

Appendix BB

Pipeline development traffic impact assessment

State Significant Development 18_9505

Traffic Impact Assessment
McPhillamys Gold Project: Pipeline
Blayney NSW

Ref: 0856r01v4 TIA McPhillamys Pipeline Issue IV
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1 Introduction

1.1 Overview

Ason Group has been engaged by LFB Resources NL (Regis) to prepare a Transport Impact Assessment (TIA) in regard to State Significant Development Application 18_9505 (SSD 18_9505), for the McPhillamys Gold Project. The key components of the McPhillamys Gold Project (per SSD 18_9505) for which approval is sought include the:

- Development and operation of an open cut gold mine and associated infrastructure, comprising one to two years of pre-development works and construction, approximately 10 years of mining and processing, and a closure period (including the final rehabilitation phase) of approximately two to three years, leading to a total project life of 15 years;
- Extraction and processing of ore to produce on average 200,000 ounces per annum and up to 250,000 ounces per annum of product gold and;
- Construction and operation of a water supply pipeline between the mine and the Western Coalfields.

It is important to note that this TIA has been prepared to specifically assess the construction and operation of the water supply pipeline and its auxiliary infrastructure (the pipeline development); it does not consider the access, traffic and parking characteristics of the mine itself. In this regard, the pipeline development comprises:

- a pipeline approximately 90 km in length, starting at APC and finishing in the mine development project area;
- four pumping station facilities including water storage tanks;
- a pressure reducing system; and
- a control system.

1.2 Assessment Parameters

This TIA primarily focuses on the access, traffic and transport impacts relating to the construction of the pipeline development. Once operational, the pipeline development will generate little if any daily traffic, with vehicle trips restricted to occasional maintenance requirements. Conversely, the construction of the pipeline development will generate a (relatively) moderate level of traffic and require temporary traffic management at numerous locations.

In determining an appropriate scope of work for this TIA, Ason Group has specifically referenced the Environmental Assessment Requirements (EARs) prepared by the Department of Planning and Environment (DPE) for the McPhillamys Gold Project, dated 19 December 2018.

The EARs prepared by the DPE relating to traffic and transport aspects are detailed in **Table 1** below. Local councils and Roads and Maritime Service (RMS) also provided environmental assessment requirements relating to traffic and transport which are detailed in **Tables 2 – 6**. All tables provide a summary of the response to the individual EARs, as well as noting the section(s) of this TIA where those requirements are specifically addressed.

Table 1: Response to EARs – DPE

Reference	Requirement	Response / TIA Section
1	The EIS must address the following specific issues:	
a)	An assessment of the likely traffic and transport impacts of the development on the capacity, condition, safety and efficiency of the road network and any cumulative impacts of other developments in the locality.	Section 4 and Section 5 detail the potential traffic impacts associated with the pipeline development.
b)	An assessment of the site access routes (including Mid-Western Highway and Great Western Highway) and site access points in accordance with the Roads Act 1993.	Section 4.2 assesses the impact of construction vehicle access routes, including those in the vicinity of the Mid Western Highway and Great Western Highway.
c)	A description of the measures that would be implemented to mitigate and/ or manage potential traffic impacts including a schedule of all required road upgrades, road maintenance contributions, management of oversized and over mass traffic and other traffic control measures, developed in consultation with the relevant road authority (if required).	Section 5 details the traffic management measures / strategies to be undertaken during the Pipeline construction phase. Section 4.2 details how any oversized or over-mass vehicles would be required to obtain the appropriate permits from the RMS and / or the National Heavy Vehicle Register (NHVR).

Table 2: Response to EARs – Bathurst Council (Email)

Reference	Requirement	Response
1	Notify the adjoining businesses of the proposed parking / road closures or impacts.	It is proposed that all affected properties will be notified at least 14 days in advance of any impacts (including road closures). Section 5.9 provides more information on the community notification and general communication strategies to be undertaken throughout the construction phase.
2	Maintain a 2m wide pedestrian access on the footpath. No work is to be carried out directly over the pedestrians.	Noted. Section 5.4 outlines that no works will be carried out directly over a footpath.
3	Having qualified traffic controllers implement the traffic / pedestrian control plan.	All traffic controllers will be appropriately qualified and managed in accordance with Australian Standards and RMS guidelines. Section 5.4 outlines specific qualification requirements.

Reference	Requirement	Response
4	Work being undertaken in compliance with the 2011 WHS Act.	Section 5 outlines that all work shall be undertaken in compliance with the Work Health Safety Act 2011.
5	A current, relevant and site-specific SWMS being employed onsite.	The pipeline development contractor shall have site specific SWMS implemented on-site prior to any work commencing.
6	Hold a current \$20m public liability insurance policy - a copy has been received.	The pipeline development contractor to supply the Public Liability Insurance for all works undertaken.
7	Hold a current workers compensation insurance policy	The pipeline development contractor to supply the Workers Compensation Insurance for all works undertaken.
8	Hold a current professional indemnity insurance policy- a copy has been received.	The pipeline development contractor to supply the Professional Indemnity Insurance for all works undertaken.
9	Closures are to be advertised with 7 days prior notice.	It is proposed that all affected properties will be notified at least 14 days in advance of any impacts (including road closures). Section 5.9 provides more information regarding the communication strategies to be utilised during the pipeline development construction phase.
10	Using a traffic / pedestrian control plan prepared by Roads and Maritime Services approved traffic controllers - a traffic control plan has been provided.	All Draft Traffic Control Plans (TCPs) provided in this TIA have been prepared by a holder of the "Prepare a Work Zone Traffic Management Plan" accreditation; it is anticipated that any revised TCPs would be prepared by similarly accredited professionals.

Table 3: Response to EARs - Cabonne Council

Reference	Requirement	Response
2	<i>Requirements for the State Significant development for the proposed gold mine are as follows:</i>	It is noted that the pipeline development does not go through the Cabonne LGA.
a)	Use of public roads/crown roads.	Section 3 outlines all roads which will be utilised during the construction phase, for construction and access to the pipeline corridor.
b)	Increased truck traffic levels on main roads.	Section 4.3 outlines the expected truck volumes during the construction phase, while Section 4.4 outlines the impacts associated with such movements on main roads.
c)	Truck traffic levels and impact upon local roads.	Section 4.3 outlines the expected truck volumes during the construction phase, while Section 4.4 outlines the impacts associated with such movements on local roads.

Table 4: Response to EARs – Lithgow City Council

Reference	Requirement	Response
1	Construction and rehabilitation of Council's road reserves, including permission to construct and commercial legal arrangements such as a licence to be discussed with Council	Any construction and rehabilitation work on Councils Roads within the Lithgow Councils LGA will be discussed with Council Prior to works being undertaken.

Table 5: Response to EARs – NSW Department of Industry

Reference	Requirement	Response
3a)	The Applicant is required to consult with Crown Lands to determine the closure and purchase of roads that will be impacted. Contact David Baber, Project Manager Regional Projects (02) 6883 3326.	Section 5.9 outlines that Crown Lands will be contacted prior to any works being undertaken on Crown Roads (if applicable).

Table 6: Response to EARs – Roads and Maritime Services

Reference	Requirement	Response
4	Roads and Maritime requests the following issues be addressed in the Environmental Assessment:	4(a)to 4(g) relate to the mine development, however most details are covered in this report regardless.
a)	A traffic impact study prepared in accordance with the methodology set out in Section 2 of the RTA's Guide to Traffic Generating Developments 2002, including:	This report assesses the traffic and safety implications relating to the pipeline development in accordance with RMS methodology set out in Section 2 of the RTA's Guide to Traffic Generating Developments 2002.
i)	Hours and days of construction.	Proposed construction days and hours are outlined in Section 5.1.
ii)	Schedule for phasing/staging of the project.	Section 4.1 outlines the pipeline development construction schedule (including staging).
b)	Traffic volumes.	Existing traffic volumes in key roads along the pipeline corridor are detailed in Section 3.5, with detailed traffic survey data provided in Appendix B.
i)	Existing background traffic.	See above.
ii)	Project-related traffic for each stage of the project including construction, operation and decommission.	Section 4.3.3 provides information relating to the traffic associated with each stage of pipeline development.

iii)	Projected cumulative traffic volumes.	Sections 3.6 and 3.7 summarises several other projects within the region – both planned and approved – with the potential to generate additional traffic volumes to the key roads along the pipeline corridor. The potential impacts of the resulting cumulative traffic volumes are assessed in Section 4.4.1.
c)	Traffic volumes are to also include a description of:	
i)	Ratio of light vehicles to heavy vehicles.	Table 11 provides an overview of heavy vehicle movements associated with the construction phase, while light vehicles are discussed in Section 4.3.2.
ii)	Peak times for existing traffic.	Existing traffic peak periods are identified in Section 4.4.
iii)	Peaks times for project-related traffic.	Section 4.3.3 identifies the number and type of construction vehicle movements.
iv)	Transportation hours.	Proposed construction days and hours are detailed in Section 5.1.
v)	Project-related traffic interaction with existing and projected background traffic.	As stated, Sections 3.6 and 3.7 summarises other projects within the region with the potential to generate additional traffic volumes to the key roads along the pipeline corridor. The potential impacts of the resulting cumulative traffic volumes are assessed in Section 4.4.1.
c)	The origin, destination and routes for:	
i)	Employee and contractor light traffic.	Section 4.2 details the construction vehicle access routes to and from the different pipeline development construction sites for employee and contractor parking.
ii)	Heavy traffic.	Section 4.2 details the construction vehicle access routes to and from the different pipeline development construction sites for heavy vehicles.
iii)	Over size and over mass traffic.	It is not expected that over size and over mass vehicles will be used on this project. Regardless, Section 4.2 details how all such vehicles would be required to obtain the relevant permits from the RMS and / or NHVR to operate on specific construction routes.
d)	A description of all over size and over mass vehicles and the materials to be transported, including proposed travel routes.	As stated, there is no indication that the construction of the pipeline development will require the use of over size and / or over mass vehicles; if such vehicles are required, they would only access the construction sites further to obtaining the relevant permits.
e)	The impact of traffic generation on the public road network and measures employed to ensure traffic efficiency and road safety during construction, operation and decommissioning of the project.	Sections 4.4 details the potential construction traffic impacts for roads along the pipeline corridor. Section 6 details how once operational, traffic generation associated with the pipeline development will be minimal, generated only by occasional maintenance vehicles and the like.

f)	The need for improvements to the road network, and the improvements proposed such as road widening and intersection treatments, to cater for and mitigate the impact of project related traffic.	Section 4.4 details the light and heavy traffic volumes associated with the pipeline development construction, and the temporary traffic management strategies and the like which will appropriately mitigate any impacts associated with the pipeline development construction.
g)	A Traffic Management Plan (TMP) developed in consultation with relevant councils and Roads and Maritime. The TMP is to identify and provide management strategies to manage the impacts to project related traffic, including:	This TIA provides a broad TMP in accordance with which the pipeline development construction will be undertaken. It is expected that consultation with key stakeholders will be ongoing through the pipeline development construction phase.
i))	Haulage of materials to site.	As detailed in Section 4.3.4, all materials transported to the pipeline development construction sites shall be secured in an appropriate fashion in order to not have dust / dirt deposited onto the roadway.
ii)	The management and coordination of construction and staff vehicle movements to and from site and measures to be employed to limit disruption to other motorists. The management of construction staff access to the work site is to include strategies and measures employed to manage the risks of driver fatigue, road hazards and driver behaviour. This is to include a Driver Code of Conduct.	A Drivers Code of Conduct has been prepared and is provided in Appendix A. The objectives of the Drivers Code of Conduct are to minimise any potential risk of driver fatigue, driver behaviour and to manage any potential road hazards. All personnel using a vehicle to access the pipeline development construction sites during both construction and operation will be issued with the Driver Code of Conduct.
5	Roads and Maritime requests the following be addressed in the Environmental Assessment regarding the Pipeline Development as outlined in Appendix 1:	
a)	The Great Western Highway (HW5) is a Controlled Access Road, under section 49 of the Roads Act 1993 where the proposed pipeline crosses.	The Pipeline will be under-bored where it crosses (under) the Great Western Highway, with boring sites located outside of the Great Western Highway reserve. It is noted that under-boring will be used at a number of other sites – including the Mid Western Highway – so as to not impact key roads within the sub-region. Section 3.2.12 and Section 4.4.1 provides this information regarding the Great Western Highway as to where the pipeline crosses the highway.
b)	A Construction Management Plan (CMP) is to be developed for the pipeline development in consultation with Roads and Maritime and bounding Councils.	Section 5 includes a Draft Construction (Traffic) Management Plan (CTMP) to be implemented throughout the pipeline development construction. It is considered that additional consultation can be undertaken with the RMS and Councils, should additional site-specific management procedures / strategies be required, as part of the Traffic Control Plan approval process.
c)	The CMP is to detail how traffic generation, traffic movements and construction activities on or close to the classified road network will be managed to ensure the safety and traffic efficiency of the classified road network is not compromised by construction activities.	The Draft CTMP details how all construction activities will be managed to ensure the safety of all motorists, and that traffic on classified roads are not adversely affected during the pipeline development construction.

1.3 Additional Assessment References

This TIA references the following planning documents, guidelines and standards:

- Lithgow Local Environmental Plan 2014 (Lithgow LEP);
- Bathurst Local Environmental Plan 2014 (Bathurst LEP);
- Draft Bathurst Development Control Plan 2014 (Bathurst DCP);
- Cabonne Local Environmental Plan 2012 (Cabonne LEP);
- Blayney Local Environmental Plan 2012 (Blayney LEP);
- Blayney Development Control Plan 2018 (Blayney DCP);
- Roads and Maritime Services, Guide to Traffic Generating Developments 2002 (RMS Guide);
- Austroads Guide to Road Design (Austroads GRD);
- Australian Road Research Board Unsealed Roads Manual 2009 (ARRB URM);
- Forestry Act 2012;
- State Forests of NSW Forest Practices Code: Part 4 Forest Roads & Fire Trails (FPC4);
- Australian Standard 2890.1: Parking Facilities – Off Street Car Parking (AS 2890.1); and
- Australian Standard 2890.2: Parking Facilities – Off Street Commercial Vehicle Facilities (AS 2890.2).

1.4 Consultation

During the preparation of this TIA, Ason Group has had the opportunity to contact/consult with officers of:

- Bathurst Regional Council (Bathurst Council);
- Blayney Council;
- Cabonne Council; and
- RMS.

Ason Group acknowledges the assistance provided by these officers, and specifically their insights into local traffic and transport issues relevant to the assessment of the pipeline development. The assessment requirements of Lithgow Council provided with the EARs have also been considered in the assessment.

1.5 Report Structure

This TIA is structured as follows:

- Section 2 provides a summary of the pipeline development.
- Section 3 describes the existing road network conditions.
- Section 4 describes the existing road network to access to the pipeline corridor.
- Section 5 assesses the potential traffic impacts during the construction phase.
- Section 6 provides a Draft Construction Traffic Management Plan.
- Section 7 assesses the potential traffic impacts during pipeline development operation phase.
- Section 8 provides a summary of key conclusions and recommendations.

2 Overview of the Pipeline Development

2.1 Summary of the Pipeline Development

A detailed description of the pipeline development is provided in the Environmental Impact Statement (EIS) (EMM 2019) which this TIA accompanies. In summary, the pipeline development provides for:

- a pipeline approximately 90 km in length, starting at Angus Place Colliery (APC) and finishing in the mine development project area;
- four pumping station facilities including water storage tanks;
- a pressure reducing system; and
- an end to end communications system will be required to control the operation of the pumps and pressure reducing system.

A plan of the pipeline corridor is provided in **Figure 1** below for context.

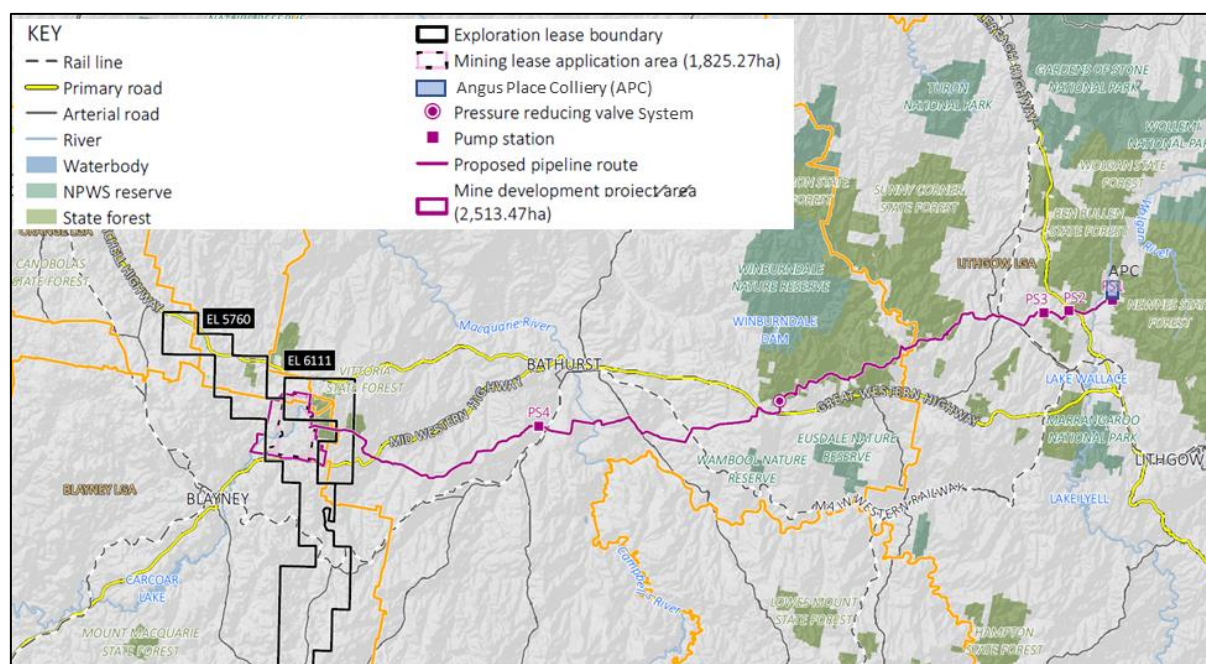


Figure 1: McPhillamys Pipeline Corridor

2.2 Summary of Pipeline Construction

2.2.1 Construction Compounds

Primary compounds will likely be located at Lithgow, Bathurst, Blayney or other areas in close proximity to major construction areas, while also considering access to the road network and parking requirements. Primary compound will provide storage for major plant, equipment and materials; and off-road parking for vehicles and workforce vehicles.

Construction compounds will be required during construction at various locations along the pipeline corridor, providing storage areas for pipe work, bedding material and possible excess backfill to be transported to an approved landfill site. They are likely to be provided with a portable toilet, small demountable site shed and one or two shipping containers for storage.

2.2.2 Pipeline Construction

The pipeline will be approximately 90 km in length with a nominal diameter between 300 mm to 650 mm. The majority of the pipeline will be laid underground in a trench ranging from 1.3 to 2 m deep, with a minimum cover of 800 mm. The pipeline material will be confirmed during detailed design, but may be ductile iron, heavy duty polyethylene, steel or other material.

An additional pipeline is required to transfer water from the Mount Piper Power Station (MPPS) Blowdown Pond to the pumping station facility No.3 (MPPS). This pipeline is entirely within private land and as such no traffic or access impacts are expected.

The pipeline corridor, which varies from approximately 6 m up to approximately 20 m in width, will be required along the pipeline route to allow for trench excavation; equipment storage and movement of construction vehicles along the corridor; storage of topsoil, backfill and spoil; and access. Clearing and grading will be minimised where practicable to the extent necessary for construction of the pipeline and will not exceed the 20 m wide pipeline corridor. The area that will be directly impacted by construction activities within the pipeline corridor will range in width from 6 m, such as along forestry tracks, to 20 m in open farmland, depending on a range of factors such as presence of significant vegetation, constructability, construction management, and safety considerations, landform, slopes and anticipated sub-soil structures. The final disturbance zone, within the pipeline corridor, will be confirmed during detailed design.

The following basic construction activities will be undertaken during the installation of the pipeline development:

- consultation with landowners regarding access;
- establishing site environmental controls;
- erecting temporary stock fences where required;
- creating temporary access tracks where required;
- clearing vegetation and removing and stockpiling topsoil;
- trench excavation;
- stringing of pipes along route;
- placing bedding material;
- installing pipework;
- casting and pouring of concrete thrust blocks;
- installing valves (e.g. scour valves and pits, air valves and pits);
- backfilling the trench; and
- site restoration.

2.2.3 Pumping Station Facilities Construction

Four pumping station facilities will be required to ensure efficient transfer of water through the pipeline. They will be located at approximate chainages:

- pumping station facility No.1 (APC) – chainage 0.0;
- pumping station facility No.2 (Springvale Coal Services Operations (SCSO)) – chainage 4250;
- pumping station facility No.3 (MPPS) – chainage 7200; and
- pumping station facility No.4 (Bathurst Bike Park) – chainage 65800.

Each pumping station facility will be located within a security-fenced compound. The compound will include a covered steel or concrete water storage tank, a control room/electric switch room and a pump and motor building typically comprising electric motor and pump sets in a duty–standby configuration.

2.2.4 Construction Access

The pipeline development will require access agreements along the pipeline corridor prior to the commencement of construction activities to enable the necessary surveys and construction works to be undertaken. Permissions from easement holders of existing services will be obtained for traversing public and private easements and land.

Access to the proposed pipeline corridor will be via various routes, including public roads and State Forest tracks and private lands including within APC, SCSO and MPPS.

2.2.5 Major Road and Rail Crossings

Underboring (such as horizontal directional drilling or micro-tunnelling) will be employed for three highways and three major roads as follows:

- Castlereagh Highway;
- Mid Western Highway;
- Great Western Highway;
- Pipers Flat Road;
- Vale Road;
- O'Connell Road.

Both Piper Flat Road and Vale Road will be underbored because they are in close proximity to underboring for rail and waterway crossings respectively. All other road crossings will be undertaken using open trenching techniques.

The pipeline corridor requires the crossing of railway lines and major roads ; as shown within **Figure 2**. The most appropriate installation techniques for each location will be determined following consideration of technical and geological constraints during the detailed design phase.

