potential associated impacts on the Monaro Highway will be discussed with TAMS (Roads ACT) and the National Capital Authority. Lane closure does not require the complete closure of Williamsdale Road and will be managed with traffic control devices… …Tight working conditions on Williamsdale Road may mean that to ensure public safety, a short section of the road will need to be closed when trenching and pipelaying is taking place within the road reservation.	5.11 / 7
302	Arrangements will be made with property owners to ensure access to their properties is possible at all times.	7.3
303	Vehicular access to properties will be maintained, either by keeping one lane open or through the use of diversions and/or by use of steel plates over sections of the pipe trench.	5.12
304	Arrangements will be made with property owners to ensure access to their properties is possible at all times… … Disruption to private property access will be minimised for the duration of the construction works and access will be restored and maintained at each property as soon as practicable as work moves along the pipeline corridor;	7.3/5.12
305	It is intended that Williamsdale Road will be open to traffic outside of construction working hours.	5.11
306	The community will be notified prior to any scheduled closure of Williamsdale Road and appropriate signage will inform the community of construction times and alternate routes during those times.	5.11 / 7.3
307	The implementation and maintenance of these traffic control measures in accordance with approved Traffic Management Plans will mitigate the impact of the pipeline construction on traffic.	6.4 / 6.5
308	Williamsdale Road/Burra Road. The steep approach to the Burra Road intersection restricts sight distance at the intersection and the additional traffic during the construction phase will add to the risk of collisions. For safety reasons, it is recommended that minimal stopping times be introduced for vehicles transporting horses along Williamsdale and Burra Roads. In addition, a stop sign is recommended to address the risk of Williamsdale Road traffic turning onto Burra Road.	5.6.2 / 6.5

Condition No.	Commitment /Condition	Reference within TMP
309	Outlet structure access road/Burra Road The proposed access road is located about 20 m south of the bridge over Burra Creek. At this location the embankment to the south and the bridge rail to the north may limit sight distance for traffic entering Burra Road. This should be addressed in the CEMP Traffic Management Sub-Plan.	5.6.2 / 6.5
310	Mitigation measures will be in place to minimise the impact of construction works on road surfaces and regular discussions will be held between the proponent, Roads ACT and Palerang Shire Council regarding maintenance work.	5.3 / 5.8
311	Particular attention needs to be given to management of traffic during peak traffic periods on Monaro Highway such as the ski season when traffic volumes increase significantly.	5.10 / 5.6
312	The proponent will remedy this situation by widening the pavement to allow a dedicated right turn lane from the Monaro Highway into Angle Crossing Road.	5.8
313	Appropriate traffic control devices will be installed during the construction period in accordance with approved CEMP Traffic Management Plan.	6.5
314	Consultation with local riding groups will aim to minimise any impact on equestrian activities and ensure the safety of horses and riders. It is recommended that road signage warning of horse riders in the area be regularly maintained and/or replaced as necessary.	4.2.6 / 7.3
315	During the construction period roads along the pipeline route will remain open to emergency vehicles or other vehicles responding to emergency situations. Procedures to improve the speed and efficiency with which safe passage can be provided, such as early notice by emergency vehicles of the need for access, will be included in the Emergency Response Plan prepared in consultation with emergency services.	6.9
316	The pipeline will cross a number of property accesses. Detours will be set up at these locations to ensure that access is maintained.	5.12
317	There will be temporary impacts on the Goulburn to Cooma Railway (Michelago Tourist Railway), which is currently not in use due to structural deficiencies with timber culverts. The railway line will be removed for construction of the pipeline and then reinstated. Consultation with ARTC and the Australian Railway Historical Society (ACT) will be undertaken to ensure that appropriate procedures are in place to minimise impacts on the line.	5.9
318	In addition, the location of the proposed access road for the outlet structure may not provide sufficient sight distance for traffic entering Burra Road. Further assessment of the intersection will be undertaken as part of the traffic management sub-plan and the appropriate mitigation measures will be put in place to manage potential construction risks and impacts	5.6.2
319	• A traffic management sub-plan will be prepared as part of the CEMP, with detailed measures in accordance with Australian Standard AS 1742.3:2002 Manual of uniform traffic control devices – Traffic control devices for works	6.4 / 6.5

Condition No.	Commitment /Condition	Reference within TMP
	on roads, including: – Signage on Monaro Highway and Burra Road warning of trucks entering Angle Crossing Road and Williamsdale Road; – Management of construction traffic where traffic flow is affected by the construction pipeline and in particular at locations where the pipeline crosses the road or is located along and within the road reserve; – Advance warning signs redirecting traffic to Tharwa Bridge for any closure of the Angle Crossing Road causeway; – Reduced speed limits on Burra Road on the approaches to Williamsdale Road intersection to moderate the risk of collisions; – Strategies to address the limited sight distance at proposed access road to the outlet structure on Burra Road; – Detours to be set up where the pipeline crosses property accesses. Where possible, all property access crossings will be completed in one day, with any open trenches covered overnight; and – Early warnings about road or lane closures will be undertaken. Should the closure of Williamsdale be required the impact there-off on the Monaro Highway will be discussed with TAMS (Roads ACT) and the National Capital Authority.	
320	Grading of Angle Crossing Road and unsealed sections of Williamsdale Road will be undertaken where the construction works have disturbed the road pavement.;	**5.12**
321	Any damage to road surfaces that result from the preferred project will be repaired at the expense of the proponent;	**5.3**
322	As an example of public benefits resulting from the upstream outlet cost savings, ACTEW is working closely with Palerang Shire Council to fund the upgrading and sealing a section of Williamsdale Road at Gibraltar Hill. Survey and design work have been completed, and road widening land acquisition negotiations are underway by the Council. The land proposed to be acquired will be sufficient to include a bridle path or “greenway” along this section of road. This work will significantly improve road safety at this location. Any extension of ACTEW’s current funding commitments to cover the road construction will be conditional on planning agency approval of the water transfer project.	**5.8.2**
330	**Table 27.1 Land Use** An alternate recreational area be utilised during construction, and that the site of Tharwa Sandwash, located downstream, and approximately 9km by road would be a suitable site for recreational users during construction of the project. **Any planned reduction of access or other traffic or service impacts will be advised well prior and subjected to consultation with all affected stakeholders, including emergency services, by media, letter, email, telephone or personal approach as may be appropriate to individual circumstances.** A detailed plan for restoration of Angle Crossing would be developed to improve the amenity and facilities of the area.	**5.7**

Condition No.	Commitment /Condition	Reference within TMP
	Any restrictions on planting and structures within permanent pipeline easement are subject to payment of a once off compensation payment to the affected party. Except in emergency situations, it is ACTEW's general policy to consult with landholders prior to accessing easements through private property.	
335	**Table 27.1 Traffic and transport** Monaro Highway/Angle Crossing Road intersection will be improved by providing a right turn lane on the Monaro Highway and improved geometry for the left turn from Angle Crossing Road, however the effectiveness of this measure will be monitored closely. Grading of Angle Crossing Road and unsealed sections of Williamsdale Road will be undertaken in the vicinity of the pipeline construction. Any planned reduction of access or other traffic or service impacts will be advised well prior and subjected to consultation with all affected stakeholders, including emergency services, by media, letter, email, telephone or personal approach as may be appropriate to individual circumstances. Monitor effectiveness of traffic management sub-plan during construction, and modify if required.	**5.8**
337	The CEMP will include the following (traffic) sub plans: • Traffic Management Sub-Plan – The plan will include truck movements to and from the construction sites, interactions with general public and property access, parking and access requirements for construction personnel and safety signage and training of personnel in traffic management. It will include the measures listed in Chapter 25 (of the EIS).	**5.5 / 6.5**
338	Traffic Management Sub-Plan – The plan will include parking and access requirements, safety signage and training of personnel in traffic management. It will include the measures listed in Chapter 25 (of the EIS).	**6.1**
C59 (social & economic)	Traffic management measures to account for the special needs of the equine owners and local business within the area.	**5.12 / 7.3**
C63 (traffic & transport)	Monaro Highway/ Angle Crossing Road intersection will be improved by widening the road pavement to provide a right turn land from the Monaro Highway and improved geometry for the left turn from Angle Crossing Road.	***5.8***
C64 (traffic & transport)	Grading of Angle Crossing Road and unsealed sections of Williamsdale Road will be undertaken in the vicinity of the pipeline construction be undertaken.	***5.12***
C65 (traffic & transport)	Disruption to private property access will be minimised for the duration of the construction works and access will be restored and maintained at each property as soon as practicable as work moves along the pipeline corridor.	***7.3***
C66 (traffic &	Any damage to road surfaces that result from the project will be repaired at the expense of the proponent.	***5.3***

Condition No.	Commitment /Condition	Reference within TMP
transport)		
C67 (traffic & transport)	Consultation with the lessee of the rail crossing - the Australian Railway Historical Society will be undertaken to ensure that timing of the works minimises impacts on any use of the Goulburn to Cooma Railway (Michelago Tourist Railway).	***5.9***
C68 (traffic & transport)	A traffic management sub-plan will be prepared as part of the CEMP, with detailed measures to manage impacts from traffic as a result of construction of the project.	**5 and 6**

Table 1.2 M2G DA Conditions of Approval (ACT)

Condition No.	Commitment /Condition	Reference within TMP
B14	Prior to works commencing on site a *Temporary Signage Plan* that details signage in public places, and within the recreational areas noted as sensitive receivers in the EIS must be submitted to ACTPLC for Approval. The plan must include information on blasting, construction and traffic movements within the area and any potential disturbance / annoyance that this might have on recreational activities.	**6.4**
B17	Prior to commencement of works on site, the following requirements must be submitted to and approved by the Senior Manager, AA, TAMS: (a) A Notice of Commencement of Construction. This notice must be submitted to the Senior Manager, AA, TAMS on week prior to the commencement of construction work on site. Notice must include the confirmation of any protective measures installed in accordance with the approved Landscape Management Protection Plan and programmed implementation of the Temporary Traffic Management Plan. (b) A dilapidation survey and associated report for all public roads to be used for construction traffic; (c) A detailed Construction (Temporary) Parking Plan for the building phase. This place must take into account all construction. demolition vehicles and equipment, and construction workers vehicles, and how and where they will be accommodated within the site.	**This Plan** **5.3** **6.1**
B18	Prior to commencement of works on site., the following requirements must be submitted to and approved by the Manager, Traffic Management and Safety, Roads ACT, TAMS: (a) a Temporary Traffic Management (TTM)plan, prepared by a suitably qualified person. This plan is to address, as a minimum, measure to be employed during construction to manage all traffic, including construction traffic, in and around the site, provision for safe pedestrian movement around the site, the provision of parking for construction	**This Plan** **6.1 / 6.10**

Condition No.	Commitment /Condition	Reference within TMP
	workers, and associated traffic control devices; and (b) a Temporary Traffic Management sub-plan that includes truck movements to and from the construction sites, interaction with general public and property access, parking and access requirements for construction personnel and safety signage and training of personnel in traffic management.	**6.5**
B19	Traffic Control Device drawings for all new and amended works must be submitted to the Senior Manager, AA, TAMS for approval prior to the installation of such devices	**6.5**
C8	The following requirements must be initiated and maintained for the duration of the works in accordance with the plans required under Conditions 815, 815 & 817, to the satisfaction of the Senior Manager, AA, TAMS: (a) that any damage to road surfaces recognised as a result the Dilapidation Survey must be reinstated to pre-construction condition to the satisfaction of TAMS as required during construction and prior to the completion of work; (b) that the site and surrounds must be managed in accordance with the Traffic Management Plan; and	**5.3** **2.3 / 4.3**
C9	Temporary Traffic Management must be initiated and maintained for the duration of the works in accordance with the plans required under Conditions 818, to the satisfaction of the Manager, Traffic Management and Safety, Roads ACT, TAMS.	**2.3 / 6.4**

Table 1.3 M2G DoP Conditions of Approval (NSW)

Condition No.	Commitment /Condition	Reference within TMP
2.21	Where the pipeline is located along and within a public road formation the Proponent shall: a) commission a qualified person to undertake a Road Dilapidation Report of all roads proposed to be used for construction and access activities in consultation with relevant road authorities. The Report shall assess the current condition of the relevant roads. b) following completion of construction a subsequent Road Dilapidation Report shall be prepared to assess any damage that may have resulted due to traffic and transport related to the construction and ongoing operation of the project. The Proponent shall restore the relevant roads to a state, described in the original Road Dilapidation report. The cost of any restorative work described in the subsequent Report or recommended by the relevant road authorities after review of the subsequent Report, shall be funded by the Proponent. Such work shall be undertaken at a time as agreed upon between the Proponent and the relevant road authorities. In the event of a	**5.3**

Condition No.	Commitment /Condition	Reference within TMP
	dispute between the parties with respect to the extent of restorative work that may be required under this condition, any party may refer the matter to the Director-General for resolution. The Director-General's determination of any such dispute shall be final and binding on the parties.	
2.22	The Proponent shall ensure that all pipeline crossings of roads are constructed using construction methods and depth cover determined in consultation with the relevant road authority.	**5.12**
2.23	The Proponent shall apply to the relevant authority for any proposed temporary road closures at least one month prior to the proposed closure. Advertisement of the closure shall be funded by the Proponent.	**5.11**
2.24	The Proponent shall obtain the relevant consent to utilise the nominated Council storage areas within Williamsdale Road Reserve subject to Council requirements.	**5.4**
2.25	The Proponent shall consult with the Australian Railway Historical Society to ensure the timing of any construction impacts on the use of the Goulburn to Cooma Railway (Michelangelo Tourist Railway) are minimised.	**5.9**
2.34	The Proponent shall construct and operate the project in a manner that minimises dust emissions from the site, including wind-blown **and traffic-generated** dust. All activities on the site shall be undertaken with the objective of preventing visible emissions of dust from the site. Should such visible dust emissions occur at any time, the Proponent shall identify and implement all practicable dust mitigation measures, including cessation of relevant works, as appropriate, such that emissions of visible dust cease.	**6.8.1**
4.3	Community Information Plan c. procedures to inform the relevant community of **Construction traffic routes** and any potential disruptions to traffic flows and amenity impacts; d. procedures to consult with local landowners with regard to **Construction traffic** to ensure the safety of livestock and to limit disruption to livestock movements;	**4.2.6 / 7.3 / 5.12**
6.3	d. a **Traffic Management Plan** to manage traffic conflicts that may be generated during construction of the project. The Plan shall address the requirements of the relevant road authority and shall include, but not necessarily be limited to: i) details of how construction of the project will be managed in proximity to local and regional roads; ii) details of traffic routes for heavy vehicles, including any necessary route or timing restriction for oversized loads; iii) demonstration that all statutory responsibilities with regard to road traffic impacts have been complied with; (iv) details of measures to minimise interactions between the project and other users of the roads such as the use of fencing, lights, barriers, traffic diversions etc; (v) procedures for informing the public where any road access will be	**This Plan**

Condition No.	Commitment /Condition	Reference within TMP
	restricted as a result of the project; (vi) procedures to manage construction traffic to ensure the safety of livestock and to minimise disruption to livestock; (vii) speed limits to be observed along routes to and from the site and within the site; (viii) minimum requirements for vehicle maintenance to address noise and exhaust emissions, particularly along roads in close proximity to residences; and ix) details of the expected behavioral requirements for vehicle drivers travelling to and from the site and within the site	

2 Introduction

2.1 Background

The Murrumbidgee to Googong (M2G) Water Transfer is one of the recommended options for delivering improved security to the water supply for the ACT and region. It involves pumping water from the Murrumbidgee River (within the ACT) and transferring it via a 12km pipeline to Burra Creek (in NSW), from where it would flow for approximately 13km to the Googong Reservoir.

This plan has been designed to address client expectations and requirements, and adequately address risks and stakeholder concerns. The BWA is committed to providing the services it offers in a manner that conforms to the contractual requirements and to all relevant regulatory and legislative requirements.