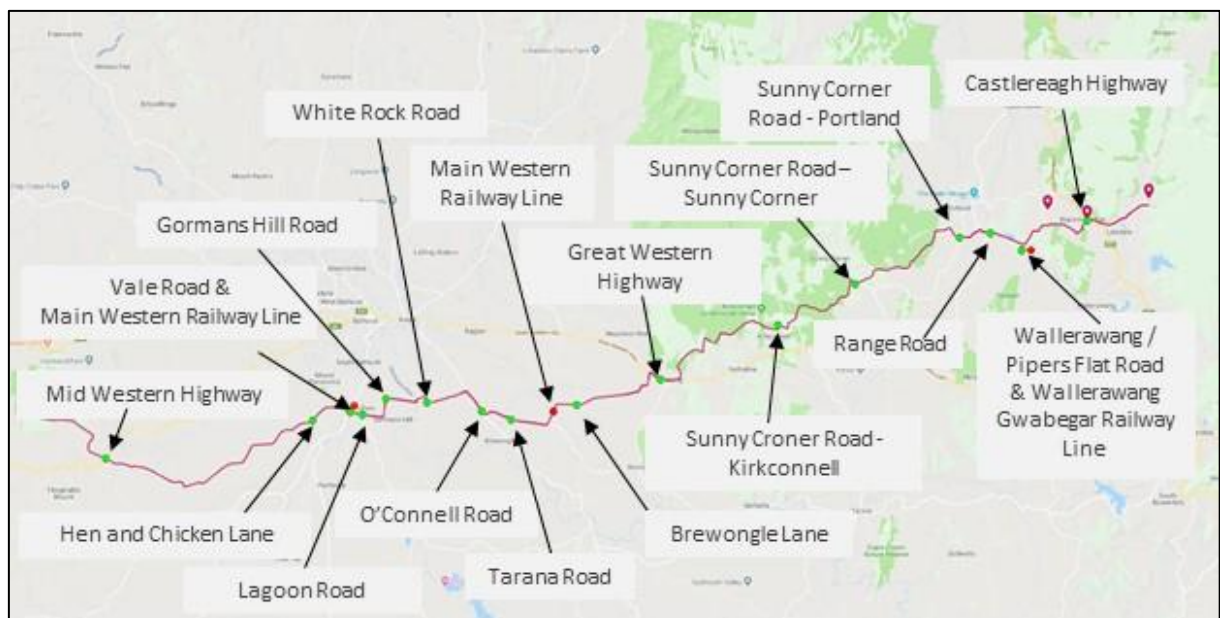


Figure 2: Major Crossings

There are three rail crossings required each of which will be underbored:

- A crossing near the intersection of Pipers Flat Road and Range Road. This is part of the Wallerawang Gwabegar Railway Line;
- A crossing between Brewongle Lane and Tarana Road, and will cross the Main Western Railway Line; and
- At Vale Road near Orton Park. This part of the rail line is for the Main Western Railway Line.

Any underboring under the railway would be done in consultation with Australian Rail Track Corporation. No work is proposed within the rail corridor. Further information on traffic and infrastructure impacts are provided in chapter 3.

2.2.6 Private property access during construction

Private vehicle access to private properties along the pipeline corridor will be maintained throughout the pipeline construction; if existing vehicle access routes are temporarily or permanently severed, alternate routes will be provided. Detailed traffic management plans for such locations along the pipeline corridor are detailed within this TIA.

2.2.7 Construction Hours

It is anticipated that construction activities will normally be restricted to standard construction hours, 7:00 am to 6:00 pm Monday to Friday and 8:00 am to 1:00 pm on Saturdays, although some out of hours work may be required to minimise potential impacts to property owners or critical services in specific areas along the pipeline corridor, or during periods where key roads are used for special purposes.

Any requirement for extended working hours would be assessed in accordance with the appropriate NSW Government, Council and RMS guidelines at these times.

3 The Pipeline Development Corridor

The pipeline corridor is shown in **Figure 1**, and further described in sections below. **Table 7** outlines RMS controlled roads within the pipeline corridor.

Table 7: RMS controlled Roads

Road Number	Administrative Category	Road
18	State	Castlereagh Highway
5	State	Great Western Highway
6	State	Mid Western Highway
253	Rural	O'Connell Road

For ease of reference, Ason Group has divided the pipeline corridor into sections based on the relevant Local Government Areas (LGAs).

3.1 Lithgow LGA

3.1.1 Wolgan Road

Wolgan Road is a local collector road running north from the Castlereagh Highway through Lidsdale into the Newnes State Forest. It is a sealed two lane road with two-way traffic and has a posted speed limit of 80km/h.

There is currently no crash history along Wolgan Road within the immediate vicinity of the pipeline crossing point. A single accident has occurred approximately 600m to the north of the pipeline crossing location and therefore is not included in the crash history outlined in Section 3.8.

3.1.2 Castlereagh Highway

The Castlereagh Highway (State Highway 18, State Route 86) is a regional highway which connects the Great Western Highway at Marrangaroo to Mudgee and Gulgong, and then into north-west NSW. The Castlereagh Highway generally provides two lanes for two-way traffic, and at-grade and grade separated intersections appropriate to the through and turning traffic demands in this part of the regional road network. In the vicinity of the SCSO, the Castlereagh Highway has a posted speed limit of 100km/h.

The pipeline will be installed under the Castlereagh Highway (underbored) with boring sites to be located on private land (Centennial) rather than in the Castlereagh Highway road reserve. Access to the boring sites will be via existing SCSO access roads.

One crash along Castlereagh Highway approximately 120m north-west of the pipeline crossing point was recorded between 2013 and 2017.

3.1.3 Springvale Coal Services Operations (SCSO)

The pipeline be installed between the Castlereagh Highway and Pipers Flat Road utilising existing roads and easements across the SCSO. Access to the installation sites within the SCSO is available from the Castlereagh Highway and Pipers Flat Road.

There are no recorded crashes within SCSO.

3.1.4 Pipers Flat Road and Wallerawang Gwabegar Railway Line

Pipers Flat Road is a sealed local connector road running between Portland to the north and Wallerawang to the South. In the vicinity of the Pipeline crossing, Pipers Flat Road provides two lanes for two-way traffic, and has a posted speed limit of 100km/h.

The Pipeline will be installed in a trench along Pipers Flat Road from SCSO. The crossing of Pipers Flat Road and the Wallerawang Gwabegar Railway Line will be underbored.

There are 2 crashes in the immediate vicinity of the pipeline location which are outlined in Section 3.8. There are a further 2 crashes approximately 220 and 300m to the east of the proposed crossing location and have therefore been excluded from the crash history.

3.1.5 John Mackey Drive

John Mackey Drive is a sealed minor road running between Pipers Flat Road and Portland Sunny Corner Road. It provides a single lane paved carriageway width of approximately 6.0m for two-way traffic; a clear verge on some of the northern side of the road of approximately 5.0m; and has a posted speed limit of 50km/h.

The pipeline will be installed in a trench within the verge.

There is currently no recorded crash history within John Mackey Drive.

3.1.6 Portland Sunny Corner Road

Portland Sunny Corner Road is a sealed local collector road which runs between Portland to the north and Sunny Corner Road to the south (which then connects further south to the Great Western Highway). It provides two lanes for two-way traffic; a clear verge on the north-western side of the road of approximately 12.5m; and has a nominal speed limit of 50km/h.

The pipeline will be trenched across Portland Sunny Corner Road to Reservoir Road.

There is currently no recorded crash history within the immediate vicinity along Portland Sunny Corner Road.

3.1.7 Reservoir Road

Reservoir Road is a minor access road running between Portland Sunny Corner Road and Bourkes Road within the Sunny Corner State Forest (SC State Forest). The eastern section of Reservoir Road provides a sealed single lane carriageway with a width of approximately 4.8m for two-way traffic; clear verges of 1.0m on both sides of the road; and has a nominal speed limit of 50km/h. The western section of Reservoir Road (within the SC State Forest) provides an unsealed (graded) single lane carriageway width of approximately 4.5m and clear verges of up to 1.0m on both sides of the road. A speed limit of 60km/h has applied to all NSW State Forest roads since September 2010.

The pipeline will be installed in a trench within or immediately adjacent to Reservoir Road.

There is currently no recorded crash history within the immediate vicinity along Reservoir Road.



Photograph 1: Reservoir Road

3.1.8 Staits Boundary Road

Staits Boundary Road is an unsealed road within the SC State Forest. It provides a single lane carriageway width of approximately 3.0m for two-way traffic while maintaining a clear road reserve width (including verges) of up to 10m. The pipeline will be trenched across Staits Boundary Road to Bourkes Road.

There is currently no recorded crash history in the immediate vicinity along Staits Boundary Road.

3.1.9 Bourkes Road

Bourkes Road is an unsealed road within SC State Forest. It provides a single lane carriageway width of approximately 3.0m for two-way traffic while maintaining a clear road reserve width (including verges) of up to 10m.

The pipeline will be installed in a trench within or immediately adjacent to Bourkes Road.

There is currently no recorded crash history in the immediate vicinity along Bourkes Road.

3.1.10 Sugarloaf Road

Sugarloaf Road is an unsealed road within the SC State Forest. It provides a single lane carriageway width of approximately 5.0m for two-way traffic while maintaining a clear road reserve width (including verges) of up to 10.1m.

The pipeline will be installed in a trench within or immediately adjacent to Sugarloaf Road.

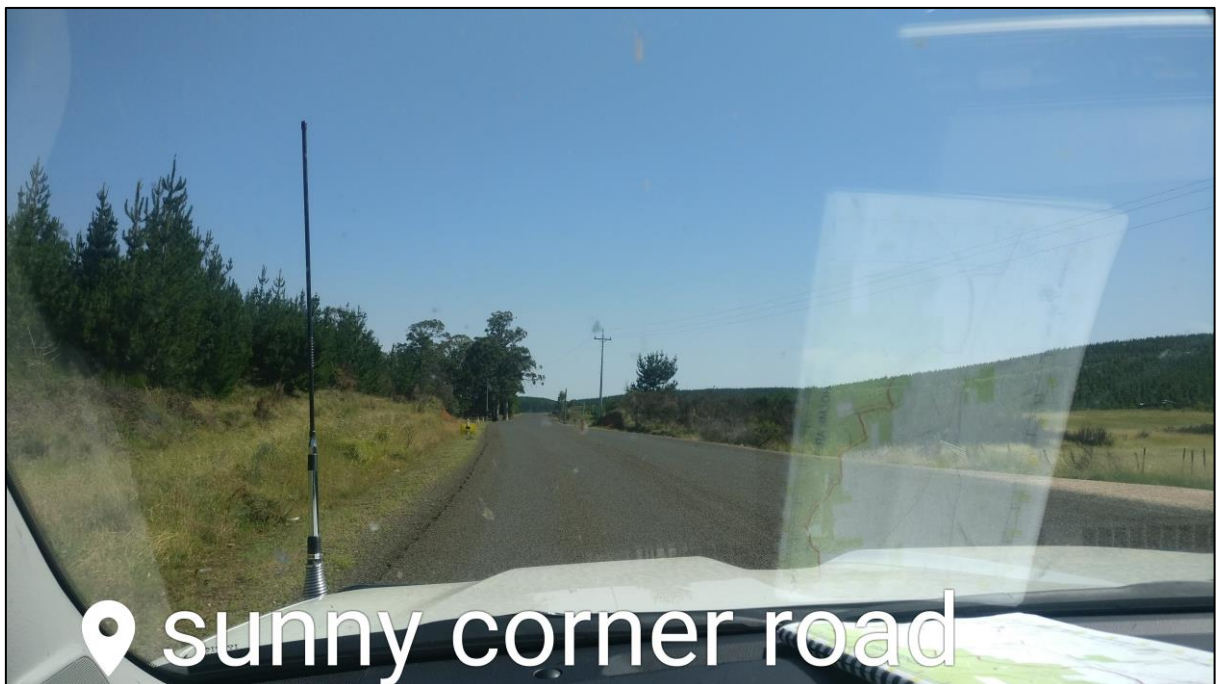
There is currently no recorded crash history in the immediate vicinity along Sugarloaf Road.

3.1.11 Sunny Corner Road

Sunny Corner Road is a sealed local road running north from the Great Western Highway at Meadow Flat into the SCS Forest. It provides a single lane carriageway width of between 7.3 m and 8.5 m for two-way traffic and a clear road reserve width (including verges) of more than 12.0 m. Outside of the SC State Forest, Sunny Corner Road has a speed limit of 100 km/h.

The pipeline will be installed in a trench within or immediately adjacent to Sunny Corner Road and will cross Sunny Corner Road to Kelly Boundary Road.

There is currently no recorded crash history in the immediate vicinity along Sunny Corner Road.



Photograph 2: Sunny Corner Road

3.2 Bathurst LGA

3.2.1 Kelly Boundary Road

Kelly Boundary Road is an unsealed road in the SC State Forest. It provides a single lane carriageway width of approximately 5.0m for two-way traffic, while maintaining a clear road reserve width (including verges) of up to 10.5m.

The pipeline will be installed in a trench within or immediately adjacent to Kelly Boundary Road.

There is currently no recorded crash history in Kelly Boundary Road.

3.2.2 Egan Road

Egan Road is an unsealed road in SC State Forest. It provides a single lane carriageway width of approximately 4.5m for two-way traffic while maintaining a clear road reserve width (including verges) in some part of Egan Road of up to 24.0m.

The Pipeline will be installed in a trench within or immediately adjacent to Egan Road.

There is currently no recorded crash history in Egan Road.

3.2.3 Ridge Road

Ridge Road is an unsealed road in SC State Forest. It provides a single lane carriageway width of 7.6m for two-way traffic while maintaining a clear road reserve width (including verges) of up to 9.0m.

The pipeline will be installed in a trench within or immediately adjacent to Ridge Road.

There is currently no recorded crash history in Ridge Road.

3.2.4 Sunny Corner Road

Sunny Corner Road is a sealed local road running north from the Great Western Highway at Kirkconnell into the SC State Forest. Sunny Corner Road provides a single lane carriageway width of 10.2 m for two-way traffic and clear verges of up to 6.0 m in some areas (although some areas are on a relatively steep embankment). Outside of the SC State Forest, Sunny Corner Road has a speed limit of 100 km/h.

The pipeline will cross Sunny Corner Road from Ridge Road and be installed in a trench within or immediately adjacent to the road reserve.

There is currently no recorded crash history in the immediate vicinity along Sunny Corner Road.

3.2.5 Kirkconnell Forest Road

Kirkconnell Forest Road is an unsealed road in SC State Forest. It provides a single lane carriageway width of approximately 3.5 m for two-way traffic while maintaining a clear road reserve width (including verges) of 6.6 m.

The pipeline will be installed in a trench within or immediately adjacent to Kirkconnell Forest Road.

There is currently no recorded crash history in the immediate vicinity along Kirkconnell Forest Road.

3.2.6 Macabees Road

Macabees Road is an unsealed road in SC State Forest. It provides a single lane carriageway width of approximately 4.1 m for two-way traffic while maintaining a clear road reserve width (including verges) of approximately 6.6 m.

The pipeline will be installed in a trench within or immediately adjacent to Macabees Road.

There is currently no recorded crash history in the immediate vicinity along Macabees Road.

3.2.7 Phillips Boundary Road

Phillips Boundary Road is an unsealed road in SC State Forest. It provides a single lane carriageway width of 2.5 m for two-way traffic with only limited clearances within the road reserve.

The pipeline will be installed in a trench within or immediately adjacent to Phillips Boundary Road.

There is currently no recorded crash history along Phillips Boundary Road.

3.2.8 Stoney Trig Road

Stoney Trig Road is an unsealed road in SC State Forest. It provides a single lane carriageway width of 5.2m for two-way traffic while maintaining a clear road reserve width (including verges) of more than 7.0m.

The pipeline will be installed in a trench within or immediately adjacent to Stoney Trig Road.

There is currently no recorded crash history in Stoney Trig Road.

3.2.9 Gulf Boundary Road

Gulf Boundary Road is an unsealed road in SC State Forest. It provides a single lane carriageway width of 4.5m for two-way traffic with only minimal clear verges.

The pipeline will be installed in a trench within or immediately adjacent to Gulf Boundary Road.

There is currently no recorded crash history in Gulf Boundary Road.

3.2.10 Sibleys Road

Sibleys Road is a minor access road running north from the Great Western Highway at Walang into the SC State Forest. Between the Great Western Highway and the SCS Forest, Sibleys Road provides a sealed single lane carriageway width of approximately 9.0m for two-way traffic; clear verges of up to 3.0m; and has a speed limit of 100km/h. In the SC State Forest, Sibleys Road provides an unsealed (graded) single carriageway width of 4.6m while maintaining a clear road reserve width (including verges) of approximately 9.2m.

The pipeline will be installed in a trench within or immediately adjacent to Sibleys Road.

There is currently no recorded crash history in Sibleys Road



Photograph 3: Sibleys Road

3.2.11 Yetholme Drive

Yetholme Drive is a sealed minor access road running between Sibleys Road and the Great Western Highway. It provides a single lane carriageway width of 6.0m for two-way traffic; clear verges of up to 3.0m; and a speed limit of 60km/h.

The pipeline will be installed in a trench within or immediately adjacent to Yetholme Drive.

There is currently no recorded crash history in Yetholme Drive.



Photograph 4: Yetholme Drive

3.2.12 Great Western Highway

The Great Western Highway (State Highway 5, National Route 32) is a regional highway which intersects with the Castlereagh Highway at Marrangaroo. The Great Western Highway links to the east to Lithgow, Katoomba and then through to the broader Sydney metropolitan area (M4); and west to Bathurst.

In the vicinity of the pipeline crossing, the Great Western Highway provides 2 traffic lanes for two-way traffic; clear verge width of between 1.0m and in excess of 10.0m; and a speed limit of 100km/h.

The pipeline will be installed under the Great Western Highway (underbored) with the launch pit on road reserve and receival pit on the south located on private land .

There are currently 9 recorded crashes on Great Western Highway between Sibleys Road and the underboring site, however none of these crashes occur directly at the location of the underboring. Of these crashes, 4 of them are due to veering off road (to the left), and the others relate to either head on crashes or striking animals.

3.2.13 Private Land

Between the Great Western Highway and Brewongle Lane, the pipeline will be installed in a trench on private land. Access to the land is available from private driveways (from Great Western Highway) and Brewongle Lane.

3.2.14 Brewongle Lane

Brewongle Lane is a sealed minor access road running between the Great Western Highway in the north and Brewongle Railway Station. It provides a single lane carriageway width of approximately 6.8m for two-way traffic; clear verges of approximately 6.0m; and a speed limit of 80km/h.

The pipeline will be installed in a trench across Brewongle Lane.

There is currently no recorded crash history in the immediate vicinity along Brewongle Lane.

3.2.15 Private Land

Between Brewongle Lane and the Main Western Railway, the pipeline will be installed in a trench on private land. Access to this land is available via private access driveways to Brewongle Lane and Tarana Road.

3.2.16 Rail Crossing – Main Western Line

The pipeline will be installed under the Main Western Line railway tracks with underboring sites to be located on private land rather than in the railway reserve.

3.2.17 Private Land

Between the Main Western Railway and Tarana Road, the pipeline will be installed in a trench on private land. Access to this land is available via private access driveways to Tarana Road.

3.2.18 Tarana Road

Tarana Road is a sealed minor access road running between Muttons Fall Road and O'Connell Road. It provides a single lane carriageway width of 8.0m for two-way traffic; clear verges of between 5.0m – 7.0m; and a speed limit of 80km/h.

The pipeline will be installed in a trench within or immediately adjacent to Tarana Road.

There is currently no recorded crash history in the immediate vicinity along Tarana Road.

3.2.19 O'Connell Road

O'Connell Road (Main Road 253) is a sealed road running between Bathurst and Oberon. It provides 2 traffic lanes with a carriageway width of 7.5m for two-way traffic; clear verges of approximately 4.5m – 5.0m; and a speed limit of 100km/h.

The pipeline will be installed in a trench within or immediately adjacent to O'Connell Road. The crossing of O'Connell Road will be underbored.

There is currently no recorded crash history in the immediate vicinity along O'Connell Road.

3.2.20 Private Land

Between O'Connell Road and Thompsons Hill Retreat, the pipeline will be installed in a trench on private land. Access to this land is available via private access driveways to O'Connell Road and from Thompsons Hill Retreat.

3.2.21 Thompsons Hill Retreat

Thompsons Hill Retreat is a sealed minor access road running east from White Road. It provides a single lane carriageway width of 6.0m for two-way traffic; clear verges of approximately 6.0m; and a speed limit of 50km/h.

The pipeline will be installed in a trench within or immediately adjacent to Thompsons Hill Retreat.

There is currently no recorded crash history in Thompsons Hill Retreat.



Photograph 5: Thompson Hill Retreat

3.2.22 White Rock Road

White Rock Road is a sealed minor access road running between Kelso and Penrose. It provides a single lane carriageway of between 4.2m and 7.1m for two-way traffic; clear verges on the western side of the road of approximately 6.0m; and a speed limit of 80km/h.

The pipeline will be installed in a trench within or immediately adjacent to White Rock Road.

There is currently no recorded crash history in White Rock Road.



Photograph 6: White Rock Road

3.2.23 White Rock River Lane

White Rock River Lane is an unsealed minor access road between White Rock Road and the Macquarie River. It provides a single lane carriageway width of approximately 3.0m – 3.5m for two-way traffic; verges of approximately 2.5m; and a nominal speed limit of 50km/h.

The pipeline will be installed in a trench within or immediately adjacent to White Rock River Lane.

There is currently no recorded crash history in White Rock River Lane.

3.2.24 Macquarie River

The pipeline will be installed under the Macquarie River (underbored) with boring sites to be located on private land off White Rock Lane, and off Montavella Road.

3.2.25 Montavella Road

Montavella Road is a minor access road between the Macquarie River and Gormans Hill Road. The eastern section of Montavella Road provides an unsealed single lane carriageway width of 4.2m for two-way traffic; clear verges of 7.5m; and has a nominal speed limit of 80km/h. The western section of Montavella Road provides a sealed single lane carriageway width of 6.8m for two-way traffic; clear verges of approximately 7.5m; and also has a nominal speed limit of 80km/h.

The pipeline will be installed in a trench within or immediately adjacent to Montavella Road.

There is currently no recorded crash history in Montavella Road.

3.2.26 Gormans Hill Road

Gormans Hill Road is a local access road which runs between South Bathurst and Lagoon Road. In the vicinity of the pipeline route, Gormans Hill Road provides an unsealed single lane carriageway width of 7.2m for two-way traffic; clear verges of between 3.0m and 7.5m; and a nominal speed limit of 80km/h.

The pipeline will be installed in a trench within or immediately adjacent to Gormans Hill Road.

As outlined in Section 3.8 there are 5 recorded crashes along the section of Gormans Hill Road within the pipeline construction area. These crashes are located on both 90 degree bends and primarily relate to vehicles losing control / veering off road at the bends. 3 of the 5 crashes resulted in injuries.

3.2.27 Lagoon Road

Lagoon Road is a sealed rural road running between Orton Park and Rockley. It provides 2 lanes with a carriageway width of 8.3m for two-way traffic; clear verges of approximately 4.0m; and a speed limit of 80km/h.

The pipeline will be installed in a trench across Lagoon Road.

There is currently no recorded crash history in Lagoon Road.

3.2.28 Vale Road and Main Western Railway

Vale Road is a sealed rural road running between Bathurst and Perthville. It provides 2 lanes with a carriageway width of 12.5m for two-way traffic; clear verges of approximately 7.0m; and has a speed limit of 100km/h.

The pipeline will be installed under Vale Road and the Main Western Line railway tracks (underbored) with boring sites to be located on the eastern side of Queen Charlottes Creek, and on private land on the western side of the railway. Access to the boring sites is available from Lagoon Road in the east and College Road in the west.

There is currently no crash history along Vale Road in the immediate vicinity of the pipeline crossing point. There are 3 crashes that have occurred approximately 450m – 800m to the north and south of the pipeline crossing location, therefore have not been included in the crash history outlined in Section 3.8.

3.2.29 Hen & Chicken Lane

Hen and Chicken Lane is a minor access lane between the Mid Western Highway and Vale Road. In the vicinity of the pipeline development route, Hen and Chicken Lane provides an unsealed single lane carriageway width of between 5.0m – 7.3m for two-way traffic; clear verges of up to 8.0m; and has a nominal speed limit of 50km/h.

The pipeline will be installed in a trench across Hen and Chicken Lane.

There is currently no crash history along Hen and Chicken Lane in the immediate vicinity of the pipeline crossing point. There are 2 crashes that have occurred approximately 1.2km to the west of the pipeline crossing location, therefore have not been included in the crash history outlined in Section 3.8.



Photograph 7: Hen and Chicken Lane

3.2.30 Private Land

Between Hen and Chicken Lane and the Mid Western Highway, the pipeline will be installed in a trench across private land. Access to this land is available via minor access roads from Hen and Chicken Lane, Trunkey Road, Wimbledon Road and the Mid Western Highway.

3.2.31 Mid Western Highway

The Mid Western Highway (National Route 41) is a state highway which runs between Bathurst and Hay. In the vicinity of the pipeline crossing, the Mid Western Highway provides 2 lanes for two-way traffic; clear verges of approximately 10.0m; and a speed limit of 100km/h.

The pipeline will be installed under the Mid Western Highway (underbored) with boring sites to be located on private land rather than in the Mid Western Highway road reserve. Access to the boring sites is available via minor roads and private driveways to the Mid Western Highway.

As outlined in Section 3.8 there are 2 recorded crashes along the section of Mid Western Highway in the pipeline construction area. There are a further 2 crashes located between 900m – 1.2km to the north and south of the pipeline construction area, and therefore is sufficiently far from the site to not be included in the crash history outlined in Section 3.8.

3.2.32 Private Land

Between the Mid Western Highway and the Mine Site, the pipeline will be installed in a trench within private land. Access to this private land is available via public and private access roads from Mid Western Highway.

3.3 Blayney LGA & Cabonne LGA

The final section of the pipeline development route (between Pounds Road/Gardiners Lane and the Mine Site) lies within the Blayney LGA and will be laid in a trench in private land. Notwithstanding, construction could potentially impact the roads detailed below.

3.3.1 Dungeon Road

Dungeon Road is an unsealed rural road running between Vittoria Road and the Mid Western Highway, crossing between the Cabonne LGA and Blayney LGA to the north of the Mine Site. Dungeon Road generally provides 2 lanes for two-way traffic with a carriageway width of 6.5m, though this width does narrow in some locations; and has a speed limit of 80km/h.

At this time, there is no expectation that Dungeon Road would be used during the pipeline construction phase other than for minor access requirements to the (eastern side) of the Mine Site.

There is currently no recorded crash history in Dungeon Road.



Photograph 8: Dungeon Road

3.3.2 Pounds Lane/Gardiners Road

As stated, between Gardiners Road and the Mine Site the pipeline will be installed in a trench on private land. Access to this land is available via Pounds Lane (connecting to the Mid Western Highway south of the pipeline corridor) or Gardiners Road (connecting to the Mitchell Highway to the north of the pipeline corridor).

There is currently no recorded crash history in Pounds Lane / Gardiners Road.

3.4 Existing Traffic Flows

3.4.1 2019 Traffic Counter Surveys

Further to our inspections of the pipeline corridor, Ason Group commissioned Matrix Traffic & Transport Data (Matrix) to install a number of Automatic Tube Counters (counters) in key roads where the construction of the pipeline development has the greatest (relative) potential to impact existing traffic flows.

Having regard for likely construction vehicle routes, road conditions, and perceived traffic generation, traffic counters were installed at the following locations as outlined in **Figure 3**.

The survey data is summarised in sections below and provided in full in **Appendix B**.

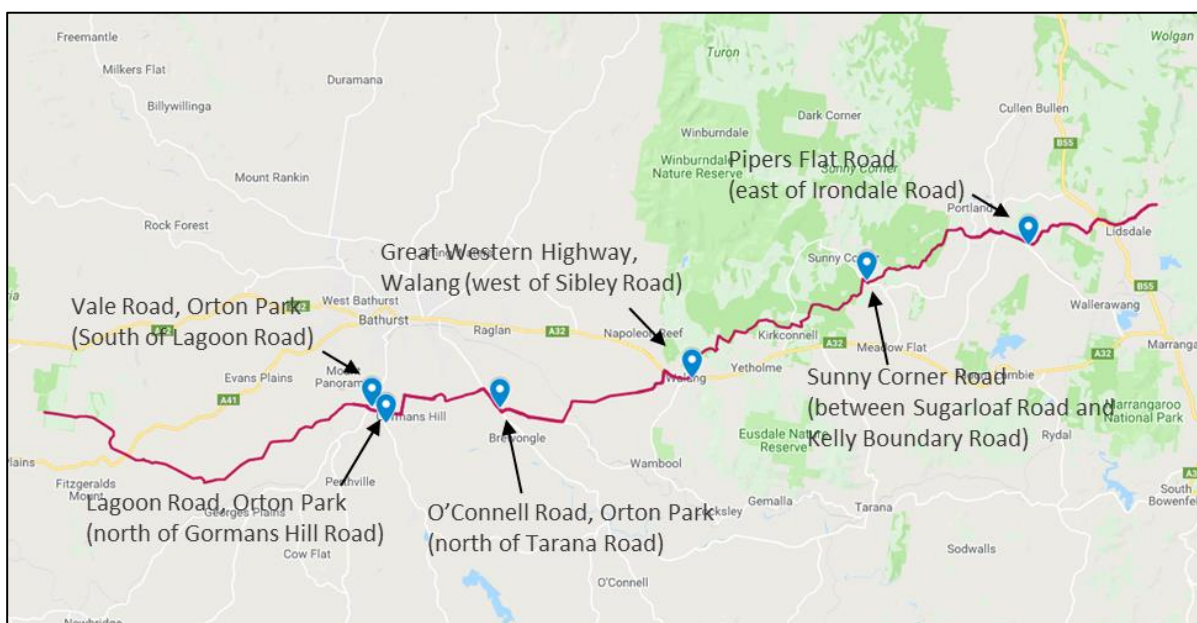


Figure 3: Traffic Survey Locations

3.4.2 Spot Counts

During our Site visits, Ason Group undertook short spot surveys in key roads along the pipeline corridor where the use of counters was impractical (terrain or road conditions) or where peak hour flows / turning movements had the potential to be impacted. This data is summarised in Section 3.4.5.

3.4.3 RMS Count Station Data

Supplementing the traffic surveys data, the RMS operates Permanent Classifier (Count) Stations at the following locations:

- Count Station 99001: Great Western Highway at Meadow Flat;
- Count Station 99847: Mid Western Highway south of Bathurst; and
- Count Station 93863: Mid Western Highway north of Blayney.

This data is also provided in **Appendix B**.

3.4.4 Bathurst Council Data

Further to our discussions, Bathurst Council provided Ason Group with additional traffic data for roads under the care and control of Bathurst Council along the pipeline corridor. Annual Average Daily Traffic (AADT) flows for these roads are summarised in **Table 8**.

Table 8: AADT Bathurst Council Roads

Location	AADT (veh/day)	Year	Comments
Hen & Chicken Lane	71	2012	n/a
Lagoon Road	370	2003	Traffic is likely to be highest on weekends in summer for people accessing the dam
White Rock Road	195	2015	North of Thompsons Hill Retreat (Cul-de-sac street)
Gormans Hill Road	73	2005	South of Montavella Road
Tarana Road	64	2003	n/a
Brewongle Road	33	2008	n/a
Sunny Corner Road	348	2010	Due to seasonal use by logging trucks consultation with forestry and consideration of under bore might be considered on this road

3.4.5 Existing Network Flows

With reference to the 2019 counter and spot surveys, and to the RMS Count Station data, **Table 9** provides a summary of existing daily traffic flows across the local road network measured in vehicles per day (vpd) while **Table 10** provides a summary of existing vehicles per (peak) hour (vph) at key locations.

Table 9: Existing Daily Traffic Flows

Location		Vehicles Per Day (vpd)
Pipers Flat Road – East of Irondale Road	5-Day Average	1,997
	7-Day Average	1,867
Sunny Corner Road – Between Sugarloaf Road and Kelly Boundary Road	5-Day Average	131
	7-Day Average	148
Great Western Highway, Walang – West of Sibley Road	5-Day Average	9,651
	7-Day Average	9,319
O'Connell Road, Orton Park – North of Tarana Road	5-Day Average	3,455
	7-Day Average	3,115
Vale Road, Orton Park – South of Lagoon Road	5-Day Average	3,016
	7-Day Average	2,883
Lagoon Road, Orton Park – North of Gormans Hill Road	5-Day Average	877
	7-Day Average	905

Table 10: Existing Peak Hour Flows

Location		Vehicles Per Peak Hour (vph)
Pipers Flat Road – East of Irondale Road	AM Peak (10:00am – 11:00am)	160
	PM Peak (4:00pm – 5:00pm)	185
Sunny Corner Road – Between Sugarloaf Road and Kelly Boundary Road	AM Peak (10:00am – 11:00am)	21
	PM Peak (3:00pm – 4:00pm)	44
Great Western Highway, Walang – West of Sibley Road	AM Peak (11:00am – 12:00pm)	781
	PM Peak (4:00pm – 5:00pm)	963
O'Connell Road, Orton Park – North of Tarana Road	AM Peak (8:00am – 9:00am)	266
	PM Peak (4:00pm – 5:00pm)	345
Vale Road, Orton Park – South of Lagoon Road	AM Peak (8:00am – 9:00am)	262
	PM Peak (5:00pm – 6:00pm)	283
Lagoon Road, Orton Park – North of Gormans Hill Road	AM Peak (10:00am – 11:00am)	96
	PM Peak (1:00pm – 2:00pm)	114

3.5 Existing Road Network Operations

3.5.1 Level of Service Criteria

The performance of the key roads can be determined with reference to Section 4 of the RMS Guide, which provides criteria for Level of Service (LoS), which are outlined below. It is noted that these LoS criteria are valid for the assessment of both urban and rural roads:

- **LoS A:** This, the top level of performance, represents conditions of free flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to manoeuvre within the traffic stream is extremely high, and the general level of comfort and convenience provided is excellent.
- **LoS B:** This level is in the zone of stable flow and drivers still have reasonable freedom to select their desired speed and to manoeuvre within the traffic stream, although the general level of comfort and convenience is little less than that of the level of Service A.
- **LoS C:** This service level is also in the zone of stable flow, but most drivers are restricted to some extent in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience declines noticeably at this level.
- **LoS D:** This level is close to the limit of stable flow but is approaching unstable flow. All drivers are severely restricted in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is poor, and small increases in traffic flow will generally cause operational problems.
- **LoS E:** This occurs when traffic volumes are at or close to capacity and there is virtually no freedom to select desired speeds or to manoeuvre within the traffic stream. Flow is unstable and minor disturbances within the traffic stream will cause a traffic-jam.
- **LoS F:** This service level is in the zone of forced flow. With it, the amount of traffic approaching the point under consideration exceeds that which can pass it. Flow break-down occurs, and queuing and delays result.

3.5.2 Level of Service: Rural Roads

The performance of the key sealed roads along the pipeline corridor can be determined with reference to Table 11 of the RMS Guide, which provides the following criteria for peak flows (per direction):

Table 11: Rural Road Peak Hour Flows Level of Service

Terrain	Level of Service	Percent of Heavy Vehicles			
		0	5	10	15
Level	B	630	590	560	530
	C	1030	970	920	870
	D	1630	1550	1480	1410
	E	2630	2500	2390	2290
Rolling	B	500	420	360	310
	C	920	760	650	570
	D	1370	1140	970	700
	E	2420	2000	1720	1510
Mountainous	B	340	230	180	150
	C	600	410	320	260
	D	1050	680	500	400
	E	2160	1400	1040	820

Source: RMS Guide

The RMS Guide also states that the data for Table 11 assumes the following criteria:

- A two-lane rural road, with
 - Level Terrain: 20% no overtaking
 - Rolling Terrain: 40% no overtaking
 - Mountainous Terrain: 60% no overtaking.
- 3.7 m traffic lane width with side clearances of at least 2m.
- A 60/40 directional split of traffic.

The following Table 12 outlines the Level of Service of the key intersections as highlighted within Table 10.

Table 12: Existing Peak Hour Flows

Location	Peak	Vehicles Per Peak	Expected Percentage of Heavy Vehicles	Level of Service
Pipers Flat Road – East of Irondale Road	AM	160	<5% Of Peak Hour Traffic	B
	PM	185		B
Sunny Corner Road – Between Sugarloaf Road and Kelly Boundary Road	AM	21	<5% Of Peak Hour Traffic	B
	PM	44		B
Great Western Highway, Walang – West of Sibley Road	AM	781	<5% Of Peak Hour Traffic	C
	PM	963		C
O'Connell Road, Orton Park – North of Tarana Road	AM	266	<5% Of Peak Hour Traffic	B
	PM	345		B
Vale Road, Orton Park – South of Lagoon Road	AM	262	<5% Of Peak Hour Traffic	B
	PM	283		B
Lagoon Road, Orton Park – North of Gormans Hill Road	AM	96	<5% Of Peak Hour Traffic	B
	PM	114		B

3.5.3 Unsealed Road Capacities

When considering the operation of unsealed roads, standard RMS LoS parameters are not applicable. As such, Ason Group has referenced the Australian Road Research Board Unsealed Roads Manual (ARRB URM), which provides general capacity thresholds for unsealed roads and as such provides guidance in regard to the suitability of unsealed lanes along the alignment to accommodate the pipeline development traffic.

Table 13 provides a summary of the general profile of different types of unsealed roads, while **Figure 4** provides an illustration of each type of unsealed road.

Table 13: ARRB USM Unsealed Road Classes

Road class	Class type	Service function description	Road type description
4A	Main road > 150 ADT	This type of road is used for major movements between population centres and connection to adjacent areas. High traffic volumes occur and the road can carry large vehicles.	<ul style="list-style-type: none"> All weather road predominantly two-lane and unsealed. Can be sealed if economically justified Operating speed standard of 50–80 km/h according to terrain Minimum carriageway width is 7 m
4B	Minor road 150–50 ADT	This type of road is used for connection between local centres of population and links to the primary network. Roads may or may not be sealed depending on the importance and function of the road.	<ul style="list-style-type: none"> All weather two-lane road formed and gravelled or single-lane sealed road with gravel shoulders Operating speed standard of 30–70 km/h according to terrain Minimum carriageway width is 5.5 m.
4C	Access road 50–10 ADT	Provides access to low use areas or individual rural property sites and forest areas. Caters for low travel speed and a range of vehicles and may be seasonally closed.	<ul style="list-style-type: none"> Substantially a single lane two-way generally dry-weather, formed (natural materials) track/road Operating speeds standard of < 20–40 km/h according to terrain Minimum carriageway width is 4 m May be restricted to four-wheel drive vehicles
4D	Tracks < 10 ADT	Provides primarily for four-wheel drive vehicles. Mainly used for fire protection purposes, management access and limited recreational activities.	<ul style="list-style-type: none"> Predominantly a single-lane two-way earth track (unformed) at or near the natural surface level Predominantly not conforming to any geometric design standards Minimum cleared width is 3 m

Source: ARRB URM



Figure 4: ARRB URM Road Classes

Source: ARRB URM

The ARRB USM also provides the following:

Unsealed roads in the majority of cases are either one-lane two-way roads or two-lane two-way roads...

For roads with low traffic volumes <150vpd, Austroads suggests that a single lane two-way operation is adequate as there is a low probability of vehicles meeting and the few passing manoeuvres can be undertaken at reduced speeds using the shoulders. Providing there is sufficient sight distance these manoeuvres can be performed without hazard and the overall loss in efficiency brought about by reduced speeds when vehicles cross will be small. It is not cost effective to widen the carriageway in such circumstances and a basic width of 5.5m will normally suffice. For two large vehicles passing with a legal width of 2.5m, a 5.5m carriageway will allow a 0.5m clearance between vehicles.

3.6 Sub-Regional Projects

Given the relatively limited timeframe of the construction phase (up to 12 months – see also Section 4 below) there is no expectation of ‘background’ traffic flows increasing in the local road network further to standard average annual traffic growth prior to and during the construction. Furthermore, in the event that construction is delayed, there is a sufficiently small proportion of traffic along the road network to not have any material impacts for motorists, and therefore would not change the outcome of the Report.

Notwithstanding, Ason Group has undertaken a desktop review of projects in the sub-region which have the potential to generate additional trips to the local network during the construction phase. With reference to the DPE Major Project Register, the following sub-regional projects were identified.

3.6.1 Mining Projects

A number of additional mining projects in the Lithgow LGA have been proposed in the past 5 – 10 years, including the Angus Place Colliery Extension Project (APC is currently in care and maintenance); the Neubeck Coal Project; and the Pine Dale Coal Mine Extension Project. EARs were issued for the Neubeck Coal Project in 2012; however, a development application and accompanying EIS was never submitted for this project. The Pine Dale Coal Mine is currently in care and maintenance, and whilst EARs were issued in 2012 for the Stage 2 Extension, the application has since been withdrawn. Therefore, it is very unlikely that these projects (either construction or operation) would commence prior to or during the construction phase.

3.6.2 Mt Panorama Second Circuit

EARs were issued in December 2018 for the proposed development of an additional racetrack to the west of the existing Mt Panorama racetrack. The development application and accompanying EIS has not yet been submitted for this project. As such, it is unlikely that any additional construction or operational traffic would be generated by the Second Circuit project prior to or during the construction phase.

3.6.3 Brewongle Solar Farm

EARs were issued in September 2017 for the proposed development of a solar farm in Brewongle, located north of Tarana Road. The pipeline corridor runs immediately east and south of the proposed solar farm site. Again, the development application and accompanying EIS has not yet been submitted for this project. As such, it is unlikely that any additional construction or operational traffic would be generated by the Brewongle solar farm project prior to or during the construction phase.

3.7 Sub-Regional Events

As mentioned above, due to the limited timeframe of the construction, there is no expectation of 'background' traffic flows increasing in the local road network further to standard average annual traffic growth during construction of the pipeline.

However, depending on construction timeframes, there may be instances where there will be local and / or regional events which could potentially be impacted by the pipeline development construction. These are detailed below.

3.7.1 Blayney to Bathurst (B2B)

The B2B is an annual cycling event run by Bathurst Council which runs from Blayney to Bathurst. The event was recently held (16 and 17 March 2019), and the potential exists that the 2020 and/or 2021 event might occur during the pipeline development construction phase. As such, the Draft CTMP outlined in Chapter 5 of this report recommends consultation between the construction Project Manager and the B2B event organisers to ensure the construction activities have no impact on the roads used for the B2B event.

3.7.2 Central Tablelands Motorcycle Club

Similarly, the 2019 Sunny Corner Trail Bike Ride is an annual motorcycle event in Bathurst. The event is held around September and runs along Sunny Corner Road. The Draft CTMP recommends consultation between the construction Project Manager and the Sunny Corner Trail Bike Ride event organisers to ensure the construction activities have no impact on the roads used for the Sunny Corner Trail Bike Ride.

3.7.3 Bathurst Light Car Club

The Bathurst Light Car Club holds several events in Bathurst throughout the year. The Draft CTMP recommends consultation between the construction Project Manager and the Bathurst Light Car Club event organisers to ensure the construction activities have no impact on the roads used for the Bathurst Light Car Club.

3.7.4 Classic Rally Club

The Classic Rally Club holds several events in Bathurst throughout the year. The Draft CTMP recommends consultation between the construction Project Manager and the Classic Car Rally event organisers to ensure the construction activities have no impact on the roads used for the Classic Car Rally.

3.8 Crash Data

An assessment of the Centre for Road Safety's *Crash and Casualty Statistics* database has been undertaken to establish the crash history in the vicinity (approximately 200m) of the pipeline corridor. This data represents 99% of all recorded crashes that have occurred in a 5 year period between 2013 and 2017, and includes all crashes that met the following criteria;

- Were reported to the police
- Occurred on a road open to the public
- Involved at least one moving road vehicle
- Involved at least one person being killed or injured or at least one motor vehicle being towed away.

Sections 3.1, 3.2, and 3.8 outlines the details regarding crashes in each road along the pipeline corridor, and notes whether there have been any identified crashes within the immediate area.

Any identified crashes that have been identified and/or considered as potential areas of interest have been summarised in **Table 14** below.

Table 14: Summary Crash Data

LGA	Location	Year	RUM – Description of Crash	Injury
Bathurst Regional	Gormans Hill Road	2013	80 – Off carriageway left on right bend	1 - Moderate
		2014	83 – Off carriageway right on bend into object / parked vehicle	n/a
		2014	73 – Right off carriageway into object / parked vehicle	1 - Moderate
		2015	88 – Out of control on carriageway	n/a
		2016	80 – Off carriageway left on right bend	1 - Moderate
	Great Western Highway	2013	87 – Off Left / left bend into object	n/a
			86 – Off left / left bend	1 - Serious
			30 – Rear end	2 - Moderate
		2014	20 – Head on	1 - Serious
			62 – Accident	1 - Serious
		2015	71 – Off road left into object	2 – Fatal
			87 – Off Left / left bend into object	n/a
			20 – Head on	1 - Serious
	Mid Western Highway	2016	67 – Struck animal	1 - Minor
			71 – Off road left into object	1 - Minor
		2014	20 – Head on	1 - Serious
Lithgow	Pipers Flat Road	2014	85 – Off carriageway right on left bend into object / parked car	1 - Serious
		2015	73 – Right off carriageway into object / parked vehicle	1 - Moderate
	Castlereagh Highway	2013	32 – Right rear	1 - Minor

Source: Transport for NSW

Of the five crashes that occurred in Gormans Hill Road, all of them occurred along the section of road where the pipeline is proposed to be constructed; these crashes occurred during day light or dusk conditions.