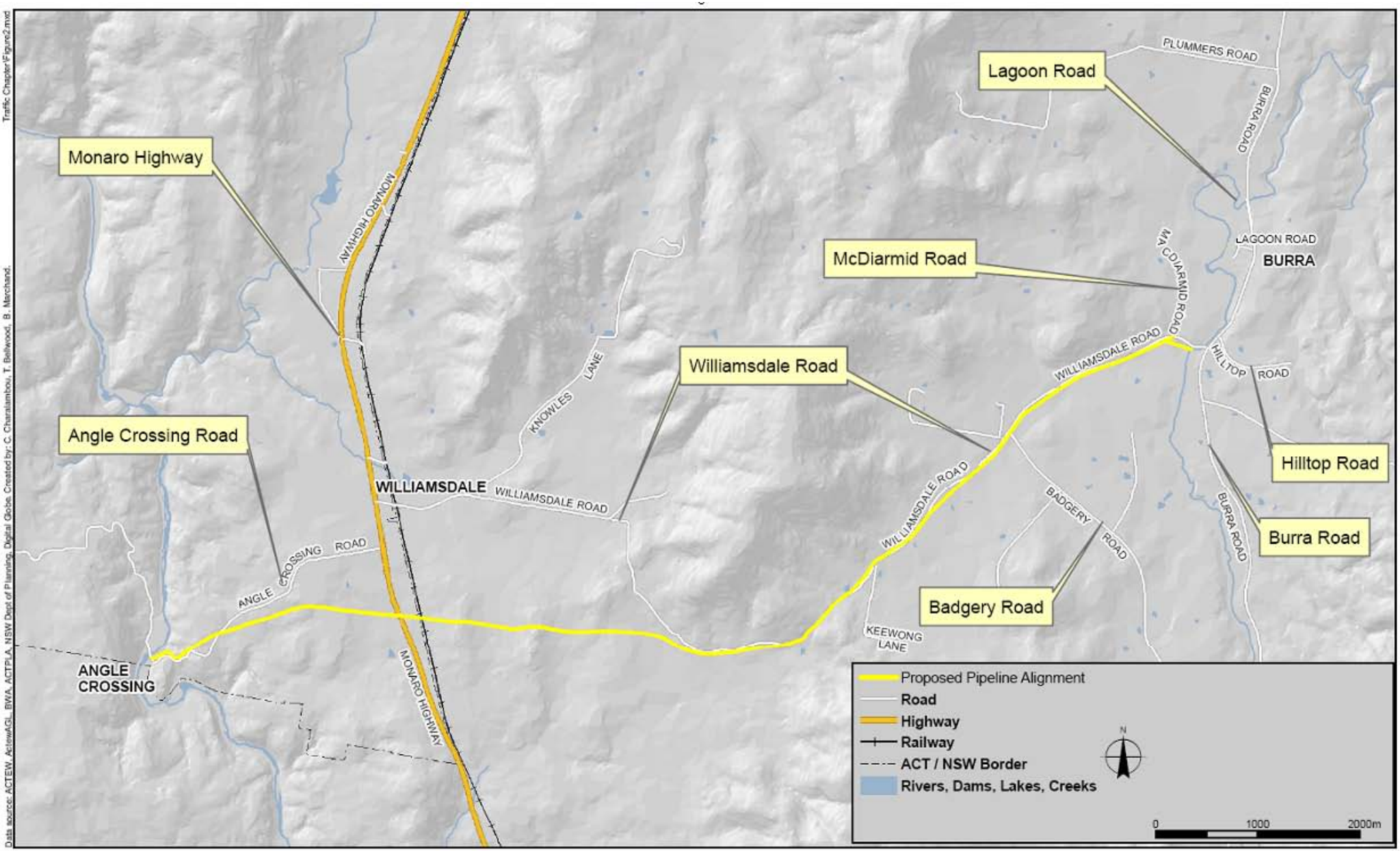
The BWA will ensure that the controls are properly implemented and are regularly monitored and audited to assess their effectiveness. Changes to the stipulated controls will be instigated if they are not achieving their objectives.

The project comprises the following key features:

Table 2.1 Key features of the M2G pipeline project

Infrastructure	Description
Intake/low lift pump station	The intake/low lift pump station will comprise a concrete box structure built into the riverbank. The low lift pump station will include a screen, grit collection and removal, pumps and valves and filtration to prevent fish transfer.
High lift pump station	The pump station will pump water to a high point at Gibraltar Range, from where it will run under gravity to the discharge point. The high lift pump station will consist of a building enclosing a pump hall and electrical services and an amenities area.
Pipeline	The pipeline will transfer the water from the low lift pump station to the high lift pump station, then onto the outlet structure. It will be constructed of 1016 mm diameter steel pipe. The pipeline will be approximately 12 km long, with the pipe located approximately 1.8 m to 4 m below ground level. Air valves and scour valves will be located at regular intervals along the pipeline to provide pressure relief and to allow cleaning.
Outlet structure	The outlet structure will take the form of a weir box arrangement located on the bank of Burra Creek. It will comprise a rectangular concrete box approximately 12 m along the creek bank with a 250 mm grated opening along the west bank of Burra Creek. Water will flow into the weir box from the pipeline and will discharge over the weir and run down the creek bank to the creek, which flows to Googong Reservoir. This method of discharge is designed to minimise scouring of the creek bed near the outlet.
Electric power supply	The electrical infrastructure will comprise a 132 kV/11 kV substation in Williamsdale and a single 11 kV cable to the high lift pump station.
Mini-hydro power generator	Electricity provided by the grid will be supplemented by electricity generated by a mini-hydro electric power facility which will be constructed as part of the project.

Figure 2.1 General Location



2.2 Purpose

The purpose of this document is to outline the traffic control management for the Murrumbidgee to Googong (M2G) project and assist onsite personnel in understanding and delivering on project specific traffic procedures and their responsibilities within the Traffic Management Plan (TMP). It seeks to identify key issues relevant to the various stakeholders and to wherever practicable eliminate or reduce those key issues, hazards and associated risks inherent with managing and controlling vehicle movements on the site and surrounds.

This document identifies project access points and the local road network. The plan also addresses all vehicle movement issues raised in the conditions of approval set down by NSW Department of Planning and ACT Planning and Land Authority.

2.3 Objectives

The objectives of the TMP are:

- To document existing local traffic conditions, measure impact of additional construction traffic and implementation of appropriate mitigation measures;
- Control of vehicles movements within the Murrumbidgee to Googong Water Transfer project works boundary of affected areas in accordance with the specifications and requirements of this management plan;
- To go beyond a culture of business as usual (compliance) by demonstrating excellence in traffic control management;
- To comply with EIS / DA (ACT), EA (NSW) and PER (Commonwealth) commitments and conditions of approval;
- To minimise complaints from individual landowners / leaseholders and the community relating to traffic control management;
- Outline strategies to safely implement public management during construction relating to vehicular and pedestrian movements;
- To prevent the spread of noxious weeds and the dispersal of alien plant and animal species with appropriate traffic control management;
- To reinstate local road networks to their original condition, if required;
- To ensure erosion control measures are installed in erosion prone areas;
- To consult with individual landowners and relevant stakeholders to incorporate their feedback during development and implementation of the TMP; and,
- Ensure that landowners, community members, and other stakeholders are kept informed of any traffic changed traffic conditions and notified if of any impacts to access particularly to properties and premises near the construction corridor.

2.4 Performance goals

- Compliance with all ACT, NSW and Commonwealth legislative requirements relating to traffic control management;

- Compliance with EIS / DA (ACT), EA (NSW) and PER (Commonwealth) commitments and conditions of approval;
- The management of public access restrictions in a thoughtful and timely manner eliminating any unplanned or inappropriate closures;
- Resolve and remedy complaints from individual landowners / leaseholders and the community relating to traffic control management in a timely and satisfactory manner;
- No repeat complaints; and
- Outline strategies to safely implement public management during construction.

2.5 Review of Traffic Management Plan

This Traffic Management Plan has been reviewed by Clearwater Services Pty Ltd, Mark Hogg. Mark is the ACT Traffic Control Supervisor, RTA Certification number 5183007893.

The review letter and signature page can be found in Appendix E of this report.

3 Legislative & Regulatory Compliance

3.1 Relevant Legislation

Key legislation relating to Traffic Control Management is detailed below. Other legislation associated with the M2G project is outlined in the CEMP.

Table 3.1 Key Legislation

Legislative Jurisdiction	Relevant Act
Territory (ACT)	ACT OHS Act 1989
	ACT OHS Regulation 1991 and General Regulation 2007
New South Wales (NSW)	NSW Occupational Health and Safety Act 2000
	NSW Occupational Health and Safety Regulation 2001
	NSW Road Transport (Safety and Traffic Management) Act 1999
	NSW Road Safety (Traffic) Regulations 1995

3.2 Guidelines and Standards

Key reference materials relevant to traffic control management during design and construction components of the Murrumbidgee to Googong Water Transfer include:

AS 1742.3:1996	Manual of Uniform Traffic Devices - Part 3: Traffic control devices for works on roads
SAA HB 81.1-1996	Field Guide for Traffic Control at Works on Roads – Short term urban works, daytime only
	NSW RTA Traffic Control Manual at Worksites
	TAMS Road Signage Guidelines

3.2.1 BWA Procedures

BWA - 2-117	Traffic Management Plan
BWA -2-102	Personal Protective Equipment
BWA-M2G-SY-PLN-001	Works Boundary Plan
BWA-M2G-CO-PLN-001	M2G Site Co-operative Plan
BWA-M2G-OS-PLN-001	M2G Emergency and Incident Response Plan
BWA-PRW-OS-PLN-001	BWA Occupational Health, Safety and Rehabilitation Management Plan
BWA-M2G-CO-RPT-003	Construction Methodology – Pipeline
BWA-M2G-CE-PLN-003	Shared Roads Policy

3.2.2 Other Documents

Traffic Control at Work Sites, September 2003, RTA

Water Security Major Projects Complaints Management Procedure (ACTEW, April 2010).

Access to these procedures is undertaken electronically via 'Lotus Notes' on the Bulk Water Alliance network or hard copies may be printed where this access is not available but shall be marked 'Uncontrolled Copy'.

3.3 Conditions of Approval

The conditions of approval relevant to traffic control have been addressed at the front of this document (Tables 1.1 – 1.6). Where a specific condition of approval or commitment has been documented, this has been listed with a reference to where this document or other Construction or Operational EMP documents addresses this specific condition.

3.4 Licences and Permits

The following approvals/permits/licences are required for the proposed works and traffic control:

- Roads ACT / NSW RTA / Local Council – Road Opening Permit
- Roads ACT / NSW RTA / Local Council – Approved Traffic Control Plan

Applications for Roads ACT / NSW RTA / Local Council permits and licences will be submitted to them along with a relevant Traffic Control Plan as required. No works on or adjacent to public roads will commence until permits and licences have been issued.

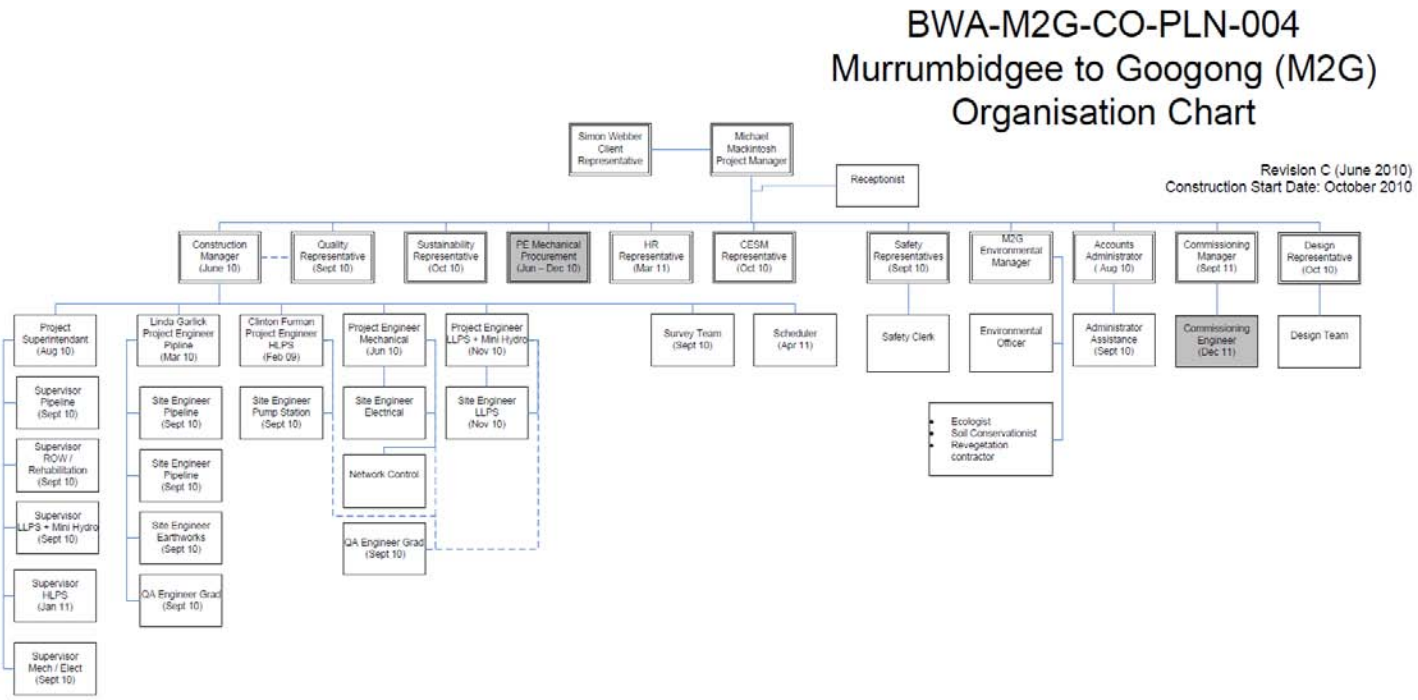
4 Structure and Responsibilities

4.1 General

Roles and responsibilities of BWA personnel are covered in detail in Section 3 of the CEMP. They are, in part, repeated in this section of the TMP with particular relevance to traffic control management.

Figure 4.1 Site Structure

The general project structure for the management of Traffic control management issues is shown in Figure 3.1 below.



4.2 Roles and Responsibilities

The following roles will be involved with implementing and reporting the traffic control items referred to in this Traffic Management Plan:

- Project / Construction Manager
- Project / Site Engineer (defined as ‘Engineer’ in RTA Traffic Control at Work Sites Manual)
- Quality Assurance Manager
- Superintendent (defined as ‘Works Supervisor’ in RTA Traffic Control at Work Sites Manual)
- Supervisor (defined as ‘Team Leader’ in RTA Traffic Control at Work Sites Manual)
- Community Engagement and Stakeholder Manager

The responsibilities of the above personnel are detailed under Section 4.3 and 6.1 of the RTA Traffic Control at Work Sites Manual and include but are not limited to the following:

4.2.1 Project Manager

The Bulk Water Alliance's M2G Project Manager has the role of ensuring that the project is delivered on time, within budget and the delivery is consistent with the aims and objectives of the Bulk Water Alliance. This role is accountable for all aspects of the project including safety, environment and heritage, quality, budget and deliverables. The Project Manager has the overall responsibility of ensuring that the requirements of this plan are met.

4.2.2 Construction Manager

The Bulk Water Alliance's Construction Manager is responsible for delivery of the construction phase of the Project to ensure that impacts are minimised and obligations are met. The Construction Manager shall ensure that the Plan is implemented and that the personnel in the roles detailed below are undertaking their responsibilities.

4.2.3 Project / Site Engineer

The Bulk Water Alliance's M2G Site Engineer will:

- Identify the need for a TCP to be developed;
- Develop the specific traffic control plans for each situation and getting them approved;
- Undertake a monthly audit on this plan to ensure that it is still appropriate for the Project and is being implemented
- Carry out any changes required to the plan following an audit
- Submit this Traffic and Public Safety Management Plan to relevant stakeholders for approval
- Submit required applications for permits and licences to the relevant stakeholders
- Inspect traffic control arrangements at least once every four weeks, record the date and time, any deficiencies noted and any corrective action taken or specified (see section 3.6).
- Provide a copy of inspection reports to the Superintendent

4.2.4 Quality Representative

The Bulk Water Alliance's M2G Quality Representative will:

- Monitor the implementation of this plan, and subsequent procedures.
- Monitor the record keeping process

4.2.5 Superintendents and Supervisors

The Bulk Water Alliance's M2G superintendent/supervisor shall:

- Ensure that all signage and devices required by the TCP's are available and are in good condition
- Ensure that the location and types of devices displayed are recorded in the site diary; including the time and date of inspection.
- Ensure that approvals have been given for traffic control
- Ensure that the TCP is implemented as approved and a copy is kept on site
- Inspect the traffic control layout prior to work commencing and at least once per week during the works;
- Inspect traffic control layout outside of work hours at least once during the first week and at least every two months for the duration of the works;
- Provide an after hours contact to the local Police;
- Inspect the site at the end of final day of works to ensure that all unnecessary controls have been removed; and
- Ensure that any corrective actions are undertaken.

A copy of the Traffic Control Inspection checklist, Audit Checklist and Location Risk Assessment Form is located in Appendix B.

This plan shall be audited on a regular basis not greater than monthly by the Project Engineer in accordance with the Bulk Water Alliance Group procedures BWA-G-3-021 – Auditing.

4.2.6 Community Engagement and Stakeholder Manager

The Community Engagement and Stakeholder Manager (CESM) Team Leader will have the responsibility for ensuring that community members and stakeholders affected by traffic control measure are kept informed of potential impacts and changing traffic conditions. This includes being the first point of contact and managing community complaints in accordance with the Complaints Management Procedure.

The CESM Manager, in accordance with the Community Engagement and Stakeholder Management Plan (2010-2012) will;

- Consult with landowners, community members, local sporting and recreational groups, including equine owners, local businesses and other impacted stakeholders regarding the potential construction impacts;
- Document and inform the construction team of stakeholders and landowners access requirements on a daily basis;
- Implement procedures to inform the relevant community of Construction traffic routes and any potential disruptions to traffic flows and amenity impacts with adequate notice;
- Implement procedures to consult with local landowners with regard to Construction traffic to ensure the safety of livestock and to limit disruption to livestock movements;
- Ensure adequate static and variable message and signage systems are updated to reflect changed traffic conditions; and
- Manage and record complaints in accordance with the Complaints Management Procedure.

A further description regarding the role of the CESM manager is outlined in Chapter 6.