Great Western Highway has seen nine crashes in the vicinity of the pipeline corridor. The types of crashes indicate that speed and / or fatigue played a part in these crashes, as seven of them occurred during dusk or dark conditions and included one crash with two fatalities. It is noteworthy that the construction works occur next to Great Western Highway and are to be undertaken during day light hours. As this is the case, there is minimal day time crash history at this location.

Two crashes have occurred in Mid Western Highway during the five-year crash period. Both crashes had injuries, however only one was serious.

At the Pipers Flat Road & Range Road intersection, the crashes occurred either during dawn or at night (darkness). Both crashes had injuries, with one being a moderate injury and the other severe.

With reference to the RMS crash data, it is certainly the case that inappropriate speed or inattention can lead to incidents on these roads, either as a case of running off road (i.e. not slowing appropriately for a curve) or head-on collisions (i.e. not taking due caution on narrower sections of road).

Indeed, 18 crashes in a 5-year reporting period across a 90km pipeline corridor suggests that there is a low crash rate, and that the proposed corridor would be constructed on fairly safe roadways. Nevertheless, extra caution should be taken during construction along Gormans Hill Road, Great Western Highway, Mid Western Highway and Pipers Flat Road.

The posted (or at least RMS reported) speed limit for many of these crashes was 80km/h or 100km/h, limits which have since October 2010 been revised to a maximum of 60km/h along all State Forest roads specifically in response to speed related accidents, as outlined below in a statement from the CEO of Forests NSW to forest stakeholders date 22nd September 2010: -

“Dear forest stakeholder,

There has been growing concern about the level of motor vehicle accidents occurring. These involve both Forests NSW vehicles as well as those of contractors, including log trucks. Accidents are occurring across both Forests NSW and Roads and Traffic Authority managed roads.

There have been a number of investigations carried out on the issue and a suite of recommendations made. Two factors that appear frequently are that vehicles are having accidents on unsealed gravel roads and speed is a contributor. As a result, Forests NSW has introduced a 60 km/hr speed limit, unless otherwise signposted, on all unsealed gravel roads under provision of clause 13(5) of the Forestry Regulation 2009. At lower speeds:

- *Drivers have more time for decision making.*
- *Vehicles have much shorter stopping distances.*
- *Crashes that do occur result in less severe injuries because of the lower impact.*

This speed limiting policy will enhance the safety of all road users and formally takes effect on 1 October 2010. Over the next few months, we will begin installation of signage across State forests to ensure that all road users are aware of the 60km/h speed limit.

Yours sincerely

Nick Roberts

Chief Executive Officer

Forests NSW"

Finally, and as stated in earlier sections, no crashes have been reported in other sections of road where the pipeline will be installed for the recent five-year reporting period. In our opinion, this reflects generally good intersection geometry and turning infrastructure; sight distances; and – of course – the relatively moderate flows through the road network.

4 Construction Traffic Impact Assessment

4.1 Construction Schedule

Based on information provided to Ason Group by Regis, the construction of the pipeline development is expected to be completed over approximately 12 months. A summary of the different characteristics of each stage is provided in **Table 15** and detailed further in sections below.

Table 15: Pipeline Construction Schedule

Construction Stage	Timeframe (Days)	Peak Daily Staff (No. of Persons)	Peak Daily Light Vehicle movements (veh/day)
Stage 1 Pipeline Construction (including crossings)	176	66	16
Stage 2 Pump Station Facilities Construction	229	36	9

Note: Staff numbers reflect the estimated maximum number of staff on-site at any one time during peak construction periods.

4.2 Construction Vehicle Access Routes

Dedicated construction vehicle routes (outlined in sections below) will be used by all construction vehicles travelling to and from the construction sites; these routes generally represent the shortest possible route available, provide for the most efficient trip between the sub-regional roads and the construction sites, while also accounting for local conditions.

In the event a heavy vehicle is required, these oversized or over-mass vehicles travelling to and / or from the construction sites will be required to obtain the appropriate permits from the RMS and / or the National Heavy Vehicles Register (NHVR).

All vehicles associated with the construction will enter and exit construction sites in a forward direction.

Given the primary compounds will be located at Lithgow, Bathurst and Blayney, the most likely principal construction routes will be Castlereagh Highway between Lithgow and Lidsdale, Pipers Flat Road, Vale Road, O'Connell Road and Great Western Highway near Bathurst, and Mid Western Highway and Dungeon Road from Blayney.

4.3 Construction Traffic Profile

4.3.1 Construction Staff Numbers

On an average day, it is estimated that the construction phase would employ the following staff:

- Two crews for undertaking the pipeline installation (one trenching and one excavator);
- Two crews for undertaking the pipeline installation at the crossing sites;
- Up to nine Supervisors and Project Management staff; and
- Up to four Regis management staff.

Each 'crew' will have the ability to move between different work sites as required, sometimes on the same day. As such, it is estimated that a maximum of 120 staff would be working on the pipeline development, with 102 staff onsite (at one or multiple sites) on any one day during construction.

4.3.2 Light Vehicle Trips

It is anticipated that the majority of construction workers will be transported to the construction sites along the pipeline corridor by group transport (utility vehicles or mini-buses) from the main construction compound sites. With consideration of this, and the peak number of construction sites that could be active at any one time; as well as only a very minor construction visitor demand, it is estimated that no more than 30 light vehicle trips would be generated daily through the construction phase. Moreover, there is little potential for these trips to be generated to a single construction site, which further reduces the potential for impacts in the road network.

Ason Group notes that due to the unique nature of the road network – and specifically the network in the SC State Forest - the Draft CTMP recommends that all vehicle trips within SC Forest be undertaken during daylight hours, which would generally require them to occur between 7:00am and 6:00pm (see also **Section 5**).

4.3.3 Construction Trucks

Regis has provided Ason Group with information regarding the potential origin locations of materials to be used during construction of the pipeline. It is assumed that pipe materials would be sourced from Sydney. Other materials such as the pump station components, pumps, electrical cabinets and switchgear would also likely originate from the Sydney area.

The remainder of materials deliveries (e.g. building materials, steel reinforcement, fencing materials, road base select bedding material) could potentially be sourced locally.

Regis has further provided Ason Group with information in regard to the potential truck movements during the construction and waste management; a summary of this information is provided in **Table 16**.

Table 16: Truck Movement Overview

	Stage 1: Pipeline Construction	Stage 2: Pump Station Construction
Truck Frequency (Average Movements Per Day)	30	6
Peak Truck Movements per hour	14	4
Largest Vehicle Size	Medium Rigid Vehicle	Medium Rigid Vehicle

Note: The Australian Standard (AS2890.2) describes a Medium Rigid Vehicle (MRV) as trucks and buses up to eight tonnes (Gross Vehicle Mass (GVM)) and typically having a single rear axle and dual tyres.

It is important to note that the flows reported in **Table 16** reflect average flows; the potential exists that there may be occasions where slightly higher flows are generated in, for example, a peak hour. However, there is no expectation that such variations would represent anything other than a moderate increase above the average flow estimates, and indeed any, such periods of increased movements would be off-set by periods of reduced movements when compared to the average estimates.

Some of the spoil generated from the construction of the pipeline will not be able to be backfilled and will need to be transported offsite. Any waste material would be disposed of locally at licensed waste facilities and landfills near Bathurst, Lithgow and Blayney. In addition, some internal transport of fill material between construction areas will be required for erosion control, batter construction or general fill on surrounding rural land.

4.3.4 Queuing

As part of the Draft CTMP, it is recommended that a schedule for the deliveries of materials and goods is established prior to each construction day and be (construction) site-specific, with Traffic Controllers / Project Managers maintaining radio contact with construction vehicles at all times.

Notwithstanding, Regis have indicated that there may be a small amount of queuing of concrete trucks during major concrete pours of the pump station facilities. The nature of construction of the concrete slabs would suggest the arrival of several concrete trucks in a short period of time.

A construction delivery program specific to the pouring of slabs should be developed prior to construction to minimise any queuing on-site. In the event that queuing is expected to occur on site, a pre-determined layover area should be identified for trucks to use prior to their arrival on site. As such, there is little if any potential for any construction vehicle queueing to the public road network.

4.4 Construction Traffic Impacts

4.4.1 Level of Service: Urban Roads

With reference to the RMS Guide LOS guidelines for urban and rural roads (per Section 3.5.3 above) Ason Group has determined that the additional flows generated during the construction would have little if any impact on the existing LOS or general operation of any urban roads across the broader study area. A comparison of existing and 'existing + construction' traffic volumes have been demonstrated in **Table 17**.

Table 17: Existing Peak Hour Flows

Location	Peak	(Existing) Vehicles Per Peak	Level of Service	(Existing + Construction) Vehicles Per Peak ¹	Level of Service
Pipers Flat Road – East of Irondale Road	AM	160	B	190	B
	PM	185	B	215	B
Sunny Corner Road – Between Sugarloaf Road and Kelly Boundary Road	AM	21	B	51	B
	PM	44	B	74	B
Great Western Highway, Walang – West of Sibley Road	AM	781	C	811	C
	PM	963	C	993	C
O'Connell Road, Orton Park – North of Tarana Road	AM	266	B	296	B
	PM	345	B	375	B
Vale Road, Orton Park – South of Lagoon Road	AM	262	B	291	B
	PM	283	B	313	B
Lagoon Road, Orton Park – North of Gormans Hill Road	AM	96	B	126	B
	PM	114	B	144	B

Note: Peak hour construction vehicle movements have been taken from Stage 1 works volumes as that represents the highest volumes over the stage of the project

In practice, the majority of construction vehicle trips will be undertaken outside of the local AM and PM peak periods, with construction vehicle trips generated during those periods expected to constitute only a very minor percentage of what are already very moderate flows in most roads.

4.4.2 Level of Service: Rural Roads

With reference to the RMS Guide LOS guidelines for urban and rural roads (per Section 3.5.3 above) Ason Group has determined that the additional flows generated during the construction would have little if any impact on the existing LOS or general operation of any rural roads across the broader study area due to the existing good LOS and the relatively minor construction traffic generation.

The majority of construction vehicle trips will be undertaken outside of the local AM and PM peak periods, with construction vehicle trips generated during those periods expected to constitute only a very minor percentage of what are already very moderate flows in most roads.

4.4.3 Level of Service: Crown Roads

With reference to the ARRB USM for the assessment of unsealed roads (per Section 3.5.3 above) Ason Group has determined that the additional flows generated during the construction would have little if any impact on the existing LOS or general operation of any Crown roads across the broader study area; this again, is a function of the very minor peak construction vehicles demands to these roads.

Notwithstanding, wherever construction vehicles are to occupy crown roads; consultation will be undertaken with Department of Industry – Crown Lands prior to any use of Crown roads.

4.4.4 Unsealed Road Capacities

With reference to the ARRB USM for the assessment of unsealed roads (per Section 3.5.3 above), Ason Group has determined that the additional flows generated during the construction would have little if any impact on the existing LOS or general operation of any unsealed roads across the broader study area, with total traffic flows remaining below the nominal Type 4B unsealed road capacity limits.

4.4.5 Rail Corridors

As part of the pipeline construction, there will be instances where the pipeline is required to cross rail corridors. Rail crossing locations have been identified in Figure 2. It is proposed that construction of the pipeline across the rail corridor would be achieved with underboring techniques, therefore not creating any impact to the operation of the existing rail network.

4.4.6 Road Conditions Monitoring

Observations of the local road network indicate that the conditions of sections of roads may change as a result of inclement weather (heavy rain and / or winds), and construction may also exacerbate 'existing' conditions in some instances. Although the traffic volumes along the construction routes and roads are

minimal, it is important that those existing conditions – i.e. the retention of appropriate width to accommodate two-way traffic – will be maintained through (and then after) the construction period.

As such, it is proposed that:

- Prior to construction commencing, the Project Manager will meet with the relevant Council Assets Management (or like) to inventory the existing local road conditions, and particularly the unsealed sections of road under the care and control of Council.
- Prior to construction commencing, the Project Manager will meet with the Forestry Corporation of NSW Assets Management (or like) to inventory the existing road conditions, and particularly the unsealed sections of road under the care and control of Forests NSW.
- While it is our understanding that Forestry Corporation of NSW is responsible for maintaining (grading) these unsealed roads, and of the following conditions would not appropriately provide a suitable trafficable route;
 - any damaged sections of road where an appropriate width for two-way traffic is not available; or
 - where the carriageway is not suitable to accommodate the weight of construction trucks;

Should such sections be identified, it is expected that the Project Manager would consult with Forests NSW in regard to improve such sections of road to cater for construction vehicles.

At the end of the construction phase, the Project Manager would consult with Forestry Corporation of NSW and Council's Asset Managers to ensure that conditions of all roads are commensurate with existing (pre-constructions) conditions. Should remediation be required as a result of the construction, this would be undertaken in consultation with all interested parties.

4.5 Construction Traffic Conclusions

Based on our detailed assessment, Ason Group has concluded that the construction of the pipeline, pumping station and ancillary works would have negligible impacts on the local road network. In summary:

- These peak flows would be generated over the total 12 month construction period.
- The introduction of additional construction traffic flows would not alter the existing levels of service in the key roads or at key intersections providing access to the pipeline corridor.
- The additional construction traffic flows would not warrant the upgrade of any minor intersections or road sections.
- Appropriate management conditions can be introduced to ensure that all roads are maintained to an appropriate standard throughout and after the construction period.

5 Draft Construction Traffic Management Plan

It is expected that a detailed CTMP will be required as a condition of the development consent should the project be approved. For the purposes of this Draft CTMP, sections below outline the general management strategies expected to be employed during the construction.

5.1 Proposed Work Hours

It is expected that construction works will be undertaken during standard construction work hours, which are likely to be as follows:

- Monday to Friday: 7:00am – 6:00pm
- Saturday: 8:00am – 1:00pm
- Sunday and Public Holidays: No works to be undertaken

Out of Hours work permits are to be sought to undertake work outside standard construction work hours. The following reasons and provisions are cause for works to be undertaken outside of these standard hours:

- A delivery is required outside these hours by the Police or other Authorities;
- It is required in an emergency to avoid the loss of life, damage to property and / or to prevent environmental harm;
- A variation is approved in advance in writing by the appropriate Authority and / or
- To minimise disruption to road network and allow the normal operation of road to be sustained during busy daylight hours.

5.2 Construction Vehicle Access Routes

An initial inspection of the access routes between the sub-regional network and the construction sites will be undertaken to determine any existing deficiencies which would impact the safe and efficient movement of construction (and other) vehicles.

Along with the construction of all access tracks in accordance with the appropriate design and safety guidelines State Forests of NSW Forest Practices Code: Part 4 Forest Roads & Fire Trails (FPC4), Ason Group recommend a review of the following locations in consultation with the Forestry Corporation of NSW: -

- All roads in State Forests (including probable detour routes);
- Gormans Hill Road from Montavella Road to 2km south; and
- John Mackey Drive between Portland Sunny Corner Road and Pipers Flat Road.

5.3 Vehicle Diversion Routes

In SC State Forest, there will be times during construction where a section of road will need to be temporarily closed. During these times, a suitable detour will be implemented in order to maintain a trafficable thoroughfare.

Some detour routes will be required to be ameliorated or repaired to allow vehicular access. This may include (but not be limited to) filling in potholes and ruts, trimming trees and / or moving rocks / boulders to create a clear path and a trafficable route

Appropriate Traffic Control Plans (TCPs) and Detour Routes are included in **Appendix C** of this report.

5.4 Traffic Control

The RMS guide “Traffic Control at Worksites” (TCAW) manual contains standard traffic control plans (TCPs) for a range of work activities. The manual’s objective is to maximise safety by ensuring traffic control at worksites complies with best practice. The RMS TCAW outlines the requirements for a Vehicle Movement Plan (VMP).

A VMP is a diagram showing the preferred travel paths for vehicles associated with a work site entering, leaving or crossing the through traffic stream. A VMP should also show travel paths for trucks at key points and identify specific locations for vehicles to turn around, as well as accesses, ramps and side roads.

RMS TCAW has specific traffic and road safety requirements for construction work on roads with an average daily total (ADT) in excess of 1,500 vehicles, approach speeds of between 60 km/hr and 80 km/hr, with truck movements > 20 veh/shift, and sight distance is less than 2d, (where d equals the posted speed limit and in this instance the sight distance is required to be up to 120 metres). On these roads the following measures would normally be required:

- TCP with Traffic Controllers / Traffic Signals
- VMP
- Warning Signs required during shifts

TCPs are necessary to ensure safety and appropriate access during construction of the pipeline development. As such, Ason Group has prepared a series of draft TCPs which identify all locations along the pipeline development corridor where traffic management is required. A summary of each of the draft TCPs is provided in **Table 18** below (in **Appendix C**), while the detailed draft TCPs are provided in **Appendix C**.

Where required, authorised Traffic Controllers would also be employed to maximise the safety of the public and construction staff, as well as the efficient movement of vehicles around the road network, with a specific focus around the pipeline development construction corridor. Traffic Controllers will likely be required in locations where trenching across a road is undertaken, and for example, where as a result stop-go is to be used to control traffic.

5.5 Route Maintenance

The construction works may have the potential to impact on the condition of both local and Forests NSW roads. The steps outlined in **Section 4.4.6** should be followed to ensure condition is appropriately monitored and any repairs are completed in a timely and efficient manner.

5.6 Construction Staff Parking

As stated, the majority of construction staff will be transported to and from pipeline development construction sites by minibus whenever possible. Notwithstanding, on-site parking for all construction staff and trucks will be provided throughout the construction. The location of parking areas, and the number of spaces, is expected to vary through the different construction stages, though overall demand even during peak construction periods is expected to be very minor. Most importantly, all parking will be provided on-site at all times, and the locations will be detailed in the CTMP

5.7 Driver Code of Conduct and Inductions

All drivers are to be familiar with the Driver Code of Conduct before attending the construction site. A copy of the Code is included in **Appendix A**.

All subcontractors must be inducted by the Project Manager to ensure that the procedures are met for all vehicles entering and exiting the construction site. The Project Manager will monitor the roads leading to and from the construction site and take all necessary steps to rectify any road deposits caused by site vehicles.

Vehicle movements to, from and within the pipeline development construction corridor will occur in a manner which does not create unreasonable or unnecessary noise or vibration. No tracked vehicles will be permitted or required on any paved roads. Public roads and access points will not be obstructed by any materials, vehicles, refuse skips or the like, under any circumstances.

In accordance RMS requirements, all vehicles transporting loose materials would have the entire load covered and/or secured to prevent any large items, excess dust or dirt particles depositing onto the roadway during travel to and from the site.

5.8 Development of Monitoring Program

The development of a program to monitor the effectiveness of the CTMP shall be established by the Project Manager. The following tasks are recommended for consideration when developing the processes and tasks involved in monitoring the CTMP:

- The CTMP should be subject to ongoing review by the Project Manager and other key construction staff and where appropriate updated accordingly. As a minimum, a review of the CTMP should occur monthly, however a weekly review is preferred.
- All and any CTMP reviews should be fully documented, and include:
 - Tracking deliveries against the estimated volumes.
 - To identify any shortfalls and develop an updated action plan to address issues that may arise during construction (parking and access issues).
 - To ensure TCP's are updated (if necessary) by "Prepare a Work Zone Traffic Management Plan" card holders to ensure they remain consistent with the set-up on-site.
 - Regular checks undertaken to ensure all loads are leaving site covered as outlined within the CTMP.

5.9 Communications Strategy

The communications strategy will outline the most effective communication methods to ensure adequate information for the community and assist the project team to deliver the traffic changes with minimal disruption to the road network.

All surrounding occupants shall be notified of any work that is deemed disruptive to the surrounding network prior to commencement. Ongoing communication is also proposed so that all stakeholders are kept up to date of works and potential impacts. Nearby property owners that may be affected by the construction works will be included in the communications strategy.

The details for key contacts that may be affected by the construction of the pipeline and ancillary works have been identified below, and therefore shall be included in the communications strategy.

Table 18: Stakeholder Communication List

Relevant Stakeholders	
Government Agencies	<ul style="list-style-type: none"> ▪ Roads and Maritime Services (RMS) ▪ Department of Planning and Environment (DPE) ▪ Transport for NSW (TfNSW) ▪ Forestry Corporation of NSW ▪ Crown Lands
Local Government Representatives	<ul style="list-style-type: none"> ▪ Lithgow Council ▪ Bathurst Council ▪ Blayney Council ▪ Cabonne Council
Emergency Services	<ul style="list-style-type: none"> ▪ Police ▪ Fire and Rescue ▪ Ambulance
Other interested Parties	<ul style="list-style-type: none"> ▪ Regis Resources
Surrounding Landowners	<ul style="list-style-type: none"> ▪ As required
Community Groups	<ul style="list-style-type: none"> ▪ Blayney to Bathurst cycle event organisers (B2B) ▪ Sunny Corner Trail Bike Ride ▪ Bathurst Light Car Club ▪ Classic Car Rally organisers

6 Operational Traffic Assessment

6.1 Operational Traffic Generation

Once the pipeline development is operational, it will generate very little traffic on a daily basis. Scheduled maintenance works would be expected to be undertaken periodically but given the small number of staff required for this type of work, the maximum trip generation along the pipeline corridor during these periods is expected to be less than four vehicle trips per day which would primarily be for inspections, vegetation clearing, and maintenance (if required).

These additional trips would utilise the same routes as determined for use during the construction phase, noting that should maintenance trucks be required, they would travel only via the designated construction truck routes. Construction routes will be developed using the principles outlined in section 4.2.

6.1.1 Pipeline emptying

The pipeline may require emptying for maintenance and emergency drainage. Dewatering would be undertaken in sections using the installed isolation valves to isolate the pipeline into discrete sections and scour valves to allow the pipeline to be drained to water tankers. Scour valves will be located approximately every 1 to 2 km along the pipeline corridor in close proximity to roads to allow for water tanker access. It is expected that minimal queuing of water tankers will be required as the pipeline can be dewatered at multiple locations along the 90 km length, ensuring any traffic impacts are diffuse and periodic.

6.2 Operational Traffic Impacts

Given the very low levels of traffic generation associated with the operation of the pipeline development, it will have no material impact on the operation of the local road network.

6.3 Staff Parking

All maintenance staff parking will be provided in the boundary of pumping station facility compounds. Therefore, no on-street parking would be generated by the pipeline development operations.

7 Recommended Mitigation Measures

Referencing the above information, it is proposed that the following mitigation measures be undertaken in order to offset any construction impacts. The measures are as follows:

- Pipeline construction:
 - Planning of all appropriate routes to travel to and from site,
 - Discussions with Council, Forestry Corporation and RMS will be undertaken to identify all (if any) roads of interest to be assessed in order to quantifiably measure the condition of the road before and after construction.
 - Providing options for workers to carpool to and from site,
 - Ensuring that gates to and from site (whether it be Forestry or private lands) are locked at all times outside of manned construction hours.
 - Continual review of the CTMP to identify any shortfalls and develop an updated action plan to address said issues.
- Road occupancy:
 - In order to reduce the impact on any and all roads, it is proposed to complete the job in the shortest reasonable duration,
 - To improve road safety, TCPs are to be prepared for all works to be undertaken,
 - Prior to travel, drivers must be aware of the Driver Code of Conduct, which is to be handed to all construction employees,
 - Public roads and access points will not be obstructed by any materials, vehicles, skips or the like, under any circumstance,
 - All loads travelling to and from site shall be covered at all times,
- Notification processes:
 - Notification of any adjoining residents or businesses will be undertaken prior to construction. It is proposed that all affected properties will be notified at least 14 days in advance of any impacts (including road closures),
 - Appropriate approvals must be obtained prior to construction in the relevant area from private residences, utilities easements, forestry corporation and any other site that needs preapproved access.

8 Conclusions

Ason Group has been commissioned by Regis to examine the access, traffic and parking characteristics of the pipeline development. Further to our assessment Ason Group has concluded that:

- The peak period of traffic generation associated with the project will be during construction, which is estimated to be completed over 12 months. During the pipeline development construction:
 - The light vehicle traffic generation is very moderate, estimated at up to 30 vehicle trips per day.
 - Construction trucks would generate on average 32 truck movements per day.
 - All construction vehicles will use dedicated construction routes between the individual pipeline development construction sites and the regional road network.
 - With reference to all applicable road capacity guidelines, the introduction of the peak pipeline development construction traffic will have no significant impact on the operation or capacity of key regional, urban, local or unsealed roads and intersections providing access to each of the pipeline development construction sites.
 - Appropriate mechanisms – including site-specific TCPs - can be established to monitor the condition of the unsealed roads providing access to the pipeline development construction site such that access is maintained (for public and construction vehicles) at all times.
 - Once operational, the site will generate only a very minor number of trips associated with occasional maintenance requirements.
 - All light and heavy vehicle parking throughout both the construction and operational phases will be provided off-road in or adjacent to pipeline development construction on-sites.
 - Appropriate management conditions can be introduced to ensure that all roads are maintained to an appropriate standard throughout and after the pipeline development construction phase.
 - A Construction Traffic Management Plan will be formalised prior to the commencement of the pipeline development construction for approval by the relevant Local and State Government authorities.

Appendix A

Driver Code of Conduct

- Driver Code of Conduct -

Drivers Code of Conduct

Safe Driving Policy: McPhillamys Gold Project, Blayney – Pipeline Constructions and Associated works

Objectives of the Drivers Code of conduct

- To minimise the impact of earthworks and construction on the local and regional road network;
- Minimise conflict with other road users;
- Minimise road traffic noise; and
- Ensure truck drivers use specified routes

Code of Conduct

All vehicle operators accessing the site must:

- Take reasonable care for his or her own personal health and safety.
- Not adversely, by way of actions or otherwise, impact on the health and safety of other persons.
- Notify their employer if they are not fit for duty prior to commencing their shift.
- Obey all applicable road rules and laws at all times.
- In the event an emergency vehicle behind your vehicle, pull over and allow the emergency vehicle to pass immediately.
- Obey the applicable driving hours in accordance with legislation and take all reasonable steps to manage their fatigue and not drive with high levels of drowsiness.
- Obey all on-site signposted speed limits and comply with directions of traffic control supervisors in relation to movements in and around temporary or fixed work areas.
- Ensure all loads are safely restrained, as necessary.
- Operate their vehicles in a safe and professional manner, with consideration for all other road users.
- Hold a current Australian State or Territory issued driver's licence.
- Notify their employer or operator immediately should the status or conditions of their driver's license change in any way.
- Comply with other applicable workplace policies, including a zero tolerance of driving while under the influence of alcohol and/or illicit drugs.

- Not use mobile phones when driving a vehicle or operating equipment. If the use of a mobile device is required, the driver shall pull over in a safe and legal location prior to the use of any mobile device.
- Advise management of any situations in which you know, or think may, present a threat to workplace health and safety.
- Drive according to prevailing conditions (such as during inclement weather) and reduce speed, if necessary.
- Have necessary identification documentation at hand and ready to present to security staff on entry and departure from the site, as necessary, to avoid unnecessary delays to other vehicles.
- Be inducted by Regis and follow protocol when working within Forestry area. This includes but is not limited to regular “check ins” at pre-arranged times to the Regis Safety Officer; carrying at least 4L of potable water, first aid kit, snake bite kit and the correct firefighting equipment.

Crash or incident Procedure

- Stop your vehicle as close to it as possible to the scene, making sure you are not hindering traffic. Ensure your own safety first, then help any injured people and seek assistance immediately if required.
- Ensure the following information is noted (if relevant):
 - Details of the other vehicles and registration numbers
 - Names and addresses of the other vehicle drivers
 - Names and addresses of witnesses
 - Insurers details
- Give the following information to the involved parties (if relevant):
 - Name, address and company details
- If the damaged vehicle is not occupied, provide a note with your contact details for the owner to contact the company.
- Ensure that the police are contacted should the following circumstances occur:
 - If there is a disagreement over the cause of the crash.
 - If there are injuries.
 - If you damage property other than your own.
- As soon as reasonably practical, report all details gathered to your manager.

Appendix B

Traffic Survey Results

Job No	N4731 - Lithgow Bathurst ATC
Client	ASON Group
Site	ATC1 - Piper Flat Road - 300m east of Irondale Road
Location	Portland
Site No	1
Start Date	18-Jan-19
Description	Volume Summary
Direction	Combined



Hour Starting	Day of Week							W'Day Ave 1997	7 Day Ave 1867
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	21-Jan	22-Jan	23-Jan	24-Jan	18-Jan	19-Jan	20-Jan		
AM Peak	138	132	137	160	160	150	132		
PM Peak	168	179	179	185	172	152	142		
0:00	9	9	12	11	12	13	14	11	11
1:00	6	2	3	3	1	12	8	3	5
2:00	2	3	4	7	4	3	3	4	4
3:00	3	10	8	5	10	6	5	7	7
4:00	2	11	6	6	10	9	4	7	7
5:00	20	36	41	41	40	19	13	36	30
6:00	100	109	101	95	63	38	27	94	76
7:00	104	87	98	87	90	56	41	93	80
8:00	124	128	124	158	115	79	56	130	112
9:00	112	116	121	134	118	113	83	120	114
10:00	119	132	137	152	160	96	89	140	126
11:00	138	125	133	160	133	150	132	138	139
12:00	118	129	148	137	148	141	109	136	133
13:00	123	133	115	134	146	129	115	130	128
14:00	129	143	167	150	164	152	142	151	150
15:00	167	178	179	156	153	141	139	167	159
16:00	168	179	165	185	138	97	104	167	148
17:00	127	133	140	167	172	120	116	148	139
18:00	98	97	80	119	124	87	58	104	95
19:00	54	46	57	84	80	48	73	64	63
20:00	37	54	57	56	70	47	50	55	53
21:00	41	58	38	50	61	38	35	50	46
22:00	30	26	23	35	35	26	18	30	28
23:00	12	17	13	11	20	20	8	15	14
Total	1843	1961	1970	2143	2067	1640	1442	1997	1867

7-19	1527	1580	1607	1739	1661	1361	1184	1623	1523
6-22	1759	1847	1860	2024	1935	1532	1369	1885	1761
6-24	1801	1890	1896	2070	1990	1578	1395	1929	1803
0-24	1843	1961	1970	2143	2067	1640	1442	1997	1867

Job No	N4731 - Lithgow Bathurst ATC
Client	ASON Group
Site	ATC2 - Sunny Corner Road - Btwn Sugarload Road & Kelly Boundary Road
Location	Portland
Site No	2
Start Date	18-Jan-19
Description	Volume Summary
Direction	Combined



Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	21-Jan	22-Jan	23-Jan	24-Jan	18-Jan	19-Jan	20-Jan		
AM Peak	9	15	14	12	10	21	15	131	148
PM Peak	11	15	13	14	12	44	22		
0:00	0	0	0	0	1	1	3	0	1
1:00	0	0	0	0	1	0	1	0	0
2:00	3	0	1	0	0	0	1	1	1
3:00	2	1	1	1	0	0	1	1	1
4:00	0	1	0	1	1	0	0	1	0
5:00	1	0	1	2	2	1	3	1	1
6:00	6	5	4	6	9	4	0	6	5
7:00	7	10	14	12	7	9	8	10	10
8:00	9	11	11	10	5	14	7	9	10
9:00	9	7	10	9	4	12	3	8	8
10:00	7	15	10	10	7	10	15	10	11
11:00	4	8	5	6	10	21	13	7	10
12:00	10	7	10	8	10	10	14	9	10
13:00	7	10	6	9	10	12	22	8	11
14:00	11	12	13	4	8	15	21	10	12
15:00	8	11	9	14	10	44	18	10	16
16:00	6	15	11	6	10	7	12	10	10
17:00	10	11	11	8	12	13	8	10	10
18:00	11	7	3	13	8	12	4	8	8
19:00	0	4	5	8	6	8	9	5	6
20:00	5	2	2	4	6	5	4	4	4
21:00	0	2	0	4	2	2	3	2	2
22:00	0	0	1	0	4	2	3	1	1
23:00	0	0	0	2	2	4	1	1	1
Total	116	139	128	137	135	206	174	131	148

7-19	99	124	113	109	101	179	145	109	124
6-22	110	137	124	131	124	198	161	125	141
6-24	110	137	125	133	130	204	165	127	143
0-24	116	139	128	137	135	206	174	131	148

Job No	N4731 - Lithgow Bathurst ATC
Client	ASON Group
Site	ATC3 - Great Western Highway - West of Sibley Road
Location	Walang
Site No	3
Start Date	19-Jan-19
Description	Volume Summary
Direction	Combined



Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	21-Jan	22-Jan	23-Jan	24-Jan	25-Jan	19-Jan	20-Jan		
AM Peak	621	607	633	679	781	736	722	9651	9319
PM Peak	698	739	706	774	963	723	810		
0:00	48	63	74	77	80	63	48	68	65
1:00	56	75	84	78	88	40	33	76	65
2:00	44	68	55	56	62	36	24	57	49
3:00	56	70	70	74	80	38	15	70	58
4:00	92	108	114	90	100	48	27	101	83
5:00	190	172	212	219	206	114	57	200	167
6:00	459	422	412	418	395	229	140	421	354
7:00	592	525	539	580	522	384	219	552	480
8:00	565	536	574	679	644	538	329	600	552
9:00	621	521	633	553	695	604	419	605	578
10:00	589	574	615	623	674	736	592	615	629
11:00	589	607	586	569	781	721	722	626	654
12:00	603	612	570	636	781	723	740	640	666
13:00	648	569	609	651	775	678	738	650	667
14:00	624	631	665	699	900	633	755	704	701
15:00	646	693	668	690	948	627	810	729	726
16:00	698	739	706	756	963	543	730	772	734
17:00	592	572	626	774	895	492	620	692	653
18:00	382	408	437	520	680	390	515	485	476
19:00	251	288	263	330	521	250	359	331	323
20:00	197	203	216	243	403	231	210	252	243
21:00	138	169	175	193	293	193	177	194	191
22:00	101	110	103	111	178	101	126	121	119
23:00	60	78	82	102	129	89	71	90	87
Total	8841	8813	9088	9721	11793	8501	8476	9651	9319

7-19	7149	6987	7228	7730	9258	7069	7189	7670	7516
6-22	8194	8069	8294	8914	10870	7972	8075	8868	8627
6-24	8355	8257	8479	9127	11177	8162	8272	9079	8833
0-24	8841	8813	9088	9721	11793	8501	8476	9651	9319

Job No N4731 - Lithgow Bathurst ATC
Client ASON Group
Site ATC4 - O'Connell Road - 1km North of Tarana Road
Location Orton Park
Site No 4
Start Date 18-Jan-19
Description Volume Summary
Direction Combined



Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	21-Jan	22-Jan	23-Jan	24-Jan	18-Jan	19-Jan	20-Jan		
AM Peak	241	266	228	245	241	211	191	3455	3115
PM Peak	317	332	299	345	300	204	227		
0:00	6	4	8	4	10	9	17	6	8
1:00	9	7	8	12	8	6	5	9	8
2:00	10	20	11	9	15	5	8	13	11
3:00	18	23	27	28	27	8	6	25	20
4:00	44	35	42	38	31	15	6	38	30
5:00	117	127	120	121	128	42	27	123	97
6:00	139	174	177	198	168	57	39	171	136
7:00	209	224	213	194	211	80	52	210	169
8:00	241	266	228	245	236	153	97	243	209
9:00	225	224	207	231	231	168	147	224	205
10:00	197	196	199	214	241	205	170	209	203
11:00	221	211	209	221	229	211	191	218	213
12:00	203	198	209	201	248	204	227	212	213
13:00	201	208	198	221	240	195	180	214	206
14:00	225	228	224	269	266	195	194	242	229
15:00	267	243	294	281	300	167	181	277	248
16:00	317	332	299	345	293	159	174	317	274
17:00	253	249	270	282	251	150	141	261	228
18:00	164	204	168	192	173	100	110	180	159
19:00	80	68	94	107	112	75	83	92	88
20:00	39	66	49	76	67	40	34	59	53
21:00	33	60	41	55	76	54	42	53	52
22:00	20	35	22	41	53	31	24	34	32
23:00	9	18	25	21	48	25	16	24	23
Total	3247	3420	3342	3606	3662	2354	2171	3455	3115

7-19	2723	2783	2718	2896	2919	1987	1864	2808	2556
6-22	3014	3151	3079	3332	3342	2213	2062	3184	2885
6-24	3043	3204	3126	3394	3443	2269	2102	3242	2940
0-24	3247	3420	3342	3606	3662	2354	2171	3455	3115

Job No	N4731 - Lithgow Bathurst ATC
Client	ASON Group
Site	ATC5 - Lagoon Road - 1.4km North of Gorman's Hill Road
Location	Orton Park
Site No	5
Start Date	18-Jan-19
Description	Volume Summary
Direction	Combined



Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	21-Jan	22-Jan	23-Jan	24-Jan	18-Jan	19-Jan	20-Jan		
AM Peak	55	55	72	75	66	96	89	877	905
PM Peak	67	90	93	77	81	114	96		
0:00	2	0	1	2	3	7	3	2	3
1:00	0	1	0	1	0	3	2	0	1
2:00	0	0	0	0	0	3	2	0	1
3:00	0	0	1	0	3	2	2	1	1
4:00	5	3	4	1	3	1	0	3	2
5:00	7	8	16	7	14	10	5	10	10
6:00	35	32	29	39	31	19	12	33	28
7:00	43	38	39	48	49	20	10	43	35
8:00	49	50	65	62	51	42	32	55	50
9:00	43	44	62	69	66	67	87	57	63
10:00	55	52	72	75	51	96	89	61	70
11:00	53	55	52	65	58	93	78	57	65
12:00	61	66	60	64	55	84	85	61	68
13:00	48	74	51	63	70	114	88	61	73
14:00	67	67	64	76	63	70	86	67	70
15:00	48	76	74	77	81	98	96	71	79
16:00	66	65	93	62	72	86	75	72	74
17:00	56	90	71	70	76	76	65	73	72
18:00	41	45	54	53	50	54	33	49	47
19:00	30	45	24	30	40	34	30	34	33
20:00	20	41	16	23	33	24	15	27	25
21:00	20	21	20	26	27	20	7	23	20
22:00	8	14	19	6	12	13	2	12	11
23:00	1	4	6	4	14	6	0	6	5
Total	758	891	893	923	922	1042	904	877	905

7-19	630	722	757	784	742	900	824	727	766
6-22	735	861	846	902	873	997	888	843	872
6-24	744	879	871	912	899	1016	890	861	887
0-24	758	891	893	923	922	1042	904	877	905

Job No N4731 - Lithgow Bathurst ATC
Client ASON Group
Site ATC6 - Vale Road - 400m South of Lagoon Road
Location Orton Park
Site No 6
Start Date 18-Jan-19
Description Volume Summary
Direction Combined

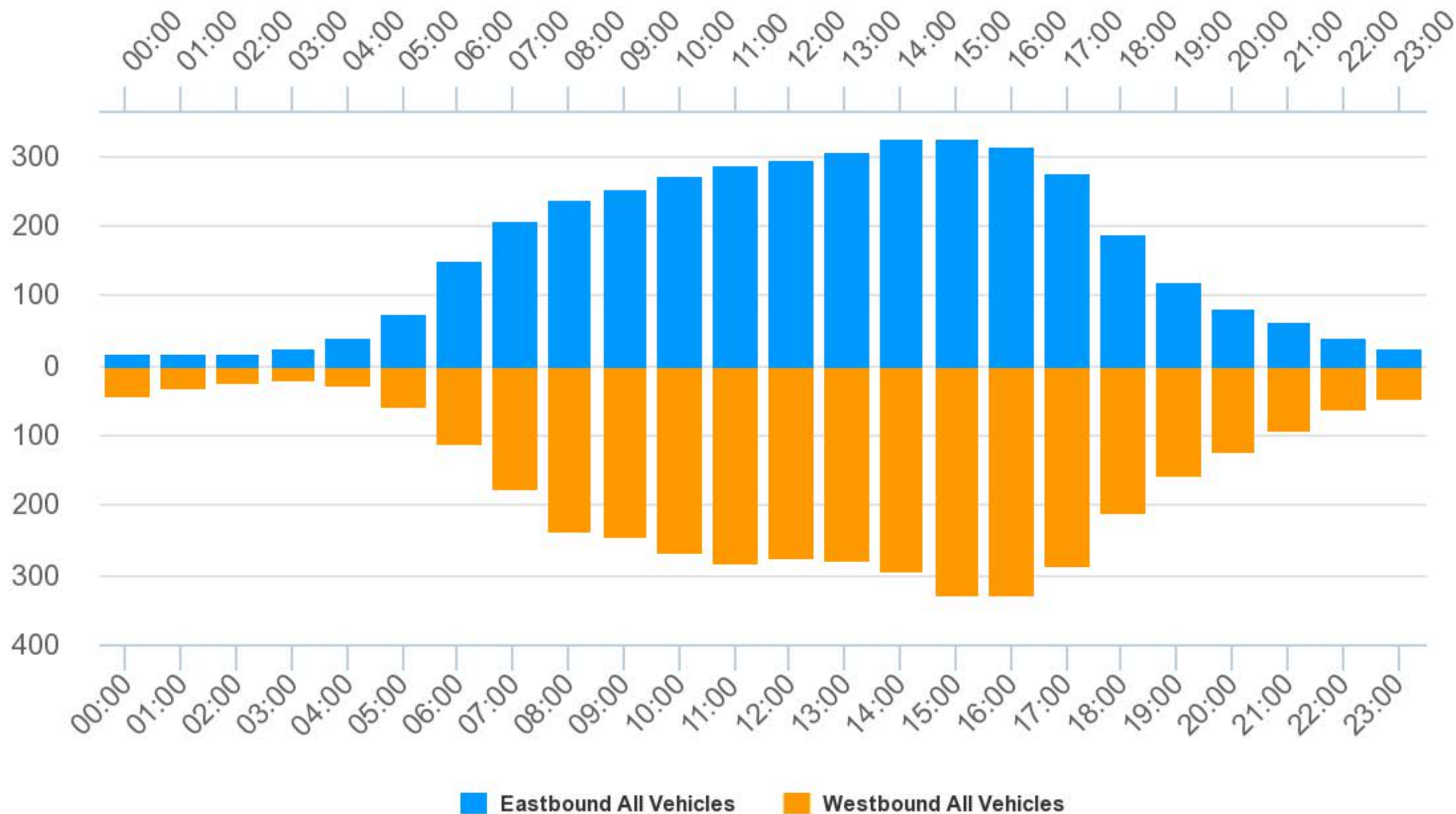


Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	21-Jan	22-Jan	23-Jan	24-Jan	18-Jan	19-Jan	20-Jan		
AM Peak	255	256	237	224	262	243	202	3106	2883
PM Peak	265	283	285	257	266	225	190		
0:00	4	8	7	9	11	16	12	8	10
1:00	2	4	8	3	4	8	8	4	5
2:00	3	3	1	1	6	2	8	3	3
3:00	5	3	2	3	1	4	1	3	3
4:00	11	10	18	9	13	9	5	12	11
5:00	50	60	64	68	74	22	9	63	50
6:00	145	166	148	159	149	67	36	153	124
7:00	183	196	185	182	196	104	60	188	158
8:00	255	256	237	224	262	140	91	247	209
9:00	198	225	218	211	216	200	143	214	202
10:00	188	193	208	200	219	216	195	202	203
11:00	191	211	176	174	208	243	202	192	201
12:00	199	204	212	204	183	220	190	200	202
13:00	189	220	173	188	218	225	173	198	198
14:00	230	199	204	216	206	158	169	211	197
15:00	191	218	199	236	230	215	160	215	207
16:00	236	283	244	243	266	164	150	254	227
17:00	265	282	285	257	235	150	125	265	228
18:00	182	167	159	192	188	148	104	178	163
19:00	88	102	87	116	115	91	72	102	96
20:00	56	88	60	93	96	60	63	79	74
21:00	56	52	52	61	71	63	42	58	57
22:00	34	33	40	40	58	38	27	41	39
23:00	13	18	12	11	30	33	12	17	18
Total	2974	3201	2999	3100	3255	2596	2057	3106	2883

7-19	2507	2654	2500	2527	2627	2183	1762	2563	2394
6-22	2852	3062	2847	2956	3058	2464	1975	2955	2745
6-24	2899	3113	2899	3007	3146	2535	2014	3013	2802
0-24	2974	3201	2999	3100	3255	2596	2057	3106	2883

99001 - Great Western Highway

Daily Profile for 16/10/2008 - 25/02/2019 | All Days | 00:00 - 24:00 | All Vehicles | Both Directions



Appendix C

Traffic Control Plans

Table 19: TCP Summary

TCP No	Filename	Scenario
01	0856-LS-01-McPhillamys_Gold Mine	A lateral shift for construction in the verge. It should be used for paved roads with speeds up to 60km/hr and where 2x 3.0m lanes can be maintained at all times.
02	0856-LS-02-McPhillamys_Gold Mine	A lateral shift for construction in the verge. It should be used for paved roads with speeds between 60km/hr and 80km/hr, and where 2x 3.0m lanes can be maintained at all times.
03	0856-LS-03-McPhillamys_Gold Mine	A lateral shift for construction in the verge. It should be used for paved roads with speeds between 80km/hr and 100km/hr, and where 2x 3.0m lanes can be maintained at all times.
04	0856-TCP-04-McPhillamys_Gold Mine	A TCP to be used when construction vehicles can park wholly within the verge, and not impact of the road at all
05	0856-SS-05-McPhillamys_Gold Mine	A Stop / Go scenario for sealed roads with speeds up to 60km/hr and 2 x3.0m lanes <u>cannot</u> be maintained.
06	0856-SS-06-McPhillamys_Gold Mine	A Stop / Go scenario for sealed roads with speeds between 60km/hr and 80km/hr and 2 x3.0m lanes <u>cannot</u> be maintained.
07	0856-SS-07-McPhillamys_Gold Mine	A Stop / Go scenario for sealed roads with speeds between 80km/hr and 100km/hr and 2 x3.0m lanes <u>cannot</u> be maintained.
08	0856-LS-08-Off Road_McPhillamys Gold Mine	A lateral shift for construction in the verge where construction does not encroach further than 1.0m into the roadway. It should be used for unsealed roads with speeds up to 60km/hr and where 2x 3.0m lanes can be maintained at all times.
09	0856-LS-09-Off Road_McPhillamys Gold Mine	A lateral shift for construction in the verge where construction does not encroach further than 1.0m into the roadway. It should be used for unsealed roads with speeds between 60km/hr and 80km/hr, and where 2x 3.0m lanes can be maintained at all times.
10	0856-LS-10-Off Road_McPhillamys Gold Mine	A lateral shift for construction in the verge where construction does not encroach further than 1.0m into the roadway. It should be used for unsealed roads with speeds between 80km/hr and 100km/hr, and where 2x 3.0m lanes can be maintained at all times.
11	0856-SS-11-Off Road_McPhillamys Gold Mine	A lateral shift for construction in the verge where construction does not encroach further than 1.0m into the roadway. It should be used for unsealed roads with speeds up to 60km/hr and where 2x 3.0m lanes <u>cannot</u> be maintained at all times.
12	0856-LS-12-SCS_McPhillamys Gold Mine	A lateral shift within the SCS State Forest and for construction in the verge where construction does not encroach further than 1.0m into the roadway. It should be used for unsealed roads with speeds up to 60km/hr and where 2x 3.0m lanes can be maintained at all times.
13	0856-SS-13-SCS_McPhillamys Gold Mine	A Stop / Go scenario within the SCS Forest with speeds between up to 60km/hr and 2 x3.0m lanes <u>cannot</u> be maintained.