4.3 Inspection and reporting

Inspections and reporting of traffic controls shall be undertaken in accordance with the RTA Traffic Control at Work Sites Manual section 6.1 and includes but is not limited to the following:

- Undertaking regular audits; and
- Undertake regular inspections of the implementation.

5 Existing road infrastructure and Construction interface

5.1 Road network

Figure 4.1 shows the road network in the vicinity of the pipeline route. The pipeline crosses Angle Crossing Road, Monaro Highway, Williamsdale Road, Badgery Road, and Burra Road.

The Monaro Highway connects Canberra and Cooma and is a major transport link for destinations south of Canberra.

Angle Crossing Road is an unsealed road that crosses the Murrumbidgee River near the ACT/NSW border. It intersects the Monaro Highway about 2.5 km from the river crossing. The intersection with Monaro Highway is sealed and line-marked. Angle Crossing Road crosses the Murrumbidgee River as a causeway and is the southernmost crossing of the river in the ACT, providing a low level access to the Monaro Highway for residents of the village of Tharwa and for tourists. Tharwa Bridge at Tharwa and Point Hut Crossing are more frequently used as crossing points.

Williamsdale Road is unsealed for most of its length. The section between Monaro Highway and Knowles Lane is sealed and the section between Macdiarmid road and its intersection with Burra Road is also sealed. Williamsdale Road is about 6 km long between Monaro Highway and Burra Road. Its function is primarily to provide access to properties. There is a single lane low level bridge on Williamsdale Road near its intersection with Burra Road. The grade approaching Williamsdale/Burra Road intersection is steep.

Badgery Road and Macdiarmid Roads are both no-through-roads that provide access to properties. Macdiarmid Road is a sealed two lane two-way collector road that provides access for several rural properties and is lightly trafficked. Macdiarmid road intersects Williamsdale road at a T-Junction.

Burra Road is a sealed road; to the north of Williamsdale Road is connects to Queanbeyan via Old Cooma Road and to the south of Williamsdale Road is connects to the Monaro Highway at Michelago.

Appendix A contains photos of existing road conditions.

5.2 Existing Traffic conditions

Traffic flows

Roads ACT and Queanbeyan City Council provided traffic count data for a number of roads in the preferred project area to assist in the traffic assessment. The data is summarised in Table 2.1 The traffic counts for Monaro Highway in June are representative of normal traffic flows and do not include ski traffic.

Table 5.1 Existing traffic count data

Street	Traffic count date	Average daily traffic (ADT), vehicles per day (VPD)
Angle Crossing (east of Murrumbidgee River)	20/8/08 - 27/8/08	79 (9.5% heavy vehicles)
Monaro Highway (between Angle crossing Road and the NSW Border)	2/6/08 – 9/6/08	3162*
Williamsdale Road (near Monaro Hwy)	June 2006	281*
Williamsdale Road (near Burra Road)	June 2006	200*
Badgery Road (near Williamsdale Road)	June 2006	198*

Street	Traffic count date	Average daily traffic (ADT), vehicles per day (VPD)
Burra Road (nth of Hilltop Road)	August 2008	436*

** No heavy vehicle data available for these roads*

5.3 Road Dilapidation Surveys

Road dilapidation surveys will be conducted on all public roads along the pipeline alignment prior to and following the construction period. The development and implementation of these surveys will be done in consultation with Palerang Shire Council and ACT Roads as per NSW and ACT approval conditions. Appendix A contains photos of existing road conditions.

Surveys will be conducted on impacted roads which include gravel depth measurements, photographic and video reference;

- Angle Crossing Road – From Monaro Highway to the eastern side of the Murrumbidgee river crossing
- Monaro Highway – From 200m north of Williamsdale Road intersection to 200m south of the pipe crossing
- Williamsdale Road – From Monaro Highway to Burra Road
- Low level bridge on Williamsdale Road
- Burra Road – 100m each direction from Williamsdale Road intersection
- Others – All roads along Williamsdale Road that the Pipeline passes through will be surveyed 100m each side of pipeline centre line

The dilapidation survey undertaken at the completion of the construction will be consistent with the survey completed at the start of the project. A comparison will identify areas that may require rectification works as a result of the construction impacts to roads from construction activities. With the relevant authorities' approval, the Alliance will repair the identified areas.

5.4 Works Boundary Plan

The purpose of the Works Boundary Plan is to outline the mitigation measures required when setting out the Murrumbidgee to Googong Water Transfer project site in accordance with the planning approvals. In accordance with the Project Alliance Agreement (PAA) Clause 16.5 the Works Boundary Plan states:

> *The Alliance must develop and maintain at all times a Works Boundary Plan which specifies the boundaries of the Active Work Site for each Project at any time during the Program from the purpose of clause 10, this clause 16 and clause 28. The plan and all updates to the plan must be submitted to the APMT for agreement in accordance with clause 8.*

BWA-M2G-SY-PLN-001 *Works Boundary Plan* details the construction boundary of the Murrumbidgee to Googong Water Transfer project site. Access to this plan is undertaken electronically via 'Lotus Notes' on the Bulk Water Alliance network or hard copies may be printed where this access is not available but shall be marked 'Uncontrolled Copy'.

5.4.1 Physical boundaries

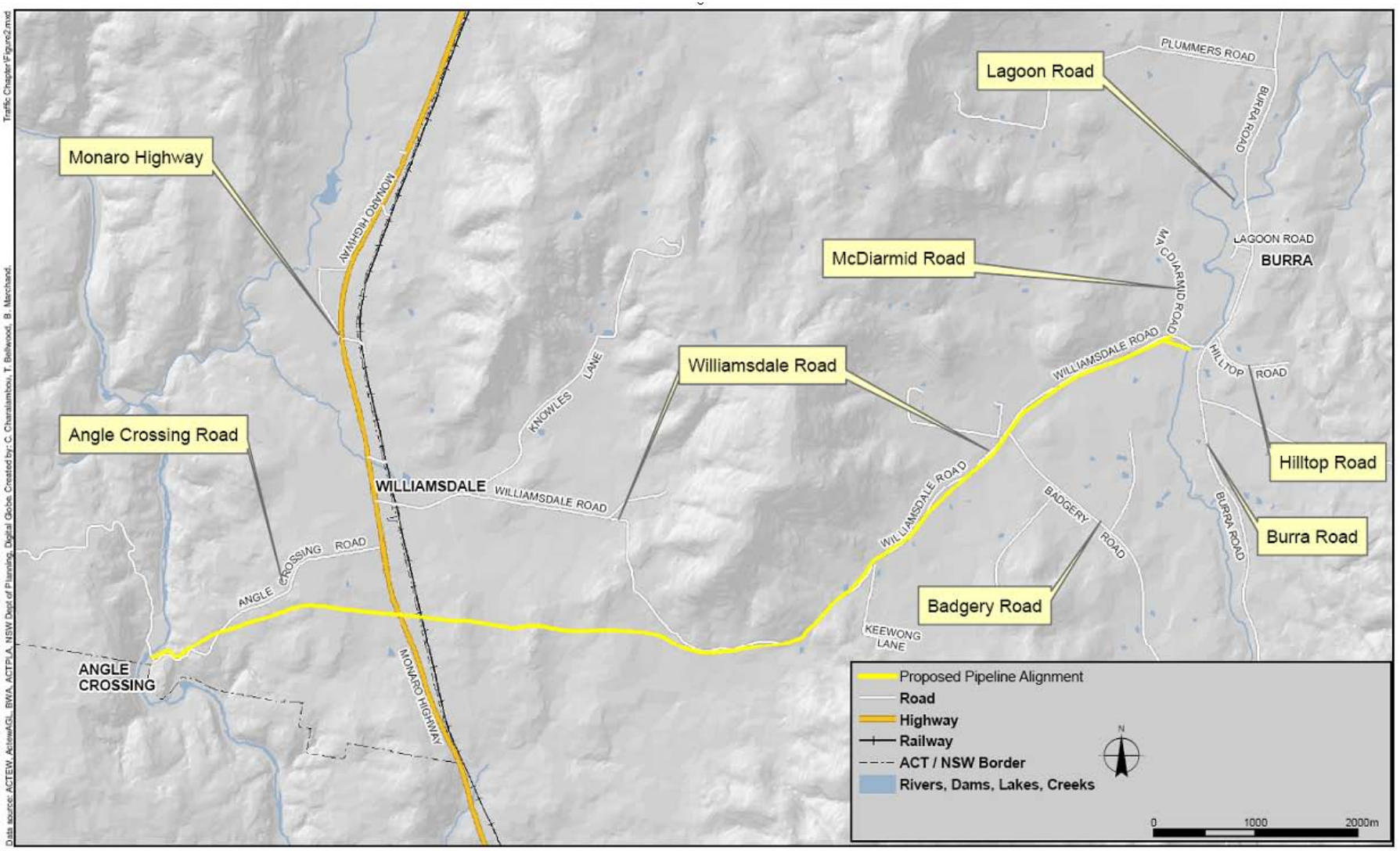
The physical boundaries of each area vary dependant on the phase of the project. The table below shows the areas required in the final configuration and during the construction phase. These figures are taken from the EIS document (where detailed).

Table 5.2 Area of Works

Area of Works	Jurisdiction	Final	Construction
Permanent Structures			
Low Lift Pump Station (Area 1) Area 1A: Area 1B: Area 1C:	ACT	 750 m^2 40 m^2 250 m^2	 3530 m^2 160 m^2 450 m^2
High Lift Pump Station (Area 3)	ACT	4200 m^2	5500 m^2
Discharge Structure (Area 9)	NSW	1200 m^2	2600 m^2
Mini hydro (Area 8)	NSW	250 m^2	5800 m^2
HLPS Roadwork Upgrade (Angle Crossing Road)	ACT	NA	2050 m^2
Angle Crossing Road and Monaro Highway Intersection Upgrade	ACT	NA	1100 m^2
Pipework Easements			
Chainage 0-94	ACT	Easement	40m width
Chainage 94-300	ACT	Easement	35m width
Chainage 450-692	ACT	Easement	35m width
Chainage 692-780	ACT	Easement	40m width
Chainage 780-820	ACT	Easement	15m width
Chainage 820-900	ACT	Easement	35m width
Chainage 900-985	ACT	Easement	20m width
Chainage 985-1060	ACT	Easement	35m width
Chainage 1060- 1090	ACT	Easement	20m width
Chainage 1090-1750	ACT	Easement	35m width
Chainage 1750-2600	ACT	Easement	25m width
Chainage 2600-2650	ACT	Easement	40m width
Chainage 2650-2720	ACT	Easement	20m width
Chainage 2720-2760	ACT	Easement	40m width
Chainage 2760-2860	ACT	Easement	20m width
Chainage 2860-2900	NSW	Easement	15m width
Chainage 2900-3770	NSW	Easement	25m width
Chainage 3770-4200	NSW	Easement	35m width

Area of Works	Jurisdiction	Final	Construction
Chainage 4200-4680	NSW	Easement	25m width
Chainage 4680-4720	NSW	Easement	15m width
Chainage 4720-5050	NSW	Easement	30m width
Chainage 5050-6470	NSW	Easement	40m width
Chainage 6470-7230	NSW	Easement	15m width
Chainage 7230-7510	NSW	Easement	40m width
Chainage 7510-7680	NSW	Easement	35m width
Chainage 7680-8020	NSW	Easement	20m width
Chainage 8020-8410	NSW	Easement	30m width
Chainage 8410-11250	NSW	Easement	40m width
Chainage 11250-11540	NSW	Easement	25m width
Chainage 11540-11690	NSW	Easement	20m width
Chainage 11690-11710	NSW	Easement	40m width
Electrical Easement **Chainage 0 – 400**	ACT	Easement	20m width
Temporary Areas			
Pipe Laydown Area 2 (Angle Crossing)	ACT	Temp Only	2300 m^2
Pipe Laydown Area 4 (Angle Crossing Cattle Grid) Incl PS site office	ACT	Temp Only	4200 m^2
Main Site Office (Area 5) Incl Storage Facility and Pipe storage area	ACT	Temp Only	9500 m^2
Pipe Laydown Area 6 (DP 754889 Property)	NSW	Temp Only	10000 m^2
Pipe Laydown Area 7 (Borrow Pit)	NSW	Temp Only	5000 m^2

Figure 5.1 Affected Local Road Network



5.5 Assignment of Construction Traffic

The major routes taken by construction traffic to access the site are assumed to be:

- Monaro Highway/ Angle Crossing Road for equipment and materials delivered from Canberra to LLPS, HLPS and the section of the pipeline west of Monaro Highway as well as workforce and visitors to these locations;
- Monaro Highway/ Williamsdale Road for equipment and materials delivered from Canberra to the section of the pipeline east of Monaro Highway and a proportion of workers and visitors;
- Burra Road/ Williamsdale Road for equipment and materials delivered from Queanbeyan and a proportion of workers or visitors; and
- Angle Crossing Road, Monaro Highway and Williamsdale Road for the haulage of materials off-site.

Based on these route assumptions, the heavy vehicle was assigned to the various roads as shown in Table 5.3 below. This represents the expected maximum traffic volume during the construction period.

Table 5.3 Construction Traffic Assignment

Road	Location	Light Vehicle trips per day	Heavy Vehicle trips per day	Total Traffic
Monaro Highway	North of Williamsdale Road	140	127	267
Monaro Highway	Williamsdale Rd to Angle Crossing Rd	80	75	155
Angle Crossing Rd	River crossing to Monaro Highway	80	75	155
Williamsdale Road	Monaro Highway to Burra Road	38	52	90
Burra Road	North of Williamsdale Road	140	127	267

5.6 Roads and Intersection Operation

5.6.1 Road Capacity

Austroads defines level of service as a qualitative measure describing operational conditions within a traffic stream. The term Level of Service (LOS) and its characteristics for rural roads is defined above in Table 4.3/

5.6.2 Impact on Roads

Table 4.4 below summarises the existing traffic volumes and estimated additional traffic during construction.

Table 5.4 Construction Traffic

Road	Existing Traffic Volume (VPD*)	Construction Traffic (VPD*)	Total Traffic (VPD*)	% Increase in Traffic (VPD*)
Monaro Highway (nth of Williamsdale Rd)	3162	267	3429	8.5

Road	Existing Traffic Volume (VPD*)	Construction Traffic (VPD*)	Total Traffic (VPD*)	% Increase in Traffic (VPD*)
Monaro Highway (Williamsdale Rd to Angle Crossing Rd)	3162	155	3317	4.9
Angle Crossing Rd	79	155	234	196.2
Williamsdale Rd	281	90	371	32.0
Burra Road (nth of Williamsdale Rd)	436	61	497	14.0

**** VPD – Vehicles Per Day***

Monaro Highway

The additional construction traffic on Monaro Highway represents an increase in the daily traffic of between 5% and 8%. This relatively small increase in traffic can be easily accommodated at the existing Level of Service C. LOS C is described as *"stable flow but most drivers are restricted to some extent in their freedom to select their desired speed"*. (*RTA Guide to Traffic Generating Developments*, Vers 2.2, 2002).

Angle Crossing Road

Angle Crossing Road is lightly trafficked so that the impact of the construction traffic is relatively substantial. However the increased traffic volume due to the project is less than 1100 VPD, the threshold for LOS A, where free and unrestricted traffic flow can be expected.

Angle Crossing Road crosses the Murrumbidgee River via a causeway. This is wide enough for only a single stream of traffic.

The construction of pumping stations may require road closures of Angle Crossing Road for short periods during delivery of large items of equipment. Such closures should only be used when other measures such as lane closures and traffic management would not be adequate to ensure public safety. Adequate notice of closures will be provided and warning signs placed advising of alternative routes to cross the river.

Williamsdale Road

Williamsdale Road carries more traffic than Angle Crossing Road but is also considered to be lightly trafficked. The increased traffic volume due to construction is below 1100 VPD and therefore the road would continue to operate LOS A or B described by Austroads as very good.

Williamsdale Road will be realigned between CH 8800 and CH 9160 to remove several tight horizontal curves. The pipeline will run parallel to and south of the realigned road.

Williamsdale Road crosses Burra Creek near its intersection with Burra Road. This is a single-lane low-level crossing and subject to flooding. The vertical alignment of Williamsdale Road across the creek and approaching Burra Road is constructed to a minimal standard (refer Photos 13 and 14 in Appendix A) with very limited sight distances at the intersection. This section of Williamsdale Road and its intersection with Burra Road will need to be carefully controlled to safely accommodate the additional traffic during construction. The introduction of a temporary stop sign for vehicles exiting Williamsdale Road will be proposed in the Traffic Control Plan for the area.

The load rating of the bridge structure is will be determined. Construction loads will be restricted to ensure that this is not exceeded.

Burra Road
Deliveries for the construction of the mini-hydro facility will be directed to use Burra Road to travel north to Canberra and Queanbeyan rather than Williamsdale Road.

5.7 Closures and public areas

The Murrumbidgee River is a popular area for locals to undertake recreational activities.

To ensure the safety of the public and employees the Angle Crossing Beach will be closed during the works in this area. This included the carpark on the right side of Angle Crossing Road East of Murrumbidgee River Crossing.

In compensation for the closure of this Recreational area – Tharwa Sandwash Recreational area will be upgraded. These works will be completed in conjunction with PLC requirements and approvals.