14	0856-TCP-14-SCS_McPhillamys Gold Mine	Example detour route where a trafficable lane of 3.0m or more cannot be provided.
15	0856-Detour-15-McPhillamys Gold Mine, Blayney	Site Specific Detour Route TCP if Gardner's Road is closed due to construction crossing the road.
16	0856-Detour-16-McPhillamys Gold Mine, Blayney	Another Site-Specific Detour Route TCP in which Gardner's Road remains open due to construction occurring along SCS State Forest Roads
17	0856-Detour-17-McPhillamys Gold Mine, Bathurst	Site Specific Detour Route TCP when Gulf Boundary Road is closed due to construction within the road reserve.
18	0856-Detour-18-McPhillamys Gold Mine, Lithgow	Site Specific Detour Route TCP when Kelly Boundary Road is closed due to construction within the road reserve.
19	0856-Detour-19-McPhillamys Gold Mine, Blayney	Site Specific Detour Route TCP when sections of Bourkes Road are closed due to construction within the road reserve.

Installed as per TCP and in accordance with any changes, as shown on TCP.

Team leader (on site):

Signature:

Date:

Ticket: Orange/Red/Yellow (Circle appropriate ticket):




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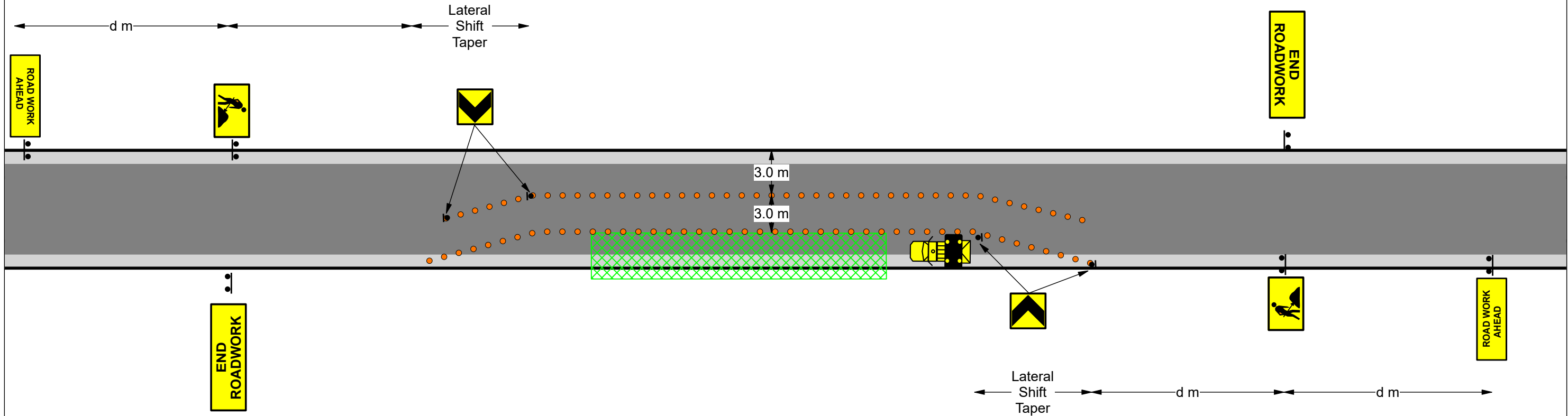
Reason for modification:

Conditions to be met
for use of this TCP:

Road Speed:	Upto 60 km/hr	Yes
	Between 60 & 80 km/hr	No
	Between 80 & 100 km/hr	No
Dimension D:	d = Distance expressed in metres	
	Between 45 & 55 km/hr	15m
	Between 56 & 65km/hr	45m
	Greater than 65km/hr	Equal to speed of traffic
Lateral Shift:	Between 46 & 55 km/hr	15 m
	Between 56 & 65 km/hr	30 m
	Between 66 & 75 km/hr	70 m
	Between 76 & 85 km/hr	80 m
	Between 86 & 95 km/hr	90 m
	Between 96 & 105 km/hr	100 m
Lane Width:	Both lanes MUST have a minimum of 3.0m width	

Key:

Cones	
Construction Zone	
Work Vehicle	



NOTES

- All vehicles to have flashing orange lights
- Ensure signs are visible to vehicles
- Cover vehicle required for hard protection while TC's or workers are exposed to live traffic
- All staff to have reflective safety vests
- All signs to be Class 1 retro-reflective
- Maintain daily logs of ALL activities
- This PVMP is drawn in accordance with AS1742.3, the RTA's TCWS Manual & WHS Manual

- All staff to have reflective safety vests
- All trucks are to have prior notice of UHF channel to radio Foreman on arrival

Closure:

Lateral Shift

Client:

Regis Resources

Project:

Job No: 0856
Address: Multiple Locations - Refer to Conditions above

Drawing Title:

0856-LS-01-McPhillamys_Gold Mine

Date:

15/02/2019

Scale @ A3:

Drawing Number:
AG.01

asongroup

DESIGNER: JAMES LAIDLER
CERT: 0034322012

Handwritten signature

Installed as per TCP and in accordance with any changes, as shown on TCP.

Team leader (on site):

Signature:

Date:

Ticket: Orange/Red/Yellow (Circle appropriate ticket):




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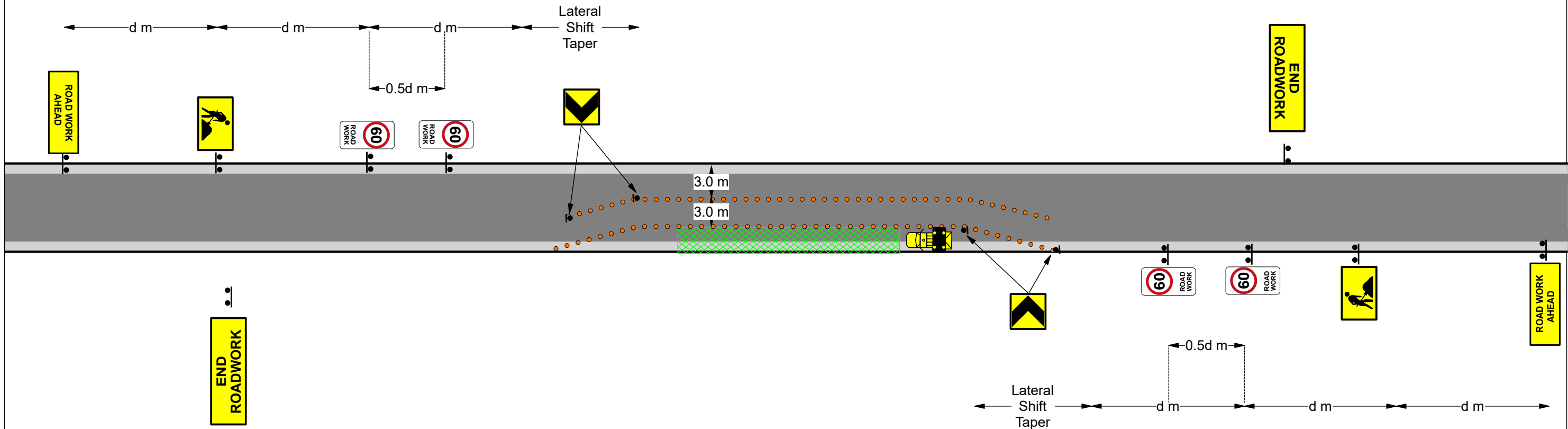
Reason for modification:

Conditions to be met
for use of this TCP:

Road Speed:	Upto 60 km/hr	No
	Between 60 & 80 km/hr	Yes
	Between 80 & 100 km/hr	No
	Greater than 100 km/hr	No
Dimension D:	d = Distance expressed in metres	
	Between 45 & 55 km/hr	15m
	Between 56 & 65km/hr	45m
	Greater than 65km/hr	Equal to speed of traffic
	Greater than 100 km/hr	Equal to speed of traffic
Lateral Shift:	Between 46 & 55 km/hr	15 m
	Between 56 & 65 km/hr	30 m
	Between 66 & 75 km/hr	70 m
	Between 76 & 85 km/hr	80 m
	Between 86 & 95 km/hr	90 m
	Between 96 & 105 km/hr	100 m
Lane Width:	Both lanes MUST have a minimum of 3.0m width	

Key:

Cones	
Construction Zone	
Work Vehicle	



NOTES

- All vehicles to have flashing orange lights
- Ensure signs are visible to vehicles
- Cover vehicle required for hard protection while TC's or workers are exposed to live traffic
- All staff to have reflective safety vests
- All signs to be Class 1 retro-reflective
- Maintain daily logs of ALL activities
- This PVMP is drawn in accordance with AS1742.3, the RTA's TCWS Manual & WHS Manual

- All staff to have reflective safety vests
- All trucks are to have prior notice of UHF channel to radio Foreman on arrival

Closure:

Lateral Shift

Client:

Regis Resources

Project:

Job No: 0856
Address: Multiple Locations - Refer to Conditions above

Drawing Title:

0856-LS-02-McPhillamys_Gold Mine

Date:

15/02/2019

Scale @ A3:

Drawing Number:
AG.02

asongroup

DESIGNER: JAMES LAIDLER
CERT: 0034322012

Handwritten signature

Installed as per TCP and in accordance with any changes, as shown on TCP.

Team leader (on site):

Signature:

Date:

Ticket: Orange/Red/Yellow (Circle appropriate ticket):




Ticket No:

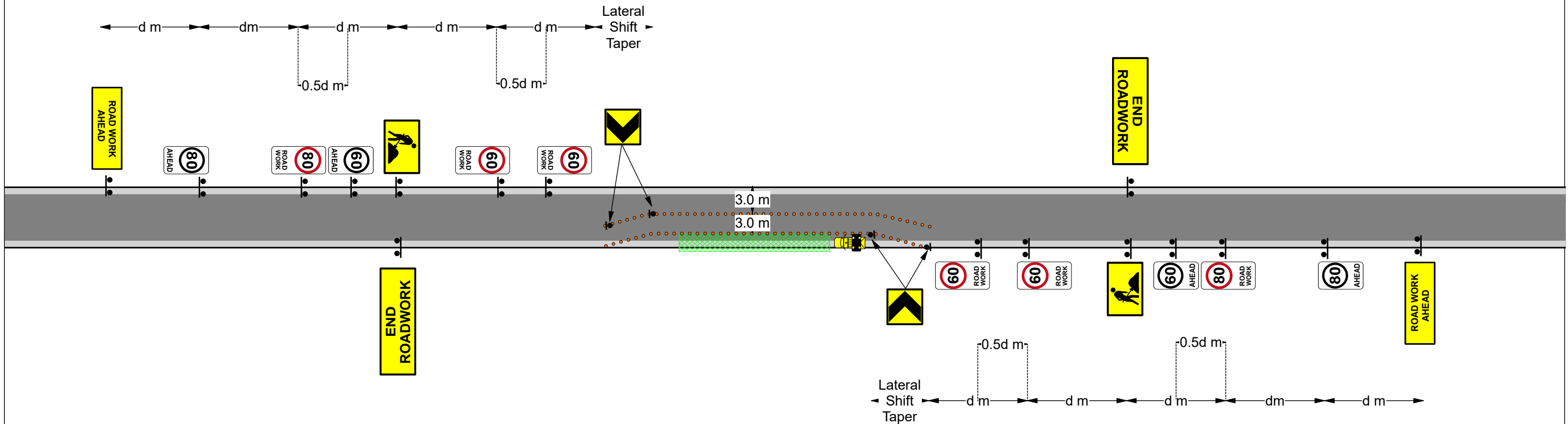
Reason for modification:

Conditions to be met
for use of this TCP:

Road Speed:	Upto 60 km/hr	No
	Between 60 & 80 km/hr	No
	Between 80 & 100 km/hr	Yes
	Greater than 65km/hr	Equal to speed of traffic
Dimension D:	d = Distance expressed in metres	
	Between 45 & 55 km/hr	15m
	Between 56 & 65km/hr	45m
	Greater than 65km/hr	Equal to speed of traffic
	Between 46 & 55 km/hr	15 m
	Between 56 & 65 km/hr	30 m
Lateral Shift:	Between 66 & 75 km/hr	70 m
	Between 76 & 85 km/hr	80 m
	Between 86 & 95 km/hr	90 m
	Between 96 & 105 km/hr	100 m
	Between 66 & 75 km/hr	70 m
	Between 76 & 85 km/hr	80 m
Lane Width:	Both lanes MUST have a minimum of 3.0m width	

Key:

Cones	
Construction Zone	
Work Vehicle	



NOTES

- All vehicles to have flashing orange lights
- Ensure signs are visible to vehicles
- Cover vehicle required for hard protection while TC's or workers are exposed to live traffic
- All staff to have reflective safety vests
- All signs to be Class 1 retro-reflective
- Maintain daily logs of ALL activities
- This PVMP is drawn in accordance with AS1742.3, the RTA's TCWS Manual & WHS Manual

- All staff to have reflective safety vests
- All trucks are to have prior notice of UHF channel to radio Foreman on arrival

Closure:

Lateral Shift

Client:

Regis Resources

Project:

Job No: 0856
Address: Multiple Locations - Refer to Conditions above

Drawing Title:

0856-LS-03-McPhillamys_Gold Mine

Date:

15/02/2019

Scale @ A3:

Drawing Number:
AG.03

asongroup

DESIGNER: JAMES LAIDLER
CERT: 0034322012

Handwritten signature

Installed as per TCP and in accordance with any changes, as shown on TCP.

Team leader (on site):

Signature:

Date:

Ticket: Orange/Red/Yellow (Circle appropriate ticket):

Ticket No:

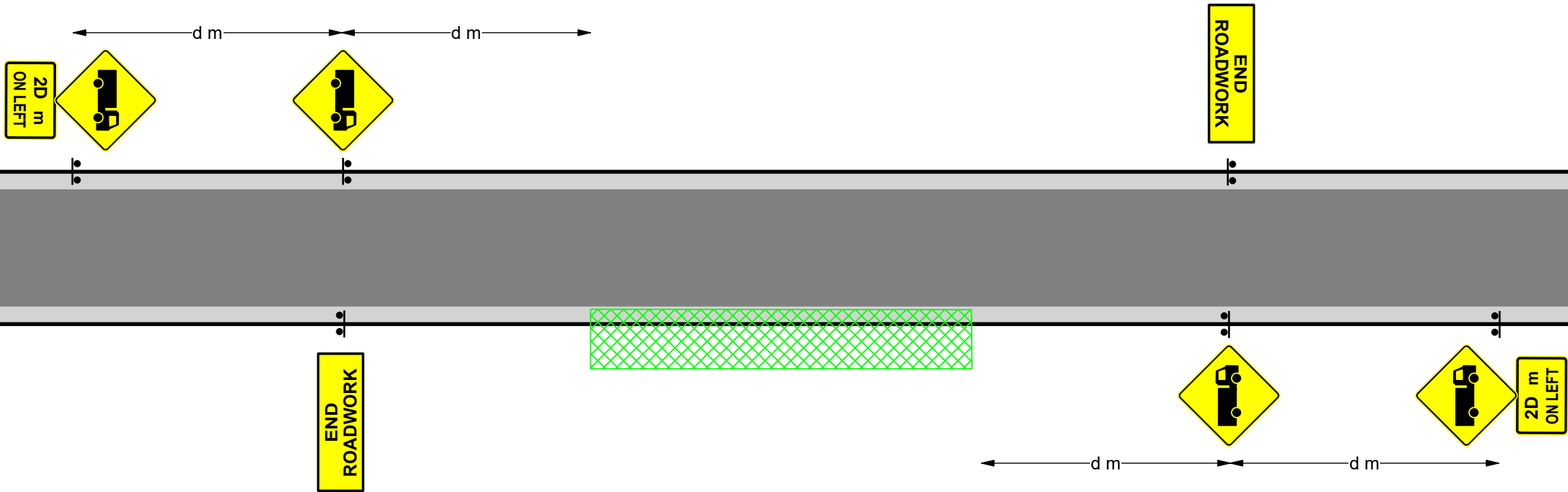
Reason for modification:

**Conditions to be met
for use of this TCP:**

Road Speed:	Upto 60 km/hr	Yes
	Between 60 & 80 km/hr	Yes
	Between 80 & 100 km/hr	Yes
Dimension D:	d = Distance expressed in metres	
	Between 45 & 55 km/hr	15m
	Between 56 & 65km/hr	45m
	Greater than 65km/hr	Equal to speed of traffic
Road Speed:	Upto 60 km/hr	Yes
	Between 60 & 80 km/hr	Yes
	Between 80 & 100 km/hr	Yes

Key:

Construction
Zone



NOTES

- All vehicles to have flashing orange lights
- Ensure signs are visible to vehicles
- Cover vehicle required for hard protection while TC's or workers are exposed to live traffic
- All staff to have reflective safety vests
- All signs to be Class 1 retro-reflective
- Maintain daily logs of ALL activities
- This PVMP is drawn in accordance with AS1742.3, the RTA's TCWS Manual & WHS Manual

- All staff to have reflective safety vests
- All trucks are to have prior notice of UHF channel to radio Foreman on arrival

Closure:

Lateral Shift

Client:

Regis Resources

Project:

Job No: 0856
Address: Multiple Locations - Refer to Conditions above

Drawing Title:

0856-TCP-04-McPhillamys_Gold Mine

Date:

15/02/2019

Scale @ A3:

Drawing Number:
AG.04

asongroup

DESIGNER: JAMES LAIDLER
CERT: 0034322012

Installed as per TCP and in accordance with any changes, as shown on TCP.

Team leader (on site):

Signature:

Date:

Ticket: Orange/Red/Yellow (Circle appropriate ticket):




Ticket No:

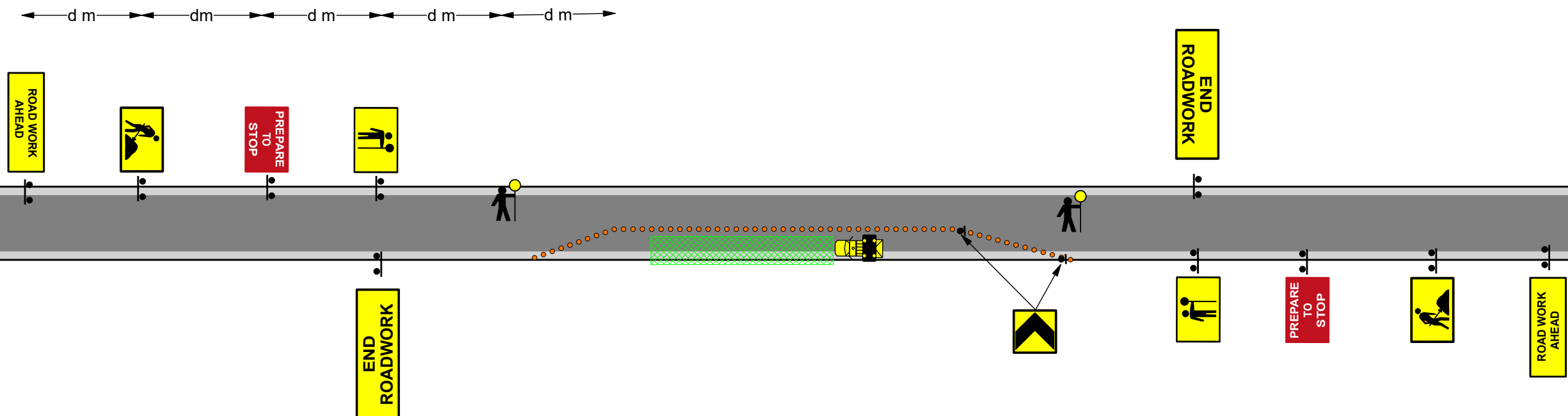
Reason for modification:

**Conditions to be met
for use of this TCP:**

Road Speed:	Upto 60 km/hr	Yes
	Between 60 & 80 km/hr	No
	Between 80 & 100 km/hr	No
Dimension D:	d = Distance expressed in metres	
	Between 45 & 55 km/hr	15m
	Between 56 & 65km/hr	45m
	Greater than 65km/hr	Equal to speed of traffic
Lateral Shift:	Between 46 & 55 km/hr	15 m
	Between 56 & 65 km/hr	30 m
	Between 66 & 75 km/hr	70 m
	Between 76 & 85 km/hr	80 m
	Between 86 & 95 km/hr	90 m
	Between 96 & 105 km/hr	100 m
Lane Width:	Lane MUST have a minimum of 3.0m width	

Key:

Cones	
Construction Zone	
Work Vehicle	



NOTES

- All vehicles to have flashing orange lights
- Ensure signs are visible to vehicles
- Cover vehicle required for hard protection while TC's or workers are exposed to live traffic
- All staff to have reflective safety vests
- All signs to be Class 1 retro-reflective
- Maintain daily logs of ALL activities
- This PVMP is drawn in accordance with AS1742.3, the RTA's TCWS Manual & WHS Manual

- All staff to have reflective safety vests
- All trucks are to have prior notice of UHF channel to radio Foreman on arrival

Closure:

Stop Slow

Client:

Regis Resources

Project:

Job No: 0856
Address: Multiple Locations - Refer to
Conditions above

Drawing Title:

0856-SS-05-McPhillamys_Gold Mine

		Date:
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15/02/2019

Scale @ A3:

Drawing Number:
AG.05

asongroup

DESIGNER: JAMES LAIDLER
CERT: 0034322012

Händler

Installed as per TCP and in accordance with any changes, as shown on TCP.