In order to achieve the construction requirements along this river area, the following areas will be closed to the public for the duration of the construction period, signage will be in place:

- Murrumbidgee River: Closed along the Eastern side of the river.
- Carpark and Toilet Facilities at River: Closed
- Walking Tracks: As required.

5.8 Road upgrades and Repairs

5.8.1 Monaro Highway and Angle Crossing Road Intersection

As part of the initial start up phase of the M2G project the intersection at Monaro Highway and Angle Crossing Road will be upgraded. These works will be done outside of the ski season and conducted in accordance with approved traffic control plans.

5.8.2 Williamsdale Road (Gibraltar Hill)

Williamsdale Road at Gibraltar Hill has been identified to require preliminary works prior to the installation of the pipeline in the road reserve in this area. The Alliance has been working closely with Palerang Council to fund the upgrading and sealing of this road in this area.

5.8.3 Repairs

All road defects found within the construction area shall be immediately notified to the relevant authority and arrangements made to have the defect repaired. Regular/scheduled road maintenance will be coordinated between the M2G project and authorities whenever there is an interface.

5.9 Goulburn to Cooma Railway

Initial consultation was undertake with the Australian Railway Historical Society (ARHS) regarding the methodology for crossing the Goulburn to Cooma Railway line, however as of the 12 June 2010 ARHS were not renewing the licence for operation of the Queanbeyan to Michelago section of the line. As such the consultation for this work was continued with Australian Rail Track Corporation (ARTC).

ARTC have informed the Alliance that the railway line is no longer in use and the construction of the pipeline will not affect any ARTC assets.

The methodology for the works within the Rail Corridor (BWA-M2G-CO-RPT-005) was submitted to ARTC, and with some modifications to be implemented. The methodology was approved in principal on 11 August 2010. The plan and associated drawings are required to be updated and issued to ARTC for final approval.

5.10 Monaro Highway

The pipeline crosses the Monaro Highway south of Angle Crossing Road. The methodology for the construction of the pipe in this area (BWA-M2G-CO-RPT-004) has been submitted and approved by TAMS and the NCA (Refer Appendix C).

5.11 Road Closures

During the construction phase of the project, all endeavours will be taken to minimise any required road closures. If road closures are required, adequate community notice will be provided to identified stakeholders with details of the road closure and detour details provided. This is only to be undertaken in consultation with the relevant authority's approval and per the relevant Traffic Control Plan. The application for road closure must be submitted at least one month prior to the proposed closure.

If a road closure is required, the Alliance will make every endeavour to re-open the road outside of construction working hours. If this is not possible the Alliance will make every effort to minimise the duration of the closure.

5.12 General

The Alliance will, as a minimum, ensure:

- Vehicular access to properties will be maintained at all times; the method of achieving this will be agreed with each property owner. Possible solutions include keeping one lane open, and the use of steel road plates to span over the pipeline trench.
- That the pipeline will be fenced to prevent livestock from straying close to operating plant
- All traffic changes must consider the impact to equine tracks and local equine groups, emergency vehicles, pedestrians and the general public.
- Where the pipeline crosses a road, the pipeline will be installed with suitable construction techniques to ensure the current traffic conditions can be maintained.
- The road where the pipeline crosses must be restored to original (or better) condition.
- Delivery drivers and plant operators engaged on the project will be educated on the importance of not unnecessarily frightening livestock that may wander close to the pipe line corridor and of being vigilant of possible stock on the local roads

6 Traffic Controls and Mitigation Measures

The Project Team will implement a traffic management system that will ensure the safe movement of traffic, for the community including equine owners, local residents, nearby landowners and construction traffic to pass through and pass by the construction site. Where Traffic Control Plans (TCP) are required, these will be prepared by a suitably qualified person/subcontractor in accordance with the relevant standards and legislation in NSW and ACT.

The following sections will detail the controls to be implemented in order to achieve this safety standard.

6.1 Access to Construction site and Project site offices

6.1.1 Project Site Access Points

The M2G Site will have a limited number of access points or gates to allow entry and exit of construction traffic. These entry points will be identified by a numbering system (eg. GATE 1) that will be displayed at each access point and detailed on the Project Site Plan. This identification system will allow access points to be communicated effectively.

These access points will be well established to allow safe access and egress in all weather conditions. They also may include wheel washes and grids for the purpose of controlling weeds

6.1.2 Heavy Vehicle Traffic Routes

Deliveries to site make up a large portion of the heavy vehicle movements on the local road. It will be necessary to traverse both Angle Crossing Road between Monaro Highway and the river and Williamsdale Road to deliver construction equipment and materials such as pipe, quarry products and concrete along the route and to the pumping stations.

The primary access route for deliveries will be via the Monaro Highway turning into either Williamsdale Road or Angle Crossing Road. The secondary access routes being via Burra Road into Williamsdale Road will be used for deliveries at the eastern end of the construction corridor. This will avoid traversing the full distance along Williamsdale Road. Heavy deliveries via Smiths Road to Angle Crossing will be limited by the load limit of the bridge at Tharwa, the steep grades of Smiths Road being difficult and the water crossing at the causeway.

6.1.3 Site Office

Access to the Main Project Site Office will be via Angles Crossing Road. A designated visitor and staff parking and unloading area will be established. All personnel will be required to go to the Main Project Site Office prior to entering site.

6.1.4 Light vehicles and parking

During the peak production period of the M2G project it is estimated that approximately 150 project personnel will be involved. A number of measures will be implemented to minimise the impact on the local road network. These measures have allowed us to reduce the estimated number of light vehicles on the local road network from those estimated in the EIS, as can be seen in figure above.

A car park will be constructed onsite as part off the initial site compound setup to accommodate all project parking. Employees will then be transported to, from and around work areas by project site vehicles.

6.1.5 Internal traffic movements

Vehicles movements within the Pipeline Construction Right of Way (RoW) will be managed with signage, barricades, and in some instances, local traffic controllers. As these vehicles enter onto public road, traffic control plans will be in place.

The other major contributor to construction traffic will be the haul vehicles transporting excavated rock to the Material Stockpile Sites.

These vehicles will haul to either an offsite location, or a nominated and approved stockpile location. All construction vehicles to be on any haul road must be fitted with flashing amber lights. Signs informing construction vehicles of the appropriate two-way radio frequency will be erected along the Construction Haul Roads.

To communicate and coordinate vehicle movements within the internal road network road advisory signs and UHF radios will be used. Vehicle operators will be required to obey all signage and drive to suit the conditions at the time. In additional to standard road rules project specific rules particularly when working around operational heavy vehicles must be followed, these include:

- Licensed drivers only.
- Max speed on site 40km/hr unless signposted otherwise.
- All drivers to be site inducted or escorted when onsite.
- Obey all road signage.
- Light vehicles giving way to heavy plant at all times.
- Heavy vehicles only and light vehicles road must be clearly marked, sign posted and obeyed.
- Haulage roads must be clearly defined and provide adequate warning and stop signs for light vehicle crossings.
- When approaching operational heavy vehicles UHF contact with operator must be made so presence is noted prior to entering operational area.

6.2 Blasting Closures

If blasting is required it will be conducted between 9am and 5pm Monday to Friday. Appropriate measures shall be taken to ensure that the exclusion zone is cleared of all people prior to blasting and may require short term closures of access roads. The exclusion zone shall be monitored to ensure that it is clear until after the blast and the all clear is given by the shot firer.

Refer to 'BWA-M2G-CO-PLN-005 '*Blasting Management Plan'* for further detail.

6.3 Shared Roads Policy

A *'Shared Roads Policy'* has been developed outlining responsibility of all road users to uphold the highest standard of behaviour and the rights of all user groups to use the local road network. Residents, public road users and the workforce will be educated about the *'Shared Roads Policy'* and their responsibilities under it.

The education process for the workforce will occur during toolbox and education sessions held weekly on the M2G project. Affected residents and stakeholders will be educated through letter drops and community consultation including information sessions and one-on-one consultations. The public road user will be educated through road side signs erected on the Angle Crossing and Williamsdale Roads. The shared road signs will highlight the *'Shared Roads Policy'* and where the document can be viewed online. The signs will also display the community complaints number for reporting any incidents of unacceptable behaviour. The community hotline phone number for the M2G project is (02)6248 3563 and email watersecurity@actew.com.au. Information will also be provided via the ACTEW website www.actew.com.au.

A copy of this policy can be found in **Appendix E**.

6.4 Set-up of Traffic Management Controls and signage

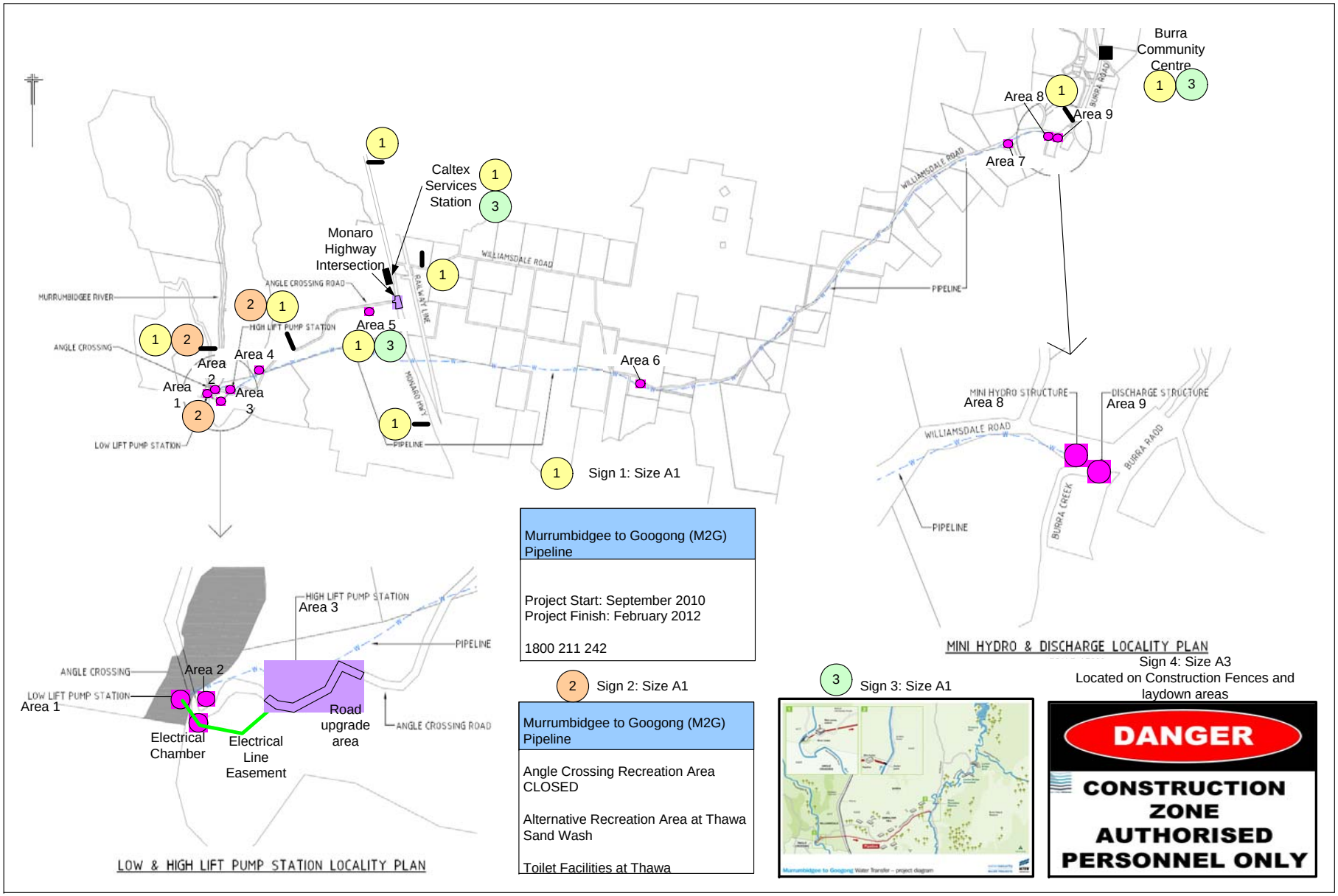
The sequence for erection and removal of traffic control signs and devices is as per the RTA Traffic Control at Worksites Manual Section 3.4. A Task Risk Assessment (TRA) will be produced detailing the method to safely set-up the traffic controls prior to commencement of the works.

Aa temporary signage plan (Figure 5.1) details signage in public places, that informs the public of blasting, construction and traffic movements within the area and any potential disturbance/annoyance that this might have on recreational activities.

A detailed plan in relation to location of static signage at key locations of the Murrumbidgee to Googong Water Transfer construction sites can be found at in Figure 5.1 below. In addition to static signage, the Project Team will utilise Variable Message Signs (VMS) as part of the Traffic Management Plan. The BWA Signage Policy will adhere to TAMS' road signage guidelines.

All Temporary Traffic Management will be setup and maintained for the duration of the works in the area.

Figure 6.1 Construction Signage Placement Plan – Murrumbidgee to Googong Water Transfer



6.5 Traffic Control Plans

Traffic Control Plans will be developed and submitted to TAMS for approval prior to implement. Traffic Control Plans will be developed for the following areas:

Area	Duration
Monaro Highway Intersection Works	Traffic Control Plan in place for duration of Intersection Works
Monaro Highway Pipeline Crossing	Traffic Control Plan in place for duration of Pipeline crossing and for access into the Railway Easement.
Low Lift Pump Station (at Angles Crossing) – Area 1 and 2	Traffic Control Plan in place for the duration of the works in this area
High Lift Pump Station – Area 3	Traffic Control Plan in place for the duration of the works in this area
High Lift Pump Station Roadways (Angles Crossing Road)	Traffic Control Plan in place for the duration of the works in this area
Pipe Laydown Area 4 (Angle Crossing Cattle Grid) Incl PS site office	Traffic Control Plan in place for the duration of the works in this area
Main Site Office (Area 5) Incl Storage Facility and Pipe storage area	Traffic Control Plan in place for the duration of the project
Pipe Laydown Area 6 (DP 754889 Property)	Traffic Control Plan in place for the duration of the works in this area
Pipe Laydown Area 7 (Borrow Pit)	Traffic Control Plan in place for the duration of the works in this area
Mini hydro (Area 8) and Discharge Structure (Area 9)	Traffic Control Plan in place for the duration of the works in this area
Pipeline Construction Zone entrances (Monaro Highway and Burra Road)	Traffic Control Plans will be developed and Implemented for entrances, remain in place for duration of works in these areas
Minor Road Crossings	Traffic Control Plans will be developed for all road crossings.
Pipeline in Road Corridor	Traffic Control Plans will be developed, implemented and managed by the Subcontractor

BWA staff will ensure controls are implemented and maintained.

6.6 Construction deliveries / Project deliveries procedure

The majority of the construction traffic for the Project will be for the delivery of materials. This includes but is not limited to:

- Pipework
- Concrete
- Reinforcement
- Plant / Machinery

Formwork

Sand and Gravel

The delivery of materials has the potential to interrupt traffic flow if the delivery driver(s) do not know where on the Project they are required to deliver their materials to; therefore, a Project Deliveries Instruction Sheet will be developed to ensure that all construction deliveries are aware of Project Rules and know where their materials are to be delivered.

The Project Deliveries Instruction Sheet and Site Map are to be issued to suppliers upon placement of an order for materials or equipment.

6.7 Construction Traffic along ACT / NSW Roads

Table 5.1 summarises the heavy vehicle construction traffic generated during the construction phase of the preferred project (Extract from EIS Section 25).

Table 6.1 Construction traffic – haulage requirements

Location	Material	No. of Vehicle trips per day (VPO)
Intake/Low lift pump station	Concrete Reinforcement Piling Mechanical equipment	12 8 12 6
High lift pump station	Concrete Reinforcement Structural components Mechanical equipment	47 8 20 40
Site compound	General supplies	12
Outlet (including Mini-Hydro)	Concrete Reinforcement Mechanical equipment	15 7 5
Pipeline	Pipe deliveries Bedding material Spoil Imported fill Fuel and maintenance	20 30 38 12 4

 # A trip is defined as one-way i.e. either to or from the site

There will be several crews working simultaneously along the pipeline alignment at any given time. As a result, heavy vehicle movements will occur on a regular basis during normal construction hours (7 am to 6 pm Mondays to Fridays and 8 am and 1 pm on Saturdays). Generally, no work is proposed on Sundays or public holidays. There may be infrequent times when work will need to happen outside of these hours. For example, some after hours delivery of oversized equipment may be required. Wherever practicable the community will be notified prior to any out of hours heavy vehicle movements.

As many of the construction activities will occur at different times, an estimate of the peak heavy vehicle traffic movements was made as shown in Table 5.2 below. It is assumed that deliveries of concrete and reinforcement deliveries will not be concurrent with structural and mechanical equipment deliveries.

Table 6.2 Construction traffic – heavy vehicle movements for main preferred project components

Location	Trips per day
Low lift pump station	20
High lift pump station	55
Site compound	12
Outlet (inclusive of Mini-Hydro)	18
Pipeline	104

In addition, there will be some truck movements associated with the construction of ancillary infrastructure works.

Table 5.3 summarises the light vehicle construction traffic for the main construction components, generated on local roads during the construction phase of the preferred project. There will also be minor light vehicle movements associated with construction workers for the ancillary infrastructure.