Team leader (on site):

Signature:

Date:

Ticket: Orange/Red/Yellow (Circle appropriate ticket):




Ticket No:

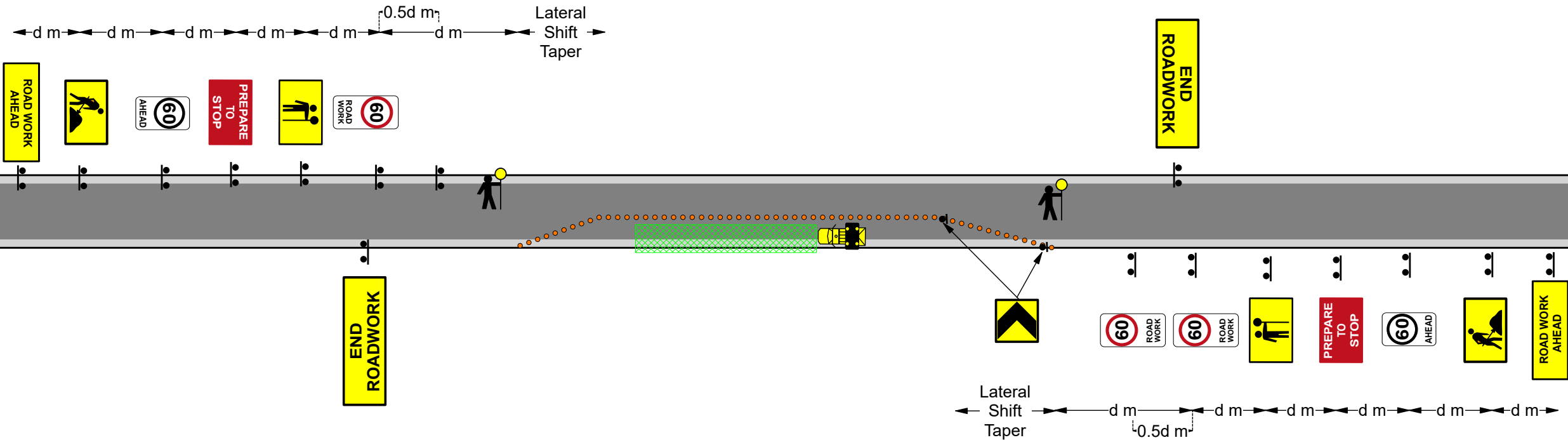
Reason for modification:

Conditions to be met
for use of this TCP:

Road Speed:	Upto 60 km/hr	No
	Between 60 & 80 km/hr	Yes
	Between 80 & 100 km/hr	No
	Greater than 100 km/hr	No
Dimension D:	d = Distance expressed in metres	
	Between 45 & 55 km/hr	15m
	Between 56 & 65km/hr	45m
	Greater than 65km/hr	Equal to speed of traffic
	Greater than 100 km/hr	Equal to speed of traffic
Lateral Shift:	Between 46 & 55 km/hr	15 m
	Between 56 & 65 km/hr	30 m
	Between 66 & 75 km/hr	70 m
	Between 76 & 85 km/hr	80 m
	Between 86 & 95 km/hr	90 m
	Between 96 & 105 km/hr	100 m
Lane Width:	Lane MUST have a minimum of 3.0m width	

Key:

Cones	
Construction Zone	
Work Vehicle	



NOTES

- All vehicles to have flashing orange lights
- Ensure signs are visible to vehicles
- Cover vehicle required for hard protection while TC's or workers are exposed to live traffic
- All staff to have reflective safety vests
- All signs to be Class 1 retro-reflective
- Maintain daily logs of ALL activities
- This PVMP is drawn in accordance with AS1742.3, the RTA's TCWS Manual & WHS Manual

- All staff to have reflective safety vests
- All trucks are to have prior notice of UHF channel to radio Foreman on arrival

Closure:

Stop Slow

Client:

Regis Resources

Project:

Job No: 0856
Address: Multiple Locations - Refer to Conditions above

Drawing Title:

0856-SS-06-McPhillamys_Gold Mine

Date:

15/02/2019

Scale @ A3:

Drawing Number:
AG.06

asongroup

DESIGNER: JAMES LAIDLER
CERT: 0034322012

Handwritten signature

Installed as per TCP and in accordance with any changes, as shown on TCP.

Team leader (on site):

Signature:

Date:

Ticket: Orange/Red/Yellow (Circle appropriate ticket):




Ticket No:

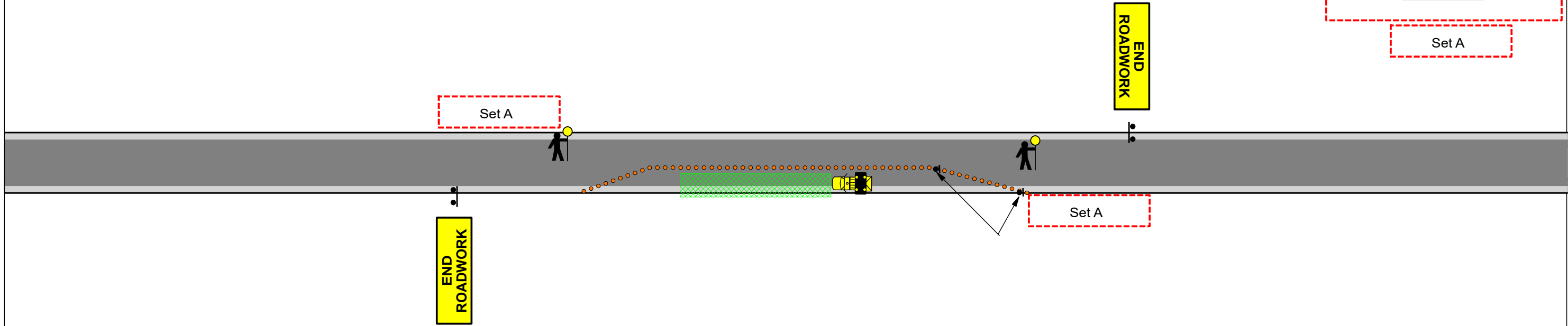
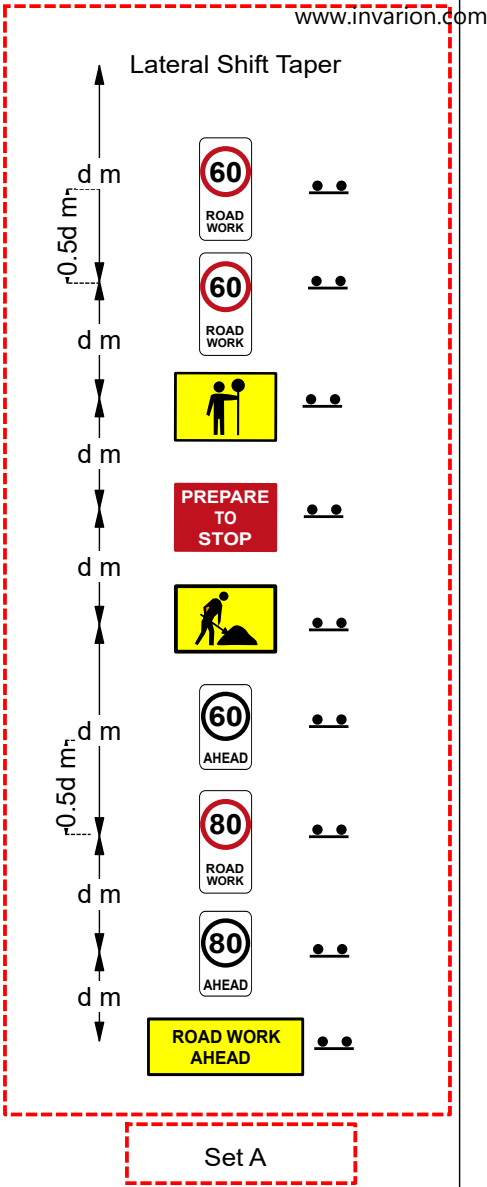
Reason for modification:

Conditions to be met
for use of this TCP:

Road Speed:	Upto 60 km/hr	No
	Between 60 & 80 km/hr	No
	Between 80 & 100 km/hr	Yes
Dimension D:	d = Distance expressed in metres	
	Between 45 & 55 km/hr	15m
	Between 56 & 65km/hr	45m
	Greater than 65km/hr	Equal to speed of traffic
Lateral Shift:	Between 46 & 55 km/hr	15 m
	Between 56 & 65 km/hr	30 m
	Between 66 & 75 km/hr	70 m
	Between 76 & 85 km/hr	80 m
	Between 86 & 95 km/hr	90 m
Lane Width:	Between 96 & 105 km/hr	100 m
	Lane MUST have a minimum of 3.0m width	

Key:

Cones	
Construction Zone	
Work Vehicle	



NOTES

- All vehicles to have flashing orange lights
- Ensure signs are visible to vehicles
- Cover vehicle required for hard protection while TC's or workers are exposed to live traffic
- All staff to have reflective safety vests
- All signs to be Class 1 retro-reflective
- Maintain daily logs of ALL activities
- This PVMP is drawn in accordance with AS1742.3, the RTA's TCWS Manual & WHS Manual

- All staff to have reflective safety vests
- All trucks are to have prior notice of UHF channel to radio Foreman on arrival

Closure:

Stop Slow

Client:

Regis Resources

Project:

Job No: 0856
Address: Multiple Locations - Refer to Conditions above

Drawing Title:

0856-SS-07-McPhillamys_Gold Mine

Date:

15/02/2019

Scale @ A3:

Drawing Number:
AG.07

asongroup

DESIGNER: JAMES LAIDLER
CERT: 0034322012

Handwritten signature

Installed as per TCP and in accordance with any changes, as shown on TCP.

Team leader (on site):

Signature:

Date:

Ticket: Orange/Red/Yellow (Circle appropriate ticket):




Ticket No:

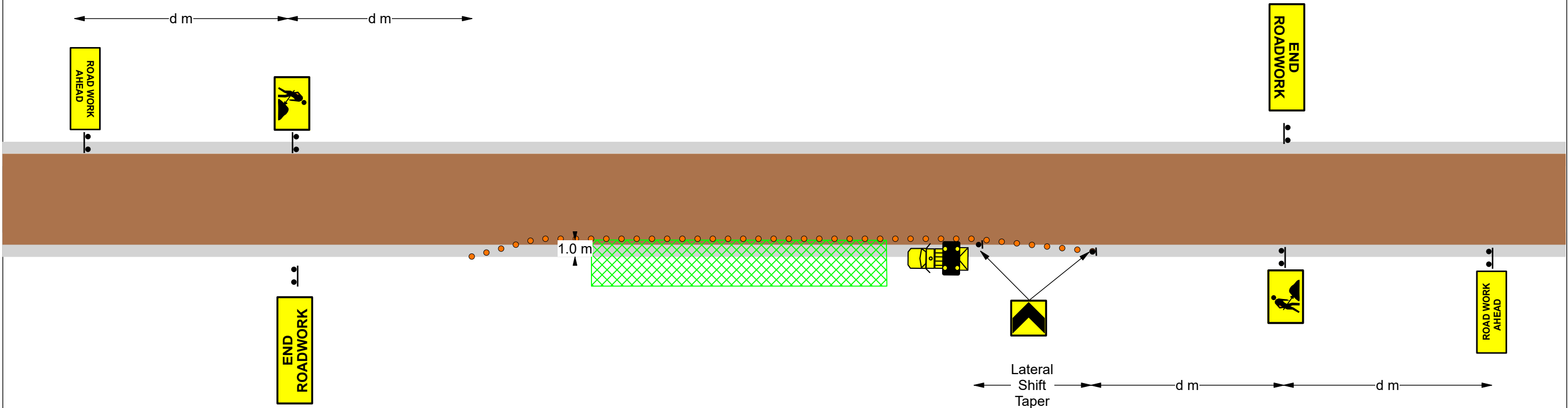
Reason for modification:

Conditions to be met
for use of this TCP:

Road Speed:	Upto 60 km/hr	Yes
	Between 60 & 80 km/hr	No
	Between 80 & 100 km/hr	No
Dimension D:	d = Distance expressed in metres	
	Between 45 & 55 km/hr	15m
	Between 56 & 65km/hr	45m
	Greater than 65km/hr	Equal to speed of traffic
Lateral Shift:	Between 46 & 55 km/hr	15 m
	Between 56 & 65 km/hr	30 m
	Between 66 & 75 km/hr	70 m
	Between 76 & 85 km/hr	80 m
	Between 86 & 95 km/hr	90 m
	Between 96 & 105 km/hr	100 m
Lane Width:	Trafficable lanes MUST have a minimum of 3.0m in width	
Work Location:	For ALL work within the Verge. Work MUST NOT encroach more than 1.0m into the existing roadway.	

Key:

Cones	
Construction Zone	
Work Vehicle	



NOTES

- All vehicles to have flashing orange lights
- Ensure signs are visible to vehicles
- Cover vehicle required for hard protection while TC's or workers are exposed to live traffic
- All staff to have reflective safety vests
- All signs to be Class 1 retro-reflective
- Maintain daily logs of ALL activities
- All staff to have reflective safety vests
- All trucks are to have prior notice of UHF channel to radio Foreman on arrival

Closure:

Lateral Shift
Unsealed Roads
Works in a Verge

Client:

Regis Resources

Project:

Job No: 0856
Address: Multiple Locations - Refer to
Conditions above

Drawing Title:

0856-LS-08-Off Road_McPhillamys Gold Mine

Date:

18/02/2019

Scale @ A3:

Drawing Number:
AG.08

asongroup

DESIGNER: JAMES LAIDLER
CERT: 0034322012

James Laidler

Installed as per TCP and in accordance with any changes, as shown on TCP.

Team leader (on site):

Signature:

Date:

Ticket: Orange/Red/Yellow (Circle appropriate ticket):




Ticket No:

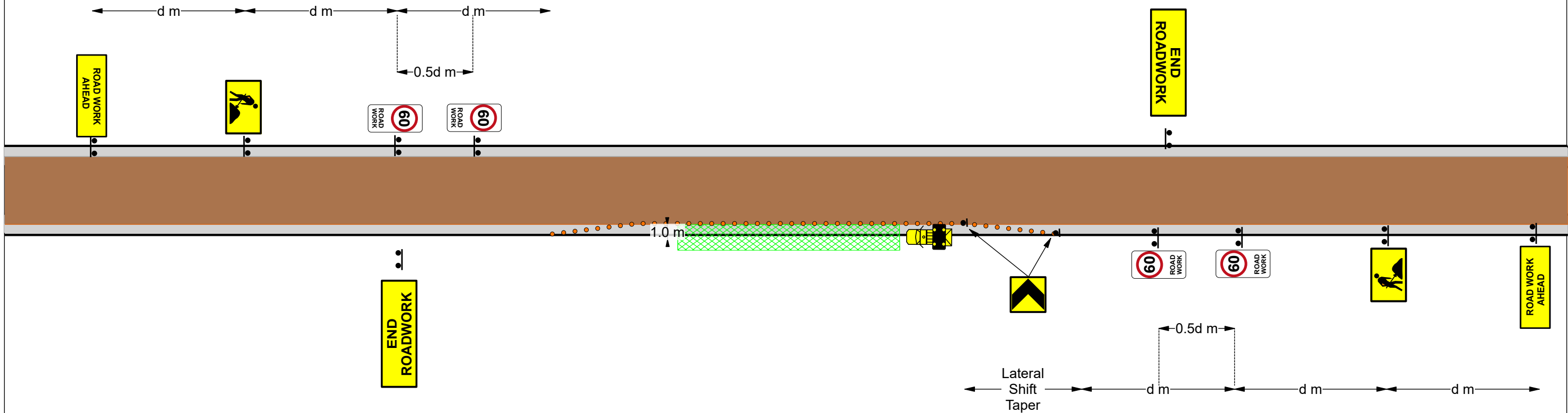
Reason for modification:

Conditions to be met
for use of this TCP:

Road Speed:	Upto 60 km/hr	No
	Between 60 & 80 km/hr	Yes
	Between 80 & 100 km/hr	No
Dimension D:	d = Distance expressed in metres	
	Between 45 & 55 km/hr	15m
	Between 56 & 65km/hr	45m
	Greater than 65km/hr	Equal to speed of traffic
Lateral Shift:	Between 46 & 55 km/hr	15 m
	Between 56 & 65 km/hr	30 m
	Between 66 & 75 km/hr	70 m
	Between 76 & 85 km/hr	80 m
	Between 86 & 95 km/hr	90 m
	Between 96 & 105 km/hr	100 m
Lane Width:	Trafficable lanes MUST have a minimum of 3.0m in width	
Work Location:	For ALL work within the Verge.	
	Work MUST NOT encroach more than 1.0m into the existing roadway.	

Key:

Cones	
Construction Zone	
Work Vehicle	



NOTES

- All vehicles to have flashing orange lights
- Ensure signs are visible to vehicles
- Cover vehicle required for hard protection while TC's or workers are exposed to live traffic
- All staff to have reflective safety vests
- All signs to be Class 1 retro-reflective
- Maintain daily logs of ALL activities
- All staff to have reflective safety vests
- All trucks are to have prior notice of UHF channel to radio Foreman on arrival

Closure:

Lateral Shift
Unsealed Roads
Works in a Verge

Client:

Regis Resources

Project:

Job No: 0856
Address: Multiple Locations - Refer to
Conditions above

Drawing Title:

0856-LS-09-Off Road_McPhillamys Gold Mine

Date:

15/02/2019

Scale @ A3:

Drawing Number:
AG.09

asongroup

DESIGNER: JAMES LAIDLER
CERT: 0034322012

Handwritten signature

Installed as per TCP and in accordance with any changes, as shown on TCP.

Team leader (on site):

Signature:

Date:

Ticket: Orange/Red/Yellow (Circle appropriate ticket):




Ticket No:

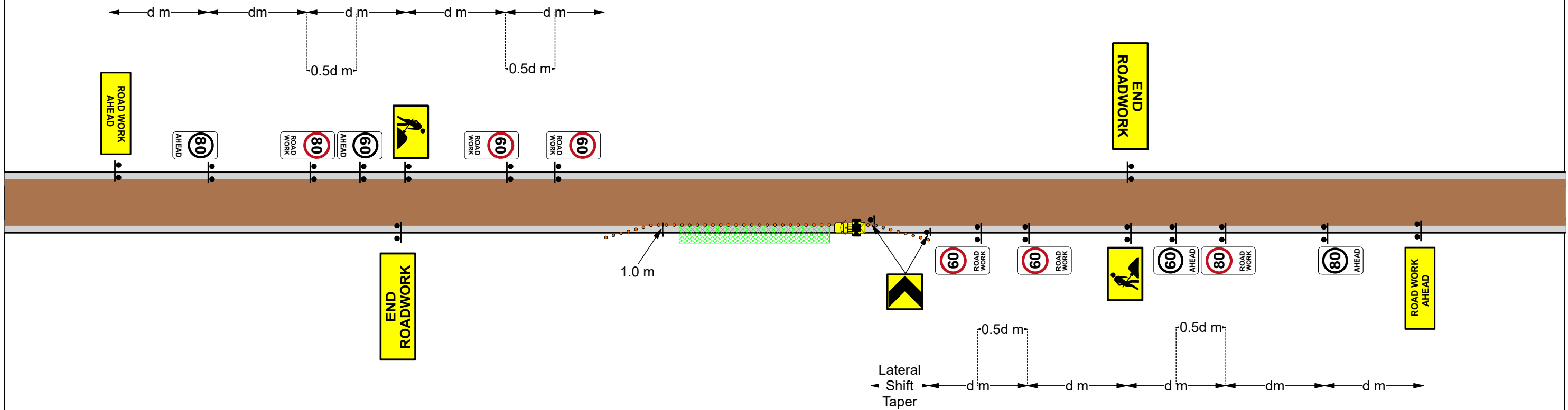
Reason for modification:

Conditions to be met
for use of this TCP:

Road Speed:	Upto 60 km/hr	No
	Between 60 & 80 km/hr	No
	Between 80 & 100 km/hr	Yes
Dimension D:	d = Distance expressed in metres	
	Between 45 & 55 km/hr	15m
	Between 56 & 65km/hr	45m
	Greater than 65km/hr	Equal to speed of traffic
Lateral Shift:	Between 46 & 55 km/hr	15 m
	Between 56 & 65 km/hr	30 m
	Between 66 & 75 km/hr	70 m
	Between 76 & 85 km/hr	80 m
	Between 86 & 95 km/hr	90 m
	Between 96 & 105 km/hr	100 m
Lane Width:	Trafficable lanes MUST have a minimum of 3.0m in width	
Work Location:	For ALL work within the Verge.	
	Work MUST NOT encroach more than 1.0m into the existing roadway.	