Table 6.3 Construction traffic – light vehicle movements

Location	Workforce	Trips per day	Staff	Trips per day	Total trips per day
Low lift pump station	10	2	1	2	22
High lift pump station	20	2	2	2	44
Site compound	-	-	12	2	24
Outlet (inclusive of Mini-Hydro)	20	4	2	4	44
Pipeline	13	2	1	2	28

6.8 Environmental

6.8.1 Dust Management

- The management of dust on the project is a significant issue. Refer to the Murrumbidgee to Googong Water Transfer - Air Quality Management Plan BWA-M2G-EN-ECP-006-C.

6.9 Accidents and Emergencies

The actions to be undertaken for emergencies that occur as a result of the traffic management detailed in this document refer to the Emergency and Incident Response Plan for the Murrumbidgee to Googong Project (BWA-M2G-OS-PLN-001)

If an emergency requires the need for immediate temporary traffic management then the standard RTA TCP846 (see Appendix B) will be adopted. This TCP has been selected as it will apply to the 2 way undivided carriageway roads in and around the Project. The signage required to set-up this TCP will be readily available for use in emergency situations.

In the case of traffic accidents involving the travelling public (vehicular or pedestrian) either witnessed or reported, from which legal proceedings might arise, the following actions will be completed:

- Gather work records, diary entries, traffic control check sheets and audits;
- Record the actual type, size and location of signs and devices in use at the time of the accident. Details of the pavement width, its condition and weather conditions should also be recorded;
- Notify Council as soon as possible; and
- Take photographs of the sign arrangement for subsequent reporting.

A record shall be kept of any traffic accident including any relevant information on traffic arrangements used and completed using form NSW-2F-117A – Traffic Accident Record.

If incidents are required to be reported to WorkCover, Section 6.2 of the RTA Traffic Control at Work Sites Manual will apply. All personnel will adhere to BWA's incident reporting process (flowchart in BWA Emergency Management Plan – BWA-PRW-PD-PLN-004).

BWA to inform the CESM team of the incident so that they can appropriately direct any call that may be received from the public on the Project Number 1800 221 242.

6.10 On-Site Parking

Parking for personnel will be available at the various site compounds for wages and staff personnel. From these locations personnel will be moved to the various work faces, as required. At each of these locations crib sheds and toilet facilities will be available.

Table 6.4 On-Site Parking

Area 3 - High Lift Pump Station	Parking for High Lift Pump Station and Low Lift Pump Station Construction
Area 4 - Zone 1: Pipe Storage Area	Parking for personnel working in the Zone 1 corridor; from here personnel will be moved to the current workface.
Area 5 - Main Site Office	Parking to service the main site office, and overflow for wages from other site areas.
Area 6 – Zone 2: Pipe Storage	Parking for personnel working in the Zone 2 corridor; from here personnel will be moved to the current workface.
Area 7 – Zone 3: Pipe Storage	Parking for personnel working in the Zone 3 corridor; from here personnel will be moved to the current workface.
Area 8 and 9 – Discharge and Mini Hydro Structures	Parking for the construction of the mini hydro and discharge structures.

7 Community & Stakeholder Consultation

7.1 Community Engagement and Stakeholder Management

Close community liaison will be maintained to ensure that local residents are aware of the times and durations when they may be affected by construction work and to provide an avenue for communication between the community and the Bulk Water Alliance.

All communication and consultation will be undertaken in accordance with the project Community Engagement and Stakeholder Management (CESM) Plan. The CESM Manager is responsible for the interface with the community. This includes (but is not limited to) notification of construction activity, notification of temporary road closures, community engagement regarding construction (including soil and water related activities) and the complaints process. The CESM Manager reports to the M2G Client representative whilst working in conjunction with the M2G Project Manager, M2G Construction Manager, Site Superintendent, M2G Environmental Manager and Project Engineers.

In addition, consultation with government agencies will be undertaken regularly as described in the CEMP with the intention of reviewing the effectiveness of the TMP, site management practices, monitoring results and any other relevant issues.

Table 7.1 Communication Network

Communication	
Project personnel including sub-contractors/suppliers	• A site induction and environmental training will be provided to all personnel and sub-contractors engaged to work on the site. • Feedback on environmental matters, new legislation etc. will be provided and encouraged. • Close communication will be maintained between the Construction Manager, M2G Environmental Manager, Foremen and Environmental Officer.
Government agencies	**ACT** • Department of the Environment, Climate Change, Energy and Water (DECCEW) • Parks, Conservation and Lands (TAMS) • ACT Heritage Unit **NSW** • Department of the Environment, Climate Change and Water (DECCW) • Department of Planning (DoP) • Australian Rail Track Corporation (ARTC)
Community and Landholders	• Individual landholders will be informed in advance of construction activity affecting them in accordance with the CESM Plan • Project information will be made available to the community in accordance with the CESM Plan through advertisements, community notices and newsletters.

Communication	
	• A protocol for registering and responding to complaints will be established as detailed in the Complaints Management Procedure and CESM Management Plan.

7.2 Complaints management strategy

The Bulk Water Alliance is committed to managing traffic management related complaints from affected residents or stakeholders in a proactive and conciliatory manner. As such complaints management for the BWA is managed through the Water Security Major Projects Complaints Management Procedure,(ACTEW 2010).

Relevant community and stakeholder groups will be progressively informed of the various stages of construction by the Community Engagement and Stakeholder Management (CESM) team, particularly prior to significant construction generating activities related to soil and water management.

The community and stakeholder groups identified in the CESM Plan will be informed of the duration of the works, what impacts that they are likely to expect and they will be given a 1800 toll free number to contact the BWA CESM team should they wish to register a complaint regarding any aspect of the construction project, not just soil and/or water related impacts.

The BWA CESM team will implement a process for registering and responding to the lodged complaint as per the Complaints Management Procedure. The CESM Manager will report back to the project team on impact and mitigation effectiveness on a weekly basis.

The Water Security Hotline phone number (6248 3563) is available during business hours for general questions, project updates and to provide feedback. A toll free number (1800 211 242) is available 24 hours a day for emergencies. Complaints and comments can also be sent via email to watersecurity@actew.com.au.

7.3 Stakeholder management

It is a goal of the Alliance to minimise the impact of the construction works on the community and property owners, the Community Engagement Stakeholder Management (CESM) Plan will provide details of how the communication between the Alliance and each owner will be established for the duration of the project. The following issues will be covered:

Negotiate with Property owners to ensure they have access to their property at all times.

Disruption to private property access will be minimised for the duration of the construction works, and access will be restored and maintained at each property as soon as practicable as works moves along the pipeline corridor.

Communication with private property owners regarding the potential impact of traffic changes with regards to live stock safety.

Communication protocol to advise community of traffic disruptions / changes and potential impacts.

Communication with local equine group regarding road closures or changes that will impact them.

8 Training Awareness and Competence

Three main forms of training will be implemented on site:

- site induction;
- "toolbox" training

Records of all site inductions and on site training will be kept on a database, including details of the training topic(s) presented, participants and training dates. All participants will be required to "sign-off" that they have been informed and understand their obligations at the conclusion of each training session.

Training will generally be prepared and delivered by Construction personnel, or by personnel delegated by the Construction Manager.

8.1 Site Induction

Prior to working on site, all personnel and subcontractors will undertake a site induction detailing significant environmental, construction and OHS requirements associated with the M2G project. The will include, but not be limited to, the following environmental components:

- Legal requirements including due diligence, duty of care and potential consequences of infringements;
- Environmental responsibilities;
- Conditions of licences, permits and approvals;
- BWA policies (including the Shared Road Policy);
- Incident management and emergency plans; and,
- Reporting process for environmental harm/incidents.

8.1.1 Toolbox Training

Toolbox training will help to ensure that relevant information is communicated to the workforce and that feedback can be provided on issues of interest or concern. Toolbox training will generally be prepared and delivered by the Project Engineers, Superintendent, Site Foreman and/or the Environmental Officer and will reflect risks and concerns associated with construction Activities occurring on site.

The Toolboxes will complement the TMP by providing additional details on the management and mitigation of identified impacts. Toolbox training topics may include but are not limited to:

- Traffic Management along Pipeline Construction Easement
- Traffic Management at Low Lift Pump Station
- Traffic Management at Hight Lift Pump Station
- Traffic Management at Discharge and Mini Hydro Structures
- Shared Road Policy
- Traffic Management along public access roads

Appendix A **Photographs**

Photo 1: Angle Crossing Road at Causeway

Photo 2: Angle Crossing Road approaching Causeway

Photo 3: Angle Crossing Road westbound from Monaro Highway

Photo 4: Angle Crossing Road approaching Monaro Highway

Photo 5: Angle Crossing Road/ Monaro Highway intersection looking north

Photo 6: Angle Crossing Road/ Monaro Highway intersection looking south

Photo 7: Williamsdale/ Monaro Highway intersection looking south

Photo 8: Williamsdale/ Monaro Highway looking north

Photo 9: Williamsdale Eastbound near Monaro Highway

Photo 10: Williamsdale Road unsealed

Photo 11: Williamsdale Road at Badgery Road intersection

Photo 12: Williamsdale Road at Macdiarmid Road intersection

Photo 13: Williamsdale Road looking west from Burra Road intersection

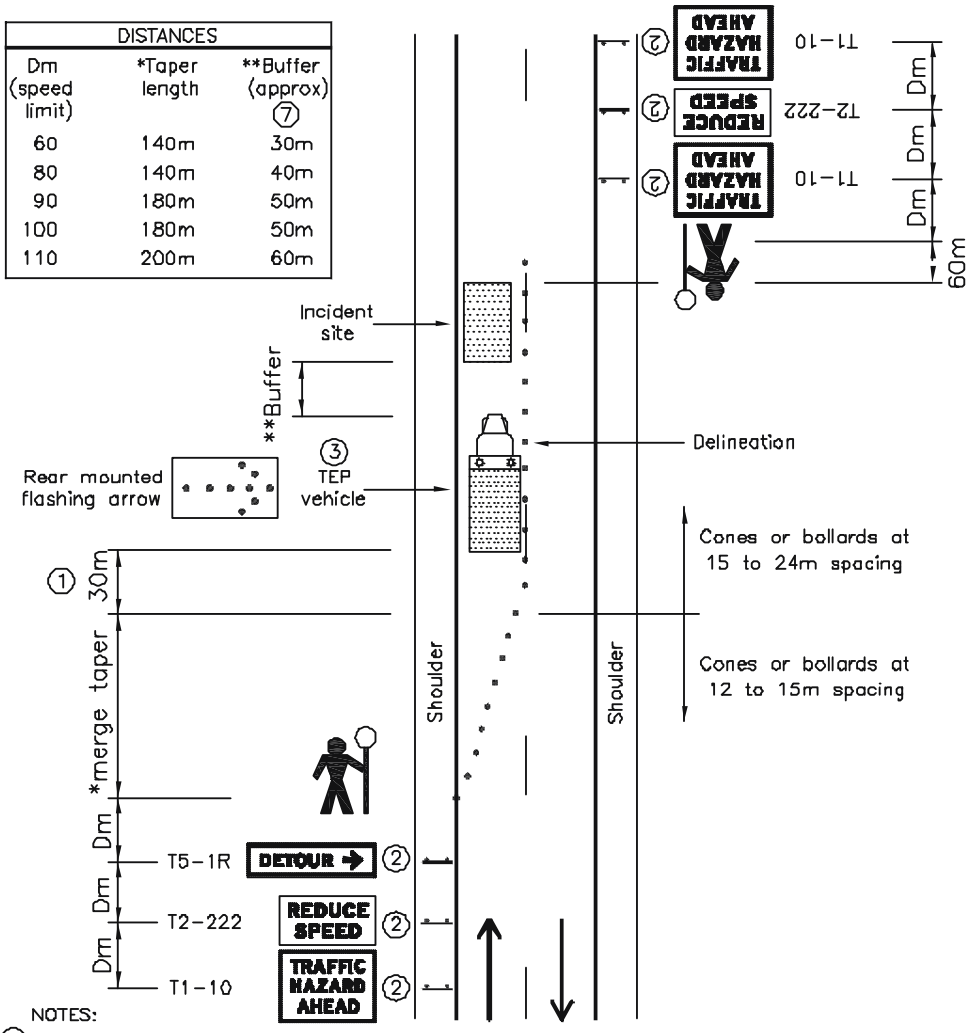
Phot 14: Williamsdale Road looking east at Burra Road intersection

Photo 15: Burra Road northbound approaching Williamsdale Road intersection

Photo 16: Burra Road southbound from Williamsdale Road

Appendix B **Emergency Traffic Control Plan**

1. RTA Audit Checklist
2. Location Risk Assessment



NOTES:

① Make this longer if the incident is around a curve.

② Adapt the distances to these Advance Warning Signs to best fit the road layout, traffic conditions intersections, etc for visibility and readability, especially if the incident will last longer than 15 minutes and traffic is free flowing.

③ TEP vehicle to approach the Incident Site with caution and with hazard warning lights, vehicle mounted rotating beacon lights on and right arrow of the flashing sign activated. Park behind the Incident Site so that the TEP vehicle shadows the Incident Site by 1.0m if suitable and leaving 20–30 metres buffer, as shown.

④ If the traffic conditions are dangerous call for a 2nd TEP vehicle, police or Traffic Comander.

⑤ TEP passenger to leave vehicle when safe to do so and to carefully assess the situation by talking to the driver of any vehicle or inspecting the roadway.

⑥ Control traffic using a STOP/SLOW bat to provide safe crossing to set up Advance Warning Signs.

⑦ Use **Buffer (see table) to provide safe work area and allow access for emergency or service vehicles.

EMERGENCY INCIDENTS
2 LANES / 2 WAY (UNDIVIDED CARRIAGEWAYS)
INCIDENT BLOCKING ONE DIRECTION

T00846

TCP 846

Appendix C **Monaro Highway Crossing**

ACTEW CORPORATION | ActewAGL Always.

ACTEW working with ActewAGL

Construction Methodology - Monaro Highway Crossing

BWA-M2G-CO-RPT-004

June 2010

Delivered by the Bulk Water Alliance

Abigroup Constructing Australia's Future | ACTEW CORPORATION | GHD | John Holland

securing **water** for life

Certificate of approval for issue of documents

Document number	
DM5 number	
Title	Construction Methodology - Monaro Highway Crossing
Revision	3
Document status	Final
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	Position	Name	Signature	Date
Prepared by	Project Engineer	Linda Garlick		22/9/10.
Reviewed by	Construction Manager	Matthew Richardson		21 Sep 10
Approved by	Project Manager	Jason Julius		22/9/2010.

Document revision control

Version	Author	Date	Description	Approval
A	Linda Garlick	29 April 2010	Issued for Review	
0	Linda Garlick	4 May 2010	Issued for Approval	
1	Linda Garlick	10 May 2010	Issued with minor changes	
2	Linda Garlick	2 June 2010	Issued with minor changes	
3	Matthew Richardson	21 September 2010	Issued with minor changes to traffic control section 2.3	

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ACTEW CORPORATION

ACTEW Corporation Ltd ABN 86 069 381 960

Contents

1 PURPOSE

The purpose of this document is to outline the construction methodology to be adopted for the Monaro Highway Pipeline Crossing as part of the Murrumbidgee to Googong (M2G) Project.

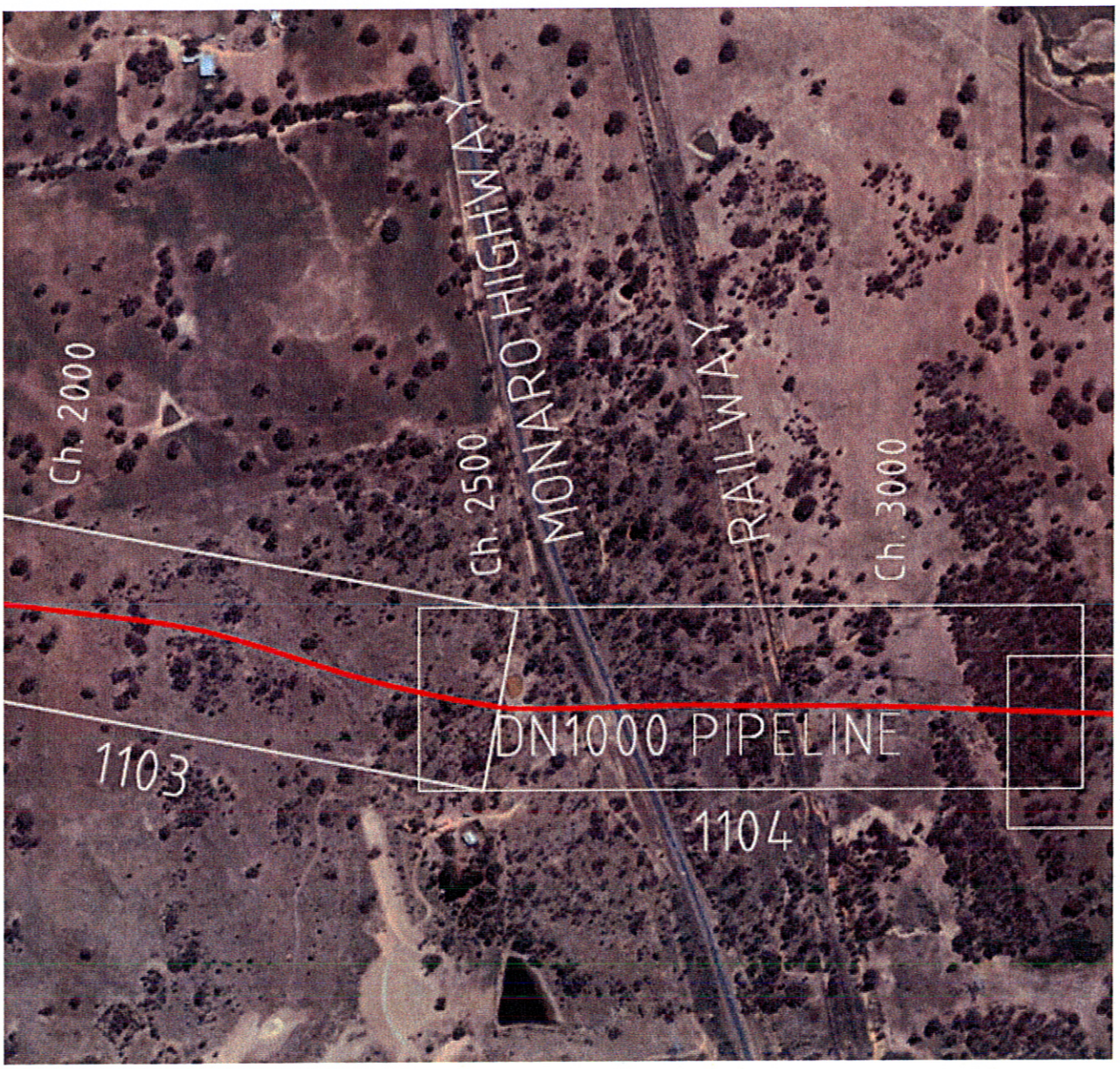
2 CONSTRUCTION

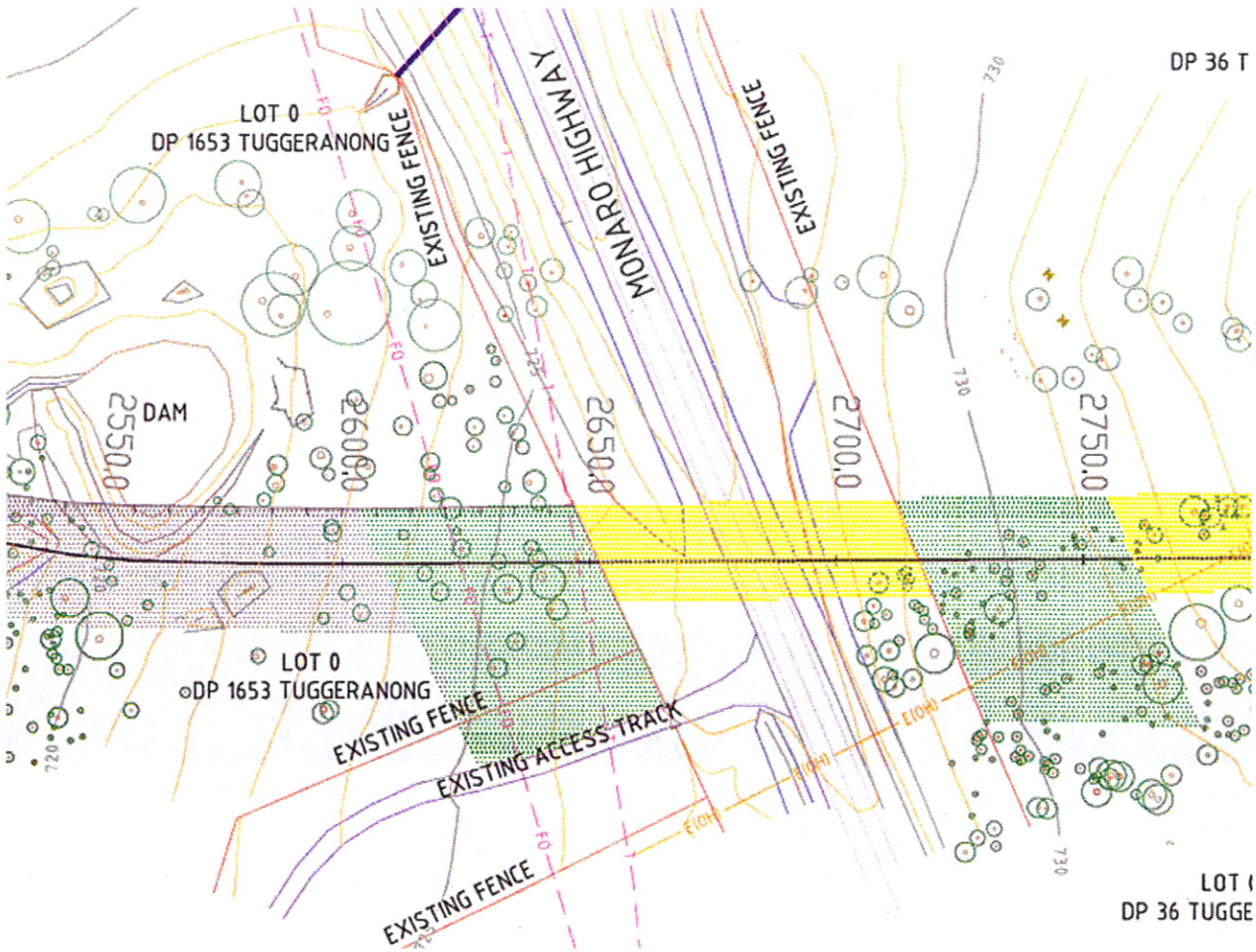
2.1 Details

The DN 1000 MSCL pipe is required to be run from the Murrumbidgee River (as Angles Crossing) to Burra Creek. This includes the crossing of the Monaro Highway.

2.2 Location

The picture below shows the location of the road crossing.



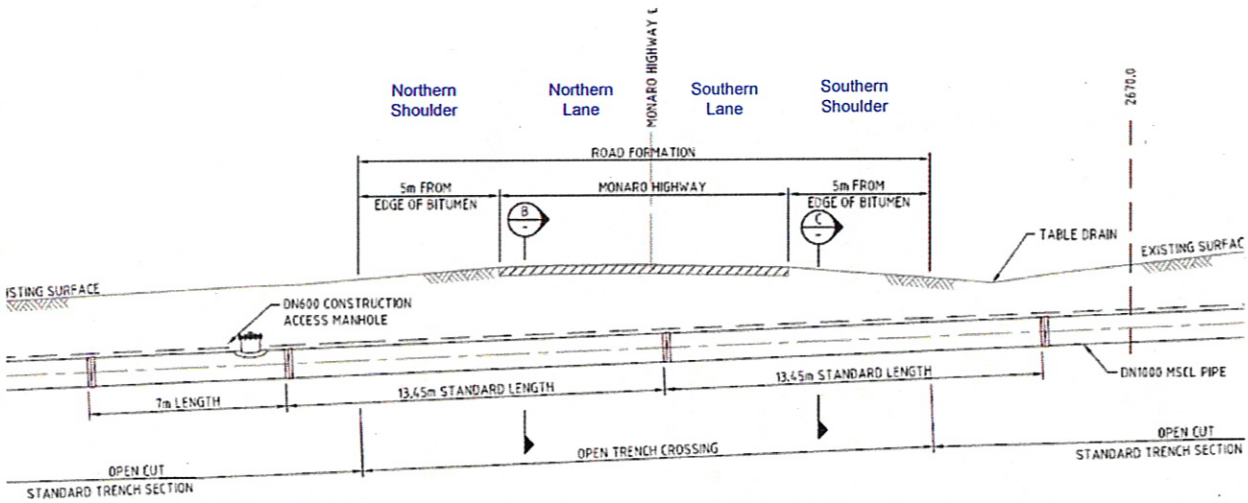


The coloured areas indicate construction easements. Grey = 25m, Green = 40m and Yellow = 20m.

2.3 Traffic Control

A Traffic Management Plan and Traffic Control Plans for this work will be develop and approved prior to commencement. The table below shows the summary of the traffic flow for each Stage / Step of the works. It is envisaged that where lane closures are required on Monaro Highway the contra-flow will be controlled by temporary traffic signals.

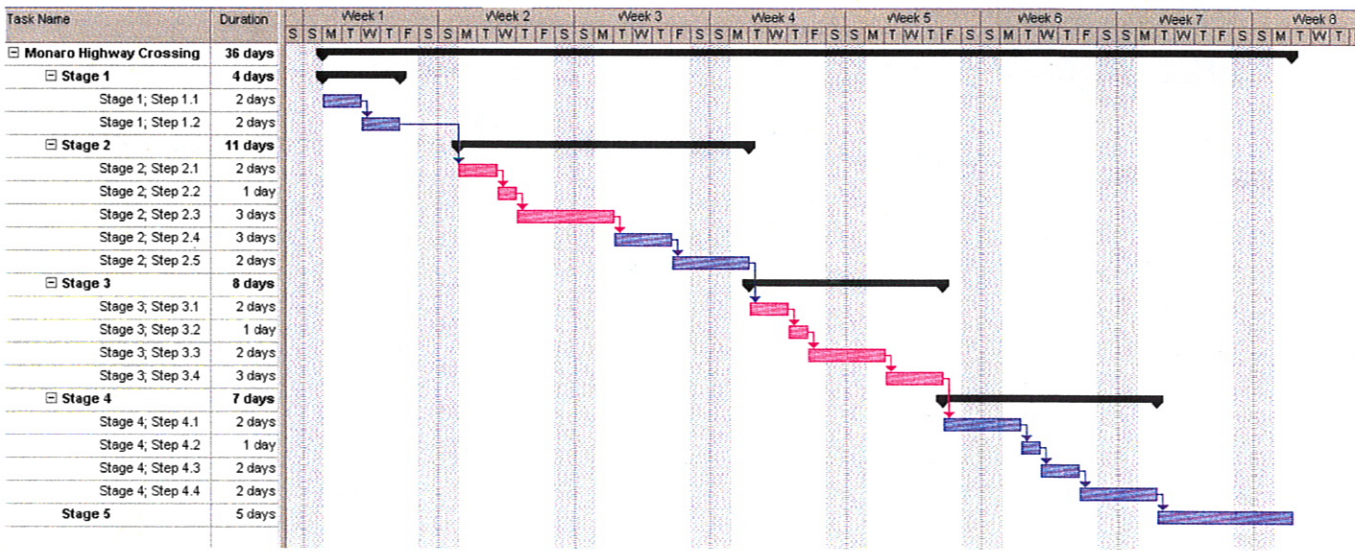
Please note that the above staging might change depending on the outcome of the detailed Traffic Control Plans produced prior to construction commencing.



Stage / Step	Duration (days)	Northern Shoulder	Northern Lane	Southern Lane	Southern Shoulder
Stage 1; Step 1.1 Excavation	2	Close	Northern Traffic	Southern Traffic	Open
Stage 1; Step 1.2 Bed and Lay pipe	2	Close	Northern Traffic	Southern Traffic	Open
Stage 2; Step 2.1 Excavation	2	Close	Close	Close	Northern / Southern Traffic
Stage 2; Step 2.2 Bed and Lay pipe	1	Close	Close	Close	Northern / Southern Traffic
Stage 2; Step 2.3 Backfill	3	Close	Close	Close	Northern / Southern Traffic
Stage 2; Step 2.4 Weld Pipe	3	Close	Northern Traffic	Close	Southern Traffic
Stage 2; Step 2.5 Backfill	2	Close	Northern Traffic	Close	Southern Traffic
Stage 3; Step 3.1 Excavation	2	Northern / Southern Traffic	Close	Close	Close
Stage 3; Step 3.2 Bed and Lay pipe	1	Northern / Southern Traffic	Close	Close	Close

Stage / Step	Duration (days)	Northern Shoulder	Northern Lane	Southern Lane	Southern Shoulder
Stage 3; Step 3.3 Weld Pipe	2	Northern / Southern Traffic	Close	Close	Close
Stage 3; Step 3.4 Backfill	3	Northern / Southern Traffic	Close	Close	Close
Stage 4; Step 4.1 Excavation	2	Open	Northern Traffic	Southern Traffic	Close
Stage 4; Step 4.2 Bed and Lay pipe	1	Open	Northern Traffic	Southern Traffic	Close
Stage 4; Step 4.3 Weld Pipe	2	Open	Northern Traffic	Southern Traffic	Close
Stage 4; Step 4.4 Backfill	2	Open	Northern Traffic	Southern Traffic	Close
Stage 5 Road restoration	5	Each area will be closed intermittently for road surface restoration			

The program for the works can be seen below. The areas that are highlighted in pink are when the road will be limited to one lane only. From the 7.5 weeks total duration the roadway will be limited to one way traffic for 3 weeks.



2.4 Methodology

The work crew for this section of works will begin on the western side of the Monaro Highway.

Key for the diagrams:

Works underway in this step

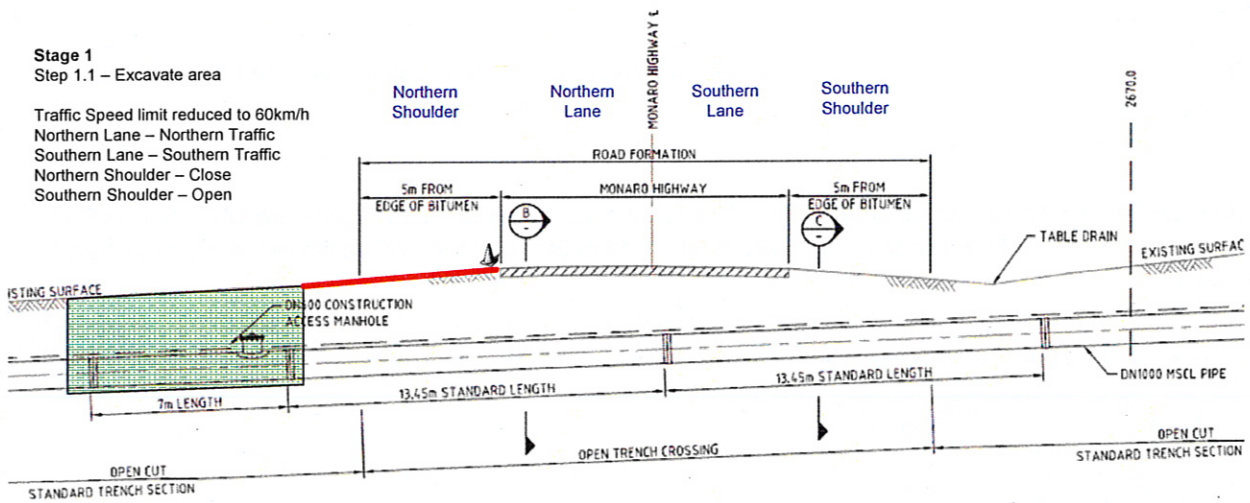
Works completed in previous step

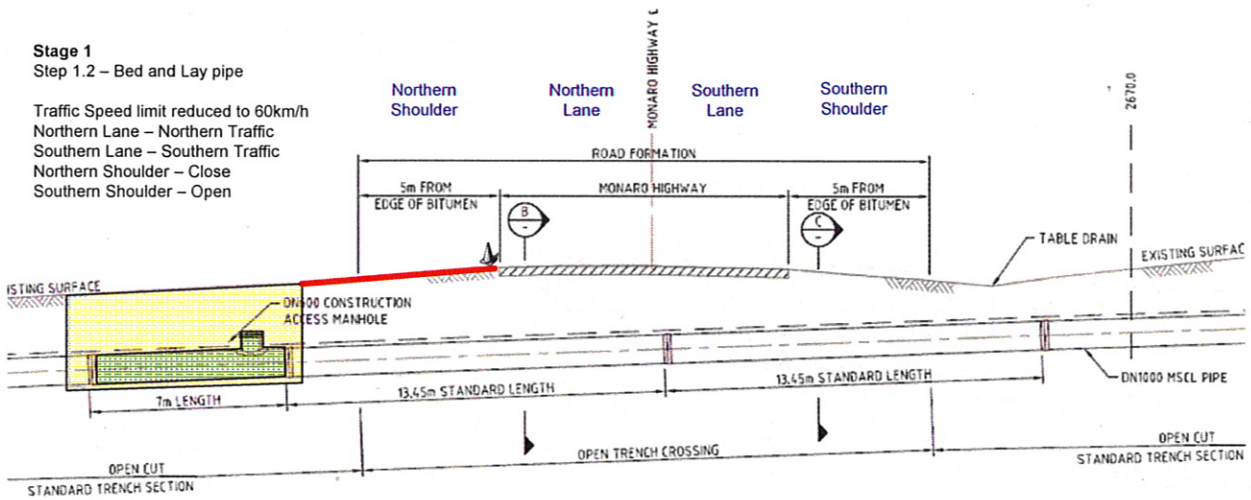
Road lane affected

2.4.1 Stage 1

This is the starting point for the pipework in this section. At a later date a second crew will connect to this pipework.

Stage / Step	Description	Estimate Timeframe
Stage 1; Step 1.1	Excavation	2 days
Stage 1; Step 1.2	Bed and Lay pipe	2 days





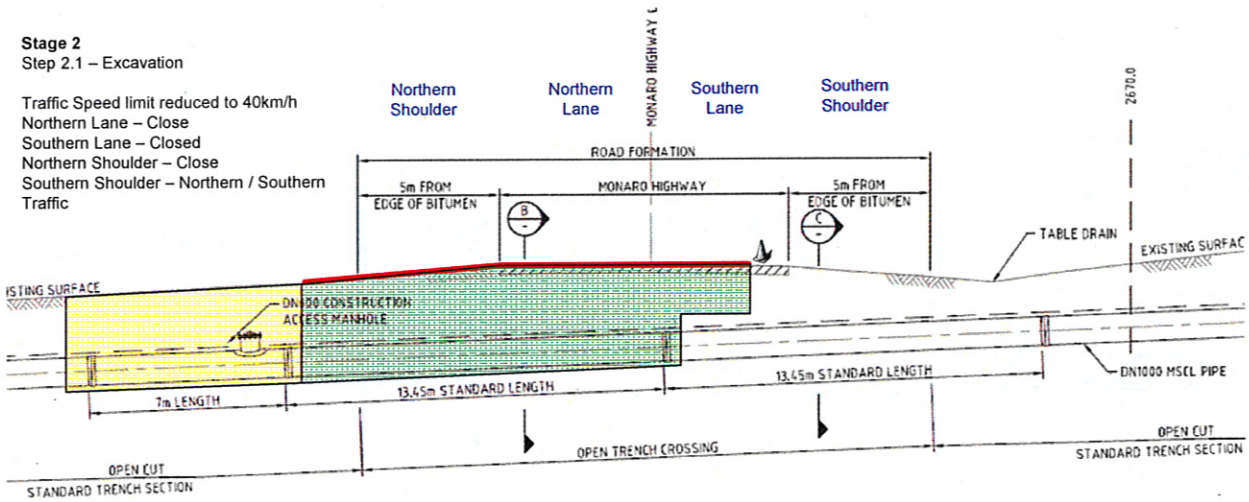
2.4.2 Stage 2

During this stage of works traffic will be diverted to one lane only (on the southern side of the road).

Stage / Step	Description	Estimate Timeframe
Stage 2; Step 2.1	Excavation	2 day
Stage 2; Step 2.2	Bed and Lay pipe	1 day
Stage 2; Step 2.3	Backfill (incl concrete encasement)	3 day
Stage 2; Step 2.4	Weld pipe	3 days
Stage 2; Step 2.5	Backfill (incl concrete encasement)	2 days

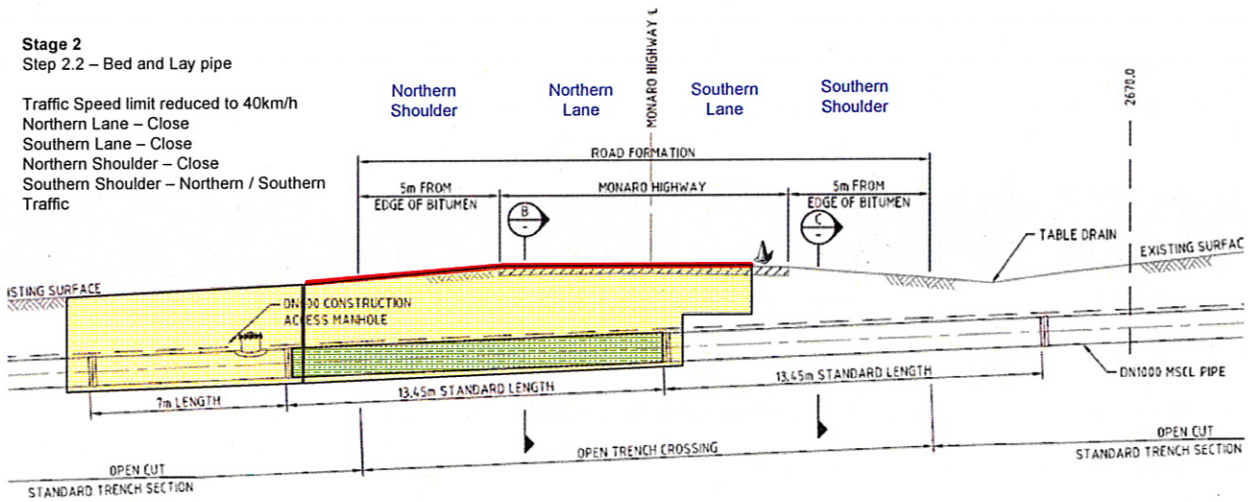
Stage 2
Step 2.1 – Excavation

Traffic Speed limit reduced to 40km/h
Northern Lane – Close
Southern Lane – Closed
Northern Shoulder – Close
Southern Shoulder – Northern / Southern Traffic



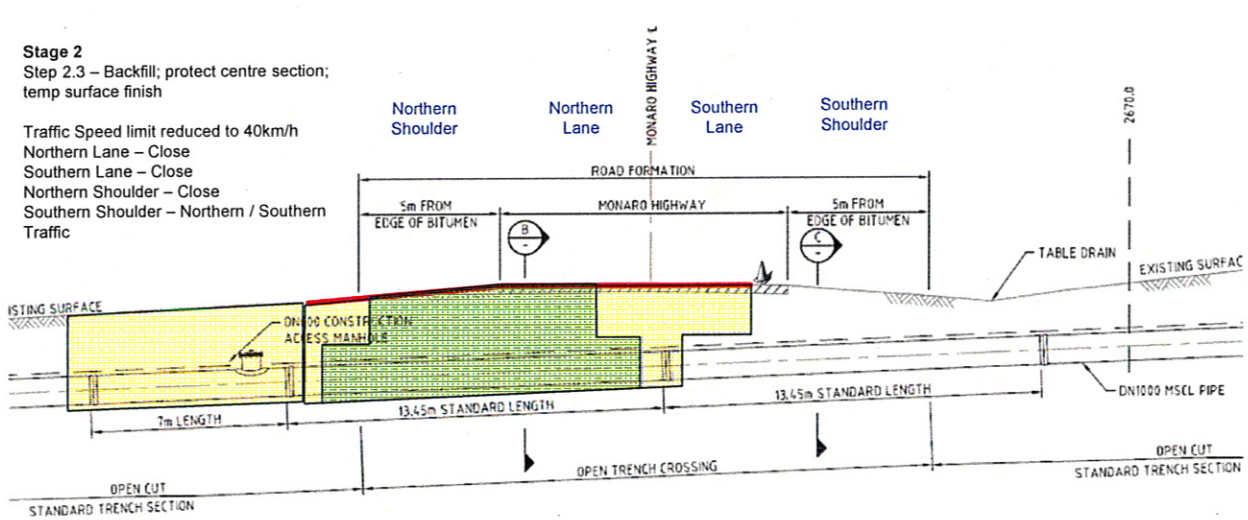
Stage 2
Step 2.2 – Bed and Lay pipe

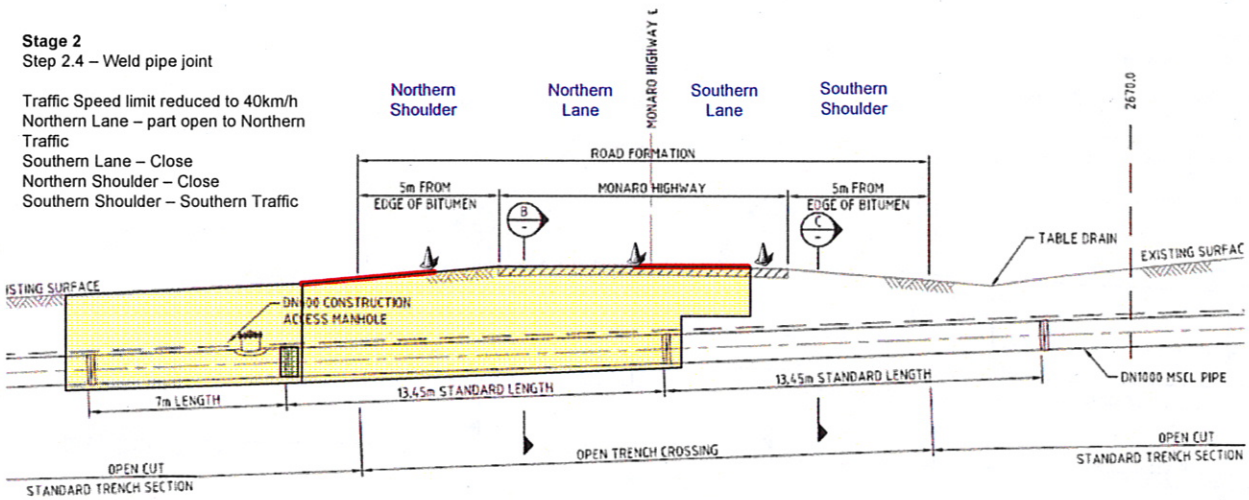
Traffic Speed limit reduced to 40km/h
Northern Lane – Close
Southern Lane – Close
Northern Shoulder – Close
Southern Shoulder – Northern / Southern Traffic

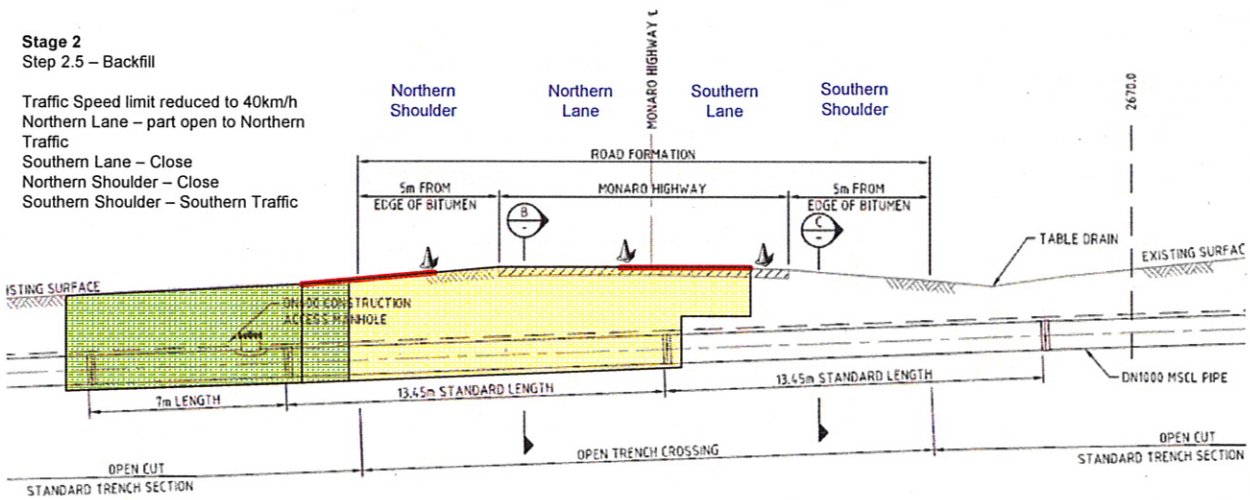


Stage 2
Step 2.3 – Backfill; protect centre section; temp surface finish

Traffic Speed limit reduced to 40km/h
Northern Lane – Close
Southern Lane – Close
Northern Shoulder – Close
Southern Shoulder – Northern / Southern Traffic







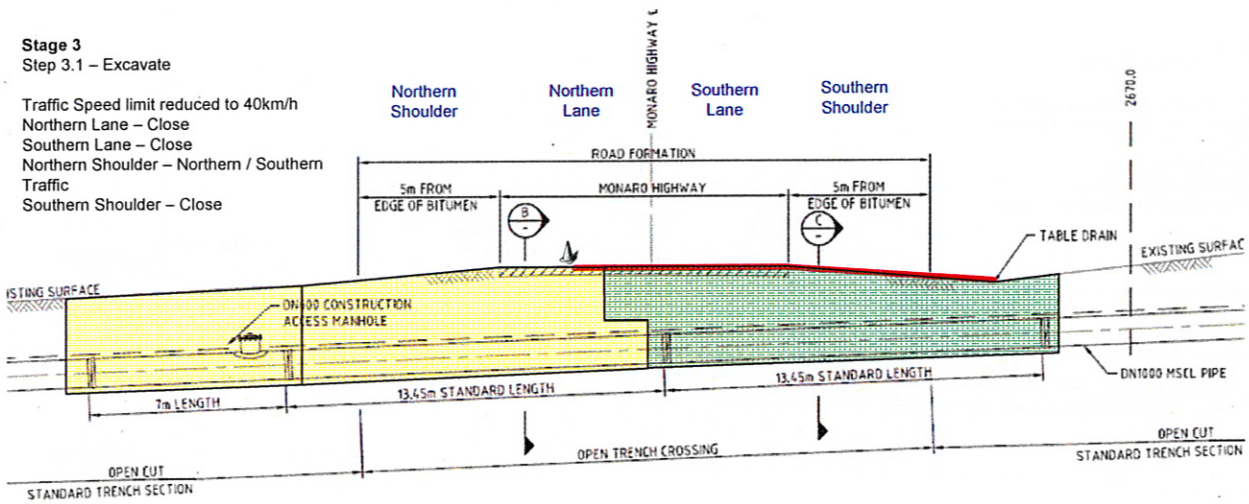
2.4.3 Stage 3

This is the eastern section of pipework. Traffic will be diverted to the western side of the road; in 2 directions.

Stage / Step	Description	Estimate Timeframe
Stage 3; Step 3.1	Excavation	2 days
Stage 3; Step 3.2	Bed and Lay pipe	1 day
Stage 3; Step 3.3	Weld pipe	2 days
Stage 3; Step 3.4	Backfill (incl concrete encasement)	3 days

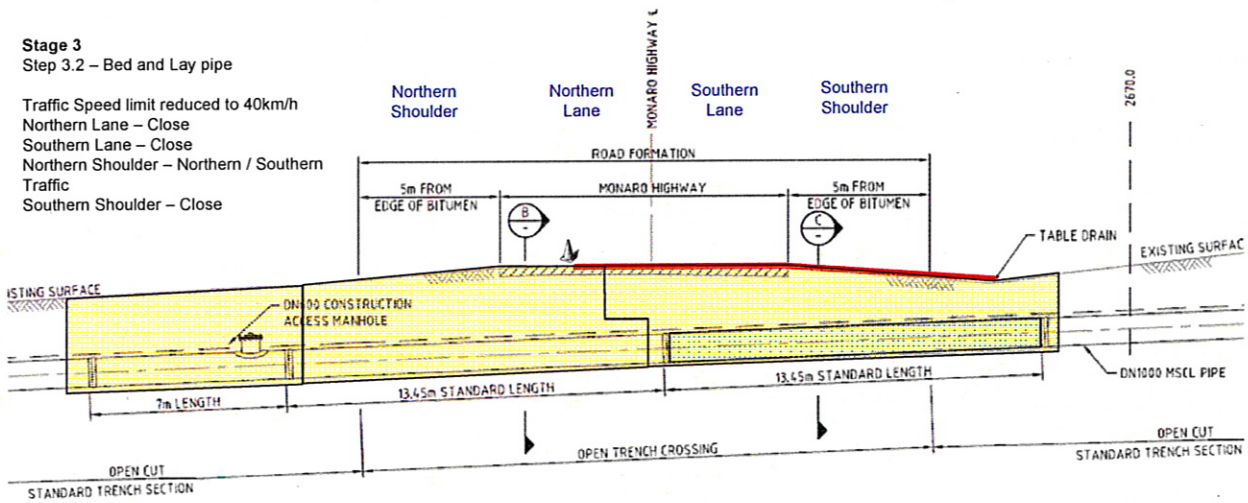
Stage 3
Step 3.1 – Excavate

Traffic Speed limit reduced to 40km/h
Northern Lane – Close
Southern Lane – Close
Northern Shoulder – Northern / Southern Traffic
Southern Shoulder – Close



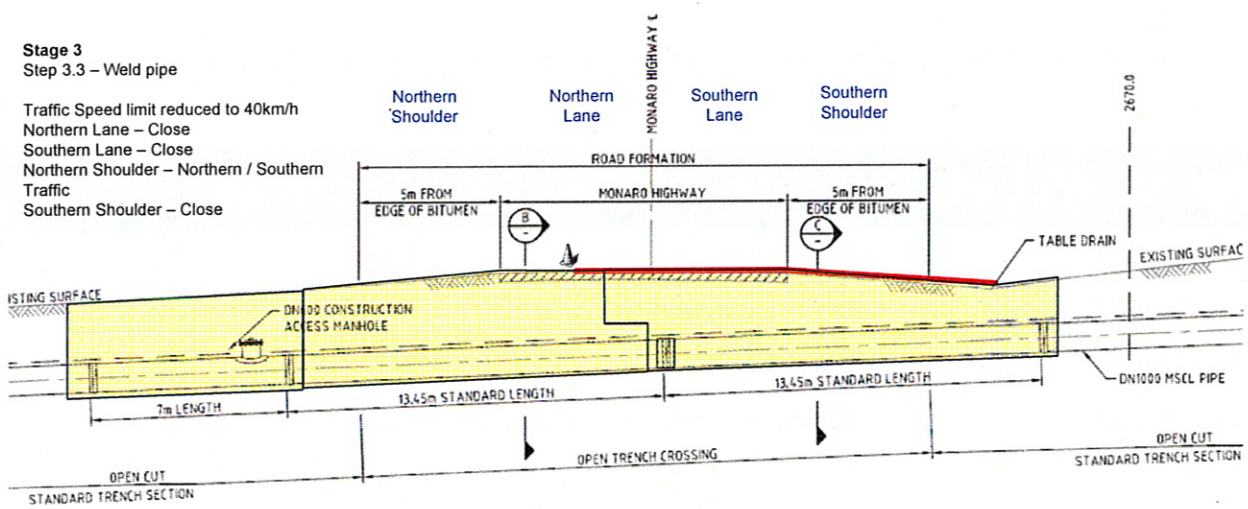
Stage 3
Step 3.2 – Bed and Lay pipe

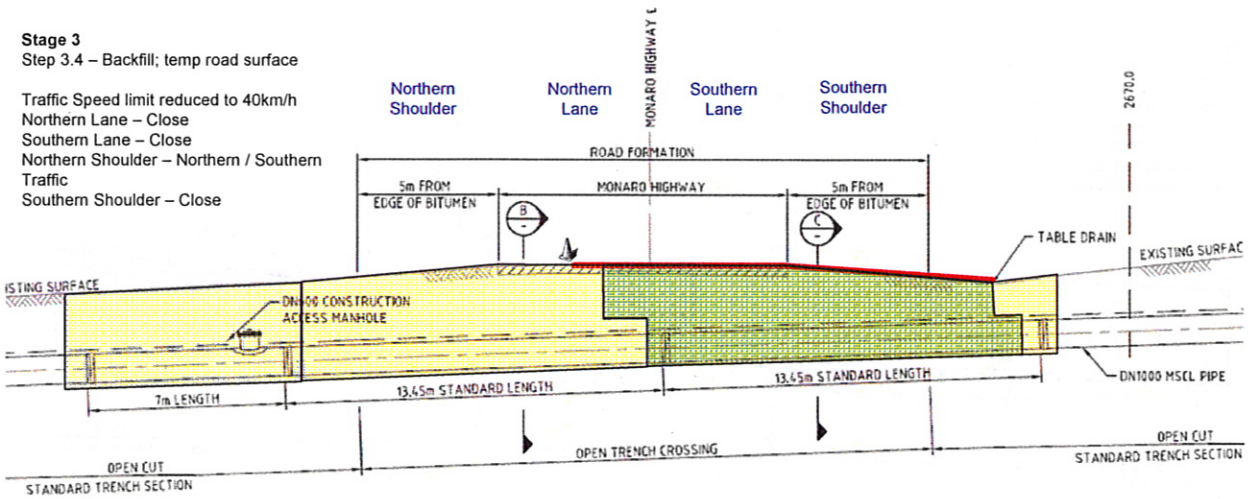
Traffic Speed limit reduced to 40km/h
Northern Lane – Close
Southern Lane – Close
Northern Shoulder – Northern / Southern Traffic
Southern Shoulder – Close



Stage 3
Step 3.3 – Weld pipe

Traffic Speed limit reduced to 40km/h
Northern Lane – Close
Southern Lane – Close
Northern Shoulder – Northern / Southern Traffic
Southern Shoulder – Close





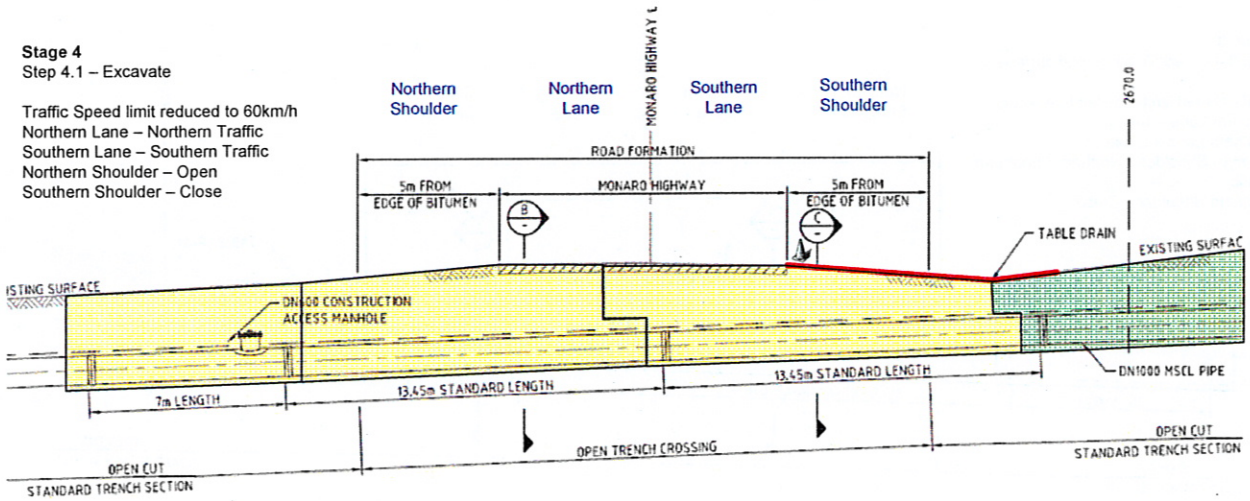
2.4.4 Stage 4

Stage 4 is working away from the Monaro Highway. At the completion of this stage the changed traffic conditions remain in place – as this is the access route to be used for the next section of pipework (until the eastern side of the railway line).

Stage / Step	Description	Estimate Timeframe
Stage 4; Step 4.1	Excavation	2 days
Stage 4; Step 4.2	Bed and Lay pipe	1 day
Stage 4; Step 4.3	Weld pipe	2 days
Stage 3; Step 4.4	Backfill	2 days

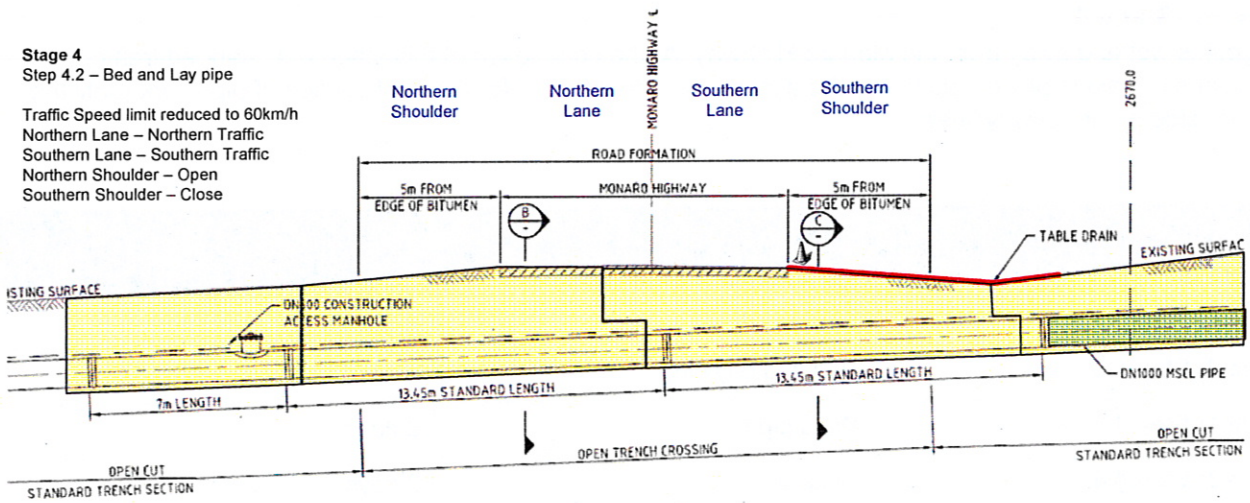
Stage 4
Step 4.1 – Excavate

Traffic Speed limit reduced to 60km/h
Northern Lane – Northern Traffic
Southern Lane – Southern Traffic
Northern Shoulder – Open
Southern Shoulder – Close



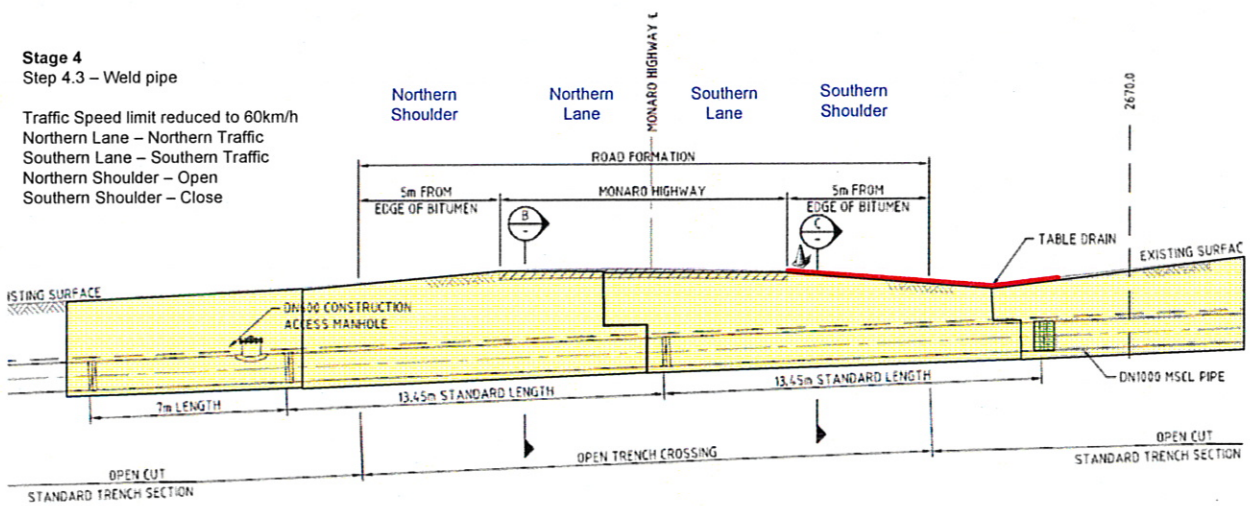
Stage 4
Step 4.2 – Bed and Lay pipe

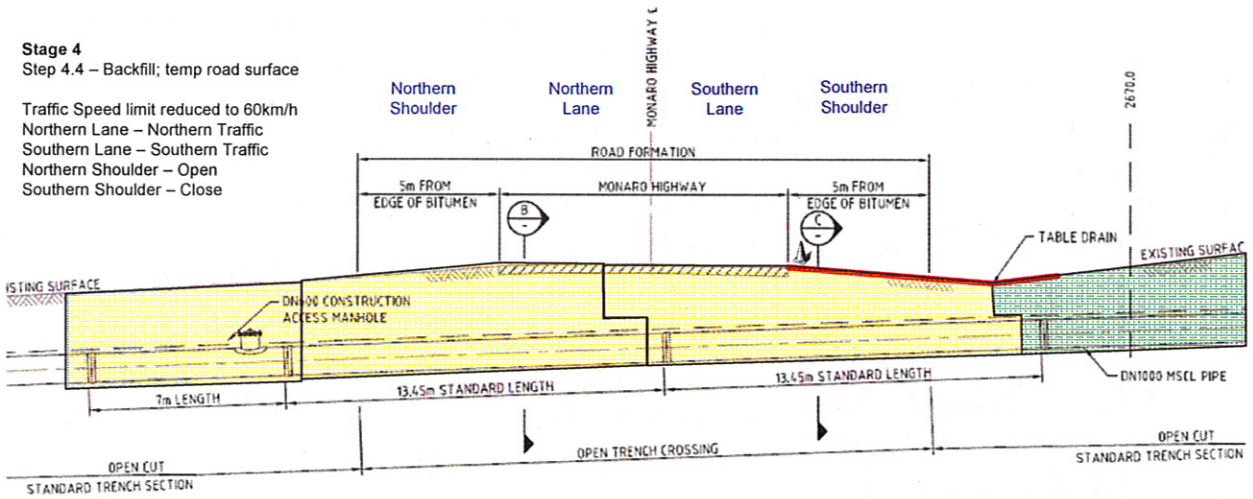
Traffic Speed limit reduced to 60km/h
Northern Lane – Northern Traffic
Southern Lane – Southern Traffic
Northern Shoulder – Open
Southern Shoulder – Close



Stage 4
Step 4.3 – Weld pipe

Traffic Speed limit reduced to 60km/h
Northern Lane – Northern Traffic
Southern Lane – Southern Traffic
Northern Shoulder – Open
Southern Shoulder – Close



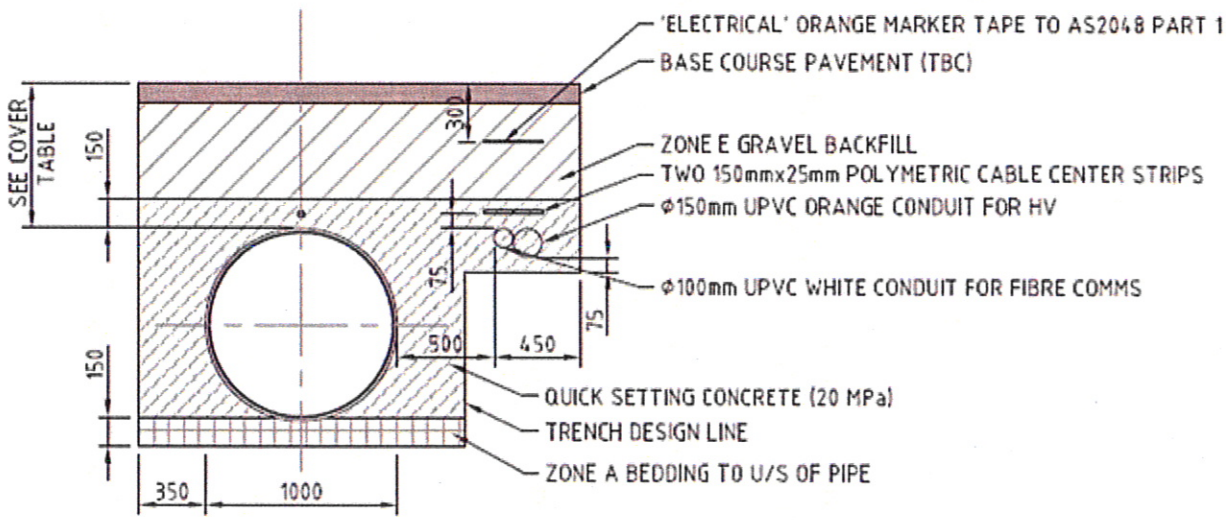


2.4.5 Stage 5

Stage 5 is the restoration of the road surface and shoulders. The temporary road surface will be completed progressively with each stage; however at the completion of Stag 4 the final restoration will be completed.

2.5 Backfill

The figures below illustrate the two different backfill methods to be utilised for the road crossing and shoulder area.



B
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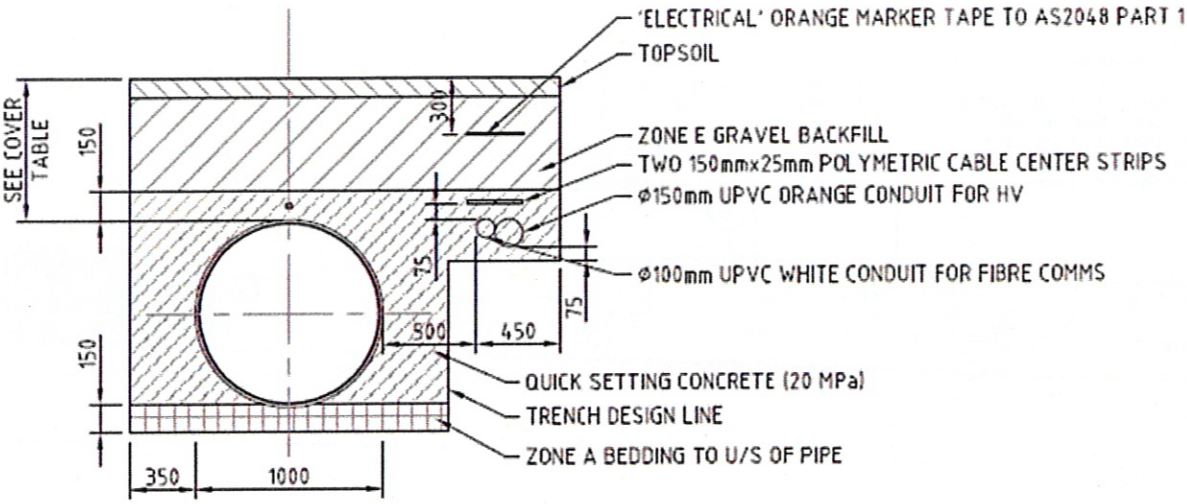
SECTION THRU HIGHWAY PAVEMENT
SCALE 1:25



C - SECTION THRU ROAD FORMATION

SCALE 1: 25

Appendix A **Drawings**

Appendix D **Shared Road Users Policy**

Appendix E **Traffic Management Plan Review**

Linda,

I have reviewed the documents provided for Murrumbidgee to Googong traffic management plan and these documents are in accordance with the RTA requirements. These documents are also acceptable in the A.C.T.

We (Clearwater) use our own risk assessments & checklists as Roads A.C.T do not provide these documents. If needed I can forward these to you

As always, we look forward to a favourable reply.

Regards

Mark Hogg
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