Key:

Cones	
Construction Zone	
Work Vehicle	



NOTES

- All vehicles to have flashing orange lights
- Ensure signs are visible to vehicles
- Cover vehicle required for hard protection while TC's or workers are exposed to live traffic
- All staff to have reflective safety vests
- All signs to be Class 1 retro-reflective
- Maintain daily logs of ALL activities
- All staff to have reflective safety vests
- All trucks are to have prior notice of UHF channel to radio Foreman on arrival

Closure:

Lateral Shift
Unsealed Roads
Works in Verges

Client:

Regis Resources

Project:

Job No: 0856
Address: Multiple Locations - Refer to
Conditions above

Drawing Title:

0856-LS-10-Off Road_McPhillamys Gold Mine

Date:

15/02/2019

Scale @ A3:

Drawing Number:
AG.10

asongroup

DESIGNER: JAMES LAIDLER
CERT: 0034322012



Installed as per TCP and in accordance with any changes, as shown on TCP.

Team leader (on site):

Signature:

Date:

Ticket: Orange/Red/Yellow (Circle appropriate ticket):




Ticket No:

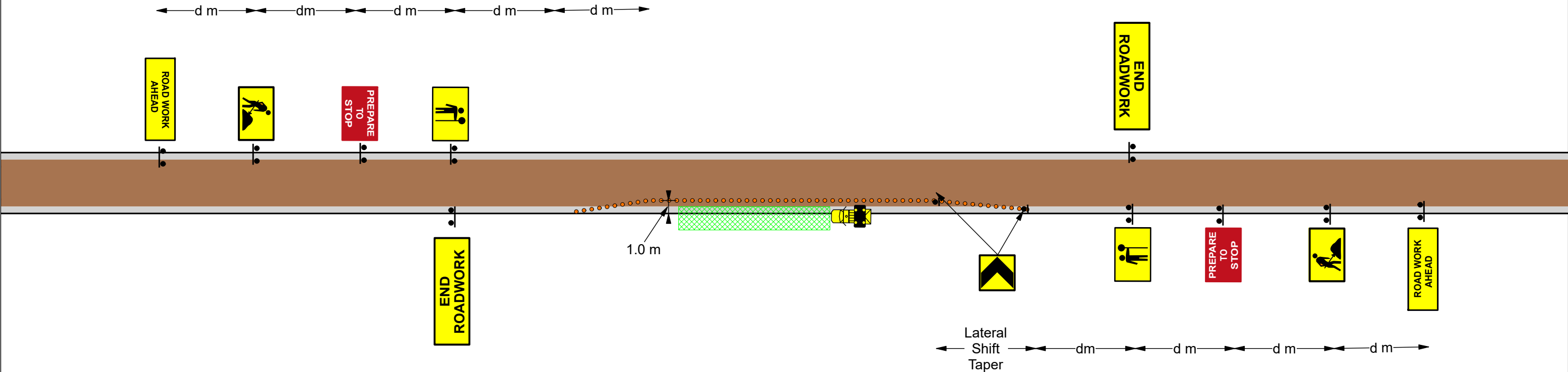
Reason for modification:

Conditions to be met
for use of this TCP:

Road Speed:	Upto 60 km/hr	Yes
	Between 60 & 80 km/hr	No
	Between 80 & 100 km/hr	No
Dimension D:	d = Distance expressed in metres	
	Between 45 & 55 km/hr	15m
	Between 56 & 65km/hr	45m
	Greater than 65km/hr	Equal to speed of traffic
Lateral Shift:	Between 46 & 55 km/hr	15 m
	Between 56 & 65 km/hr	30 m
	Between 66 & 75 km/hr	70 m
	Between 76 & 85 km/hr	80 m
	Between 86 & 95 km/hr	90 m
	Between 96 & 105 km/hr	100 m
Work Location:	For ALL work within the Verge.	
	Work MUST NOT encroach more than 1.0m into the existing roadway.	

Key:

Cones	
Construction Zone	
Work Vehicle	



If subject road has less than 30 vehicles an hour, then TC not required to Stop vehicles provided there is adequate sight distance.

NOTES

- All vehicles to have flashing orange lights
- Ensure signs are visible to vehicles
- Cover vehicle required for hard protection while TC's or workers are exposed to live traffic
- All staff to have reflective safety vests
- All signs to be Class 1 retro-reflective
- Maintain daily logs of ALL activities
- All staff to have reflective safety vests
- All trucks are to have prior notice of UHF channel to radio Foreman on arrival

Closure:

Stop Slow
Roads Less Than 6.0m in Width

Client:

Regis Resources

Project:

Job No: 0856
Address: Multiple Locations - Refer to Conditions above

Drawing Title:

0856-SS-11-Off Road_McPhillamys Gold Mine

Date:

18/02/2019

Scale @ A3:

Drawing Number:
AG.11

asongroup

DESIGNER: JAMES LAIDLER
CERT: 0034322012



Installed as per TCP and in accordance with any changes, as shown on TCP.

Team leader (on site):

Signature:

Date:

Ticket: Orange/Red/Yellow (Circle appropriate ticket):




Ticket No:

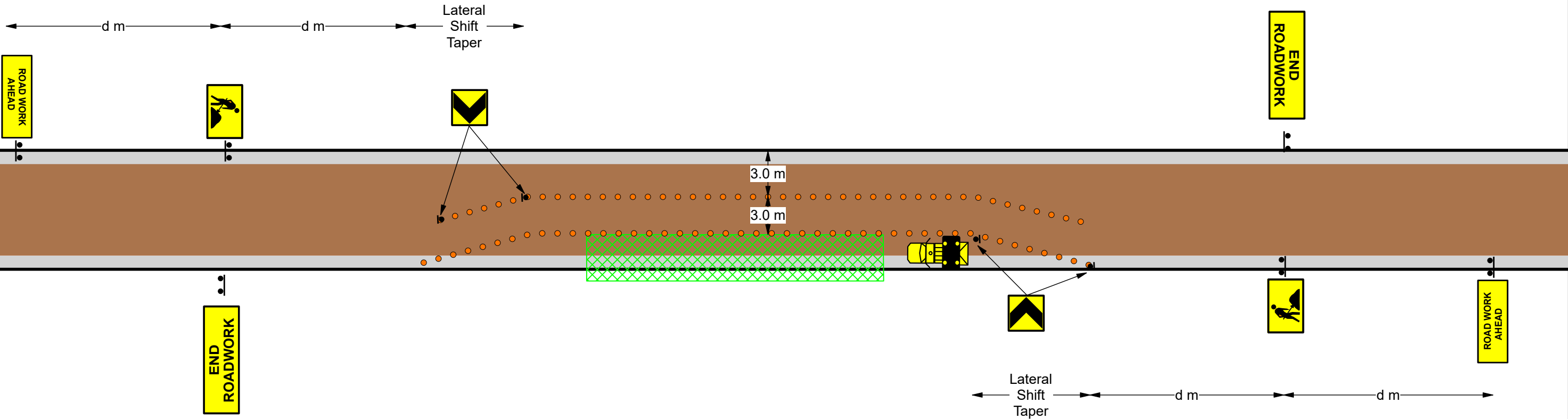
Reason for modification:

**Conditions to be met
for use of this TCP:**

Road Speed:	Speed Limit within the SCS Forest is 60 km/hr	
Dimension D:	d = Distance expressed in metres	
	Between 45 & 55 km/hr	15m
	Between 56 & 65km/hr	45m
	On constricted roads (narrow / steep roads)	15m
Lateral Shift:	Between 46 & 55 km/hr	15 m
	Between 56 & 65 km/hr	30 m
Lane Width:	Trafficable lanes MUST have a minimum of 3.0m in width	

Key:

Cones	
Construction Zone	
Work Vehicle	



NOTES

- All vehicles to have flashing orange lights
- Ensure signs are visible to vehicles
- Cover vehicle required for hard protection while TC's or workers are exposed to live traffic
- All staff to have reflective safety vests
- All signs to be Class 1 retro-reflective
- Maintain daily logs of ALL activities
- This PVMP is drawn in accordance with AS1742.3, the RTA's TCWS Manual & WHS Manual

- All staff to have reflective safety vests
- All trucks are to have prior notice of UHF channel to radio Foreman on arrival

Closure:

Lateral Shift

Client:

Regis Resources

Project:

Job No: 0856
Address: Multiple Locations - Refer to
Conditions above

Drawing Title:

0856-LS-12-SCS_McPhillamys Gold Mine

Date:

18/02/2019

Scale @ A3:

Drawing Number:
AG.12

asongroup

DESIGNER: JAMES LAIDLER
CERT: 0034322012

Handwritten signature

Installed as per TCP and in accordance with any changes, as shown on TCP.

Team leader (on site):

Signature:

Date:

Ticket: Orange/Red/Yellow (Circle appropriate ticket):

Ticket No:

Reason for modification:

**Conditions to be met
for use of this TCP:**

Road Speed: Speed Limit within the SCS Forest is 60 km/hr

Dimension D: d = Distance expressed in metres
Between 45 & 55 km/hr 15m
Between 56 & 65km/hr 45m
On constricted roads 15m
(narrow / steep roads)

Lateral Shift: Between 46 & 55 km/hr 15 m
Between 56 & 65 km/hr 30 m

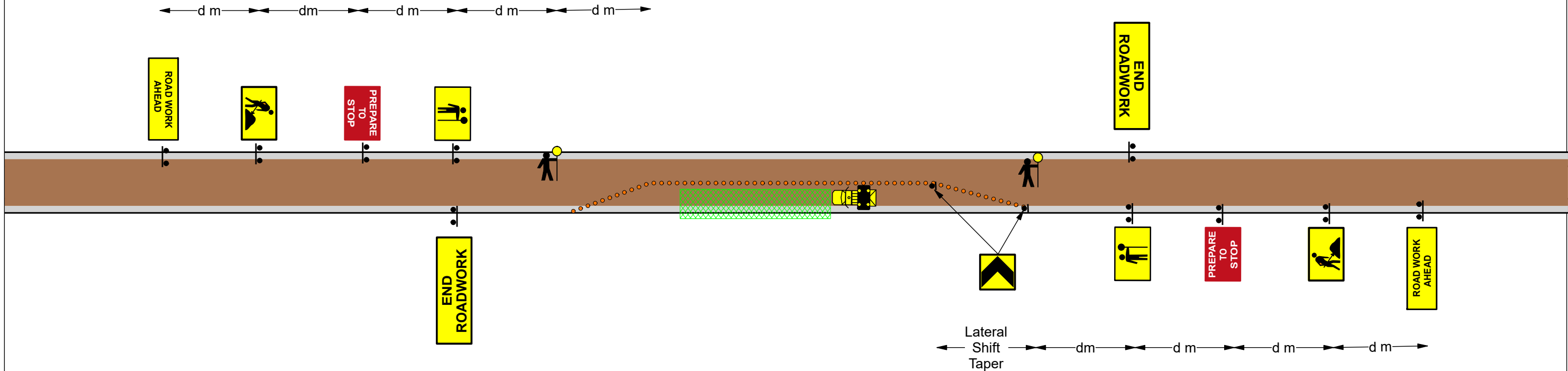
Lane Width: Trafficable lanes MUST have a minimum of 3.0m in width

Key:

Cones

Construction
Zone

Work
Vehicle



NOTES

- All vehicles to have flashing orange lights
- Ensure signs are visible to vehicles
- Cover vehicle required for hard protection while TC's or workers are exposed to live traffic
- All staff to have reflective safety vests
- All signs to be Class 1 retro-reflective
- Maintain daily logs of ALL activities
- All staff to have reflective safety vests
- All trucks are to have prior notice of UHF channel to radio Foreman on arrival

Closure:

Stop Slow
Roads Less Than 6.0m in Width

Client:

Regis Resources

Project:

Job No: 0856
Address: Multiple Locations - Refer to
Conditions above

Drawing Title:

0856-SS-13-SCS_McPhillamys Gold Mine

Date:

18/02/2019

Scale @ A3:

Drawing Number:
AG.13

asongroup

DESIGNER: JAMES LAIDLER
CERT: 0034322012

Handwritten signature

Installed as per TCP and in accordance with any changes, as shown on TCP.

Team leader (on site):

Signature:

Date:

Ticket: Orange/Red/Yellow (Circle appropriate ticket):

Ticket No:

Reason for modification:




Closure of Road shall occur at the other end of the road at the closest intersection.

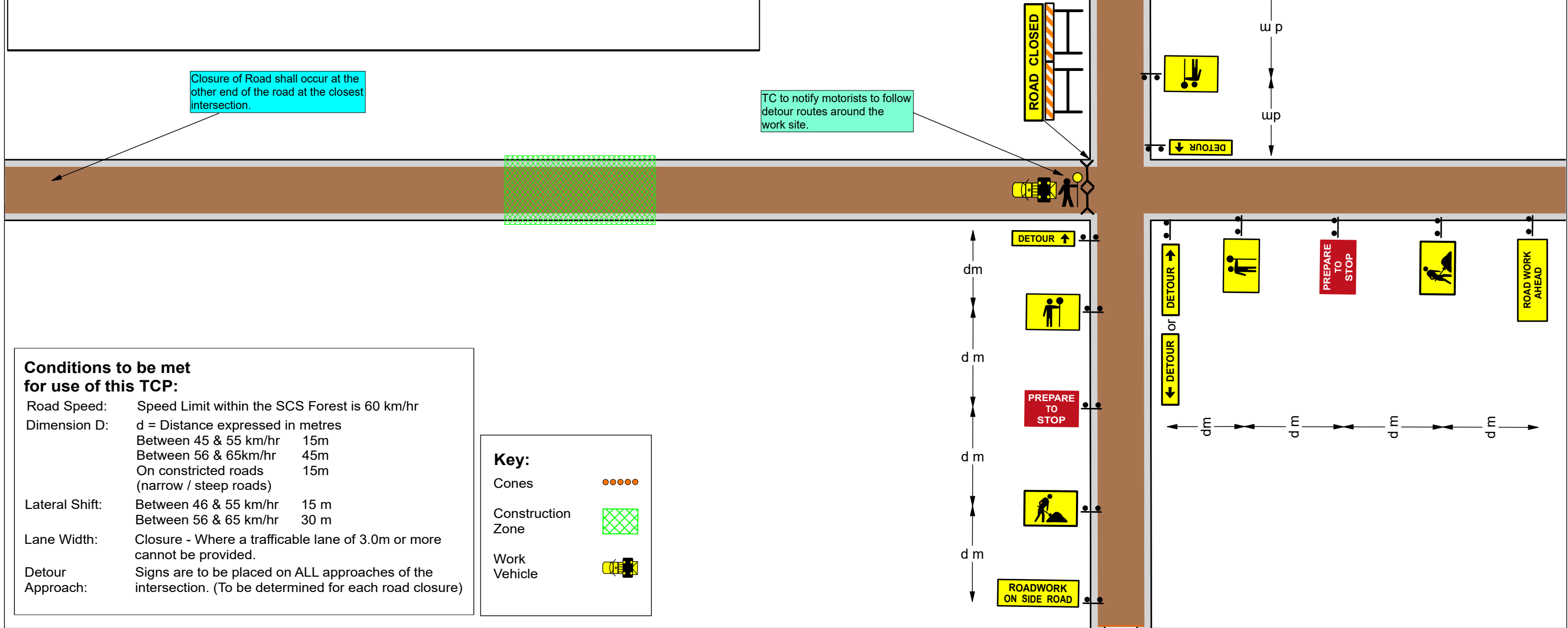
TC to notify motorists to follow detour routes around the work site.

Conditions to be met for use of this TCP:

Road Speed: Speed Limit within the SCS Forest is 60 km/hr
Dimension D: d = Distance expressed in metres
Between 45 & 55 km/hr 15m
Between 56 & 65km/hr 45m
On constricted roads 15m
(narrow / steep roads)
Lateral Shift: Between 46 & 55 km/hr 15 m
Between 56 & 65 km/hr 30 m
Lane Width: Closure - Where a trafficable lane of 3.0m or more cannot be provided.
Detour Approach: Signs are to be placed on ALL approaches of the intersection. (To be determined for each road closure)

Key:

Cones 
Construction Zone 
Work Vehicle 



NOTES

- All vehicles to have flashing orange lights
- Ensure signs are visible to vehicles
- Cover vehicle required for hard protection while TC's or workers are exposed to live traffic
- All staff to have reflective safety vests
- All signs to be Class 1 retro-reflective
- Maintain daily logs of ALL activities
- All staff to have reflective safety vests
- All trucks are to have prior notice of UHF channel to radio Foreman on arrival

Closure:

Detour
Roads Less Than 6.0m in Width

Client:

Regis Resources

Project:

Job No: 0856
Address: Multiple Locations - Refer to Conditions above

Drawing Title:

0856-TCP-14-SCS_McPhillamys Gold Mine

Date:

18/02/2019

Scale @ A3:

Drawing Number:

AG.14

asongroup

DESIGNER: JAMES LAIDLER
CERT: 0034322012

James Laidler

Installed as per TCP and in accordance with any changes, as shown on TCP.

Team leader (on site):

Signature:





Date:

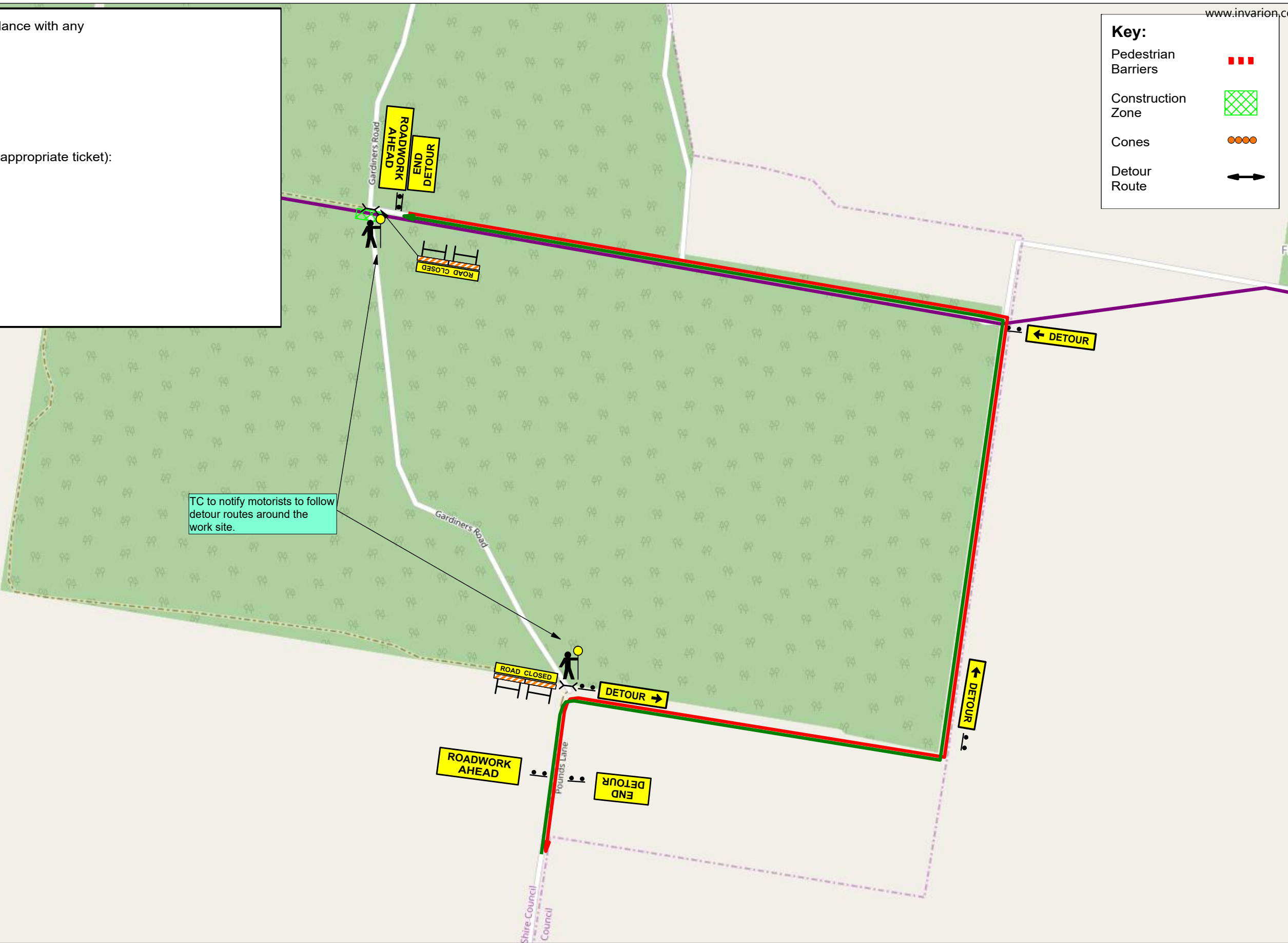
Ticket: Orange/Red/Yellow (Circle appropriate ticket):

Ticket No:

Reason for modification:

Key:

- Pedestrian Barriers 
- Construction Zone 
- Cones 
- Detour Route 



NOTES

- All vehicles to have flashing orange lights
- Ensure signs are visible to vehicles
- Cover vehicle required for hard protection while TC's or workers are exposed to live traffic
- All staff to have reflective safety vests
- All signs to be Class 1 retro-reflective
- Maintain daily logs of ALL activities
- This PVMP is drawn in accordance with AS1742.3, the RTA's TCWS Manual & WHS Manual
- All staff to have reflective safety vests
- All trucks are to have prior notice of UHF channel to radio Foreman on arrival

Closure:

Detour
Example Detour Route

Client:

Tyrellstudio

Project:

Job No: 0806
Address: McPhillamys Gold Mine
Gardiners Road

Drawing Title:

0856-Detour-15-McPhillamys Gold Mine_
Blayney

Date:

18/02/2019


Scale @ A3:

Drawing Number:
AG.15

asongroup

DESIGNER: JAMES LAIDLER
CERT: 0034322012



<div>NOTES</div> <div><div>- All vehicles to have flashing orange lights</div><div>- Ensure signs are visible to vehicles</div><div>- Cover vehicle required for hard protection while TC's or workers are exposed to live traffic</div><div>- All staff to have reflective safety vests</div><div>- All signs to be Class 1 retro-reflective</div><div>- Maintain daily logs of ALL activities</div><div>- This PVMP is drawn in accordance with AS1742.3, the RTA's TCWS Manual & WHS Manual</div></div> <div>- All staff to have reflective safety vests</div> <div>- All trucks are to have prior notice of UHF channel to radio Foreman on arrival</div>	<div>Closure:</div> <div>Detour</div> <div>Example Detour Route</div>	<div>Project:</div> <div>Job No: 0856</div> <div>Address: McPhillamys Gold Mine</div> <div>Gardiners Road</div>	<div>Date:</div> <div>18/02/2019</div>	<div>asongroup</div> <div>DESIGNER: JAMES LAIDLER</div> <div>CERT: 0034322012</div> <div></div>	
	<div>Client:</div> <div>Regis Resources</div>	<div>Drawing Title:</div> <div>0856-Detour-16-McPhillamys Gold Mine_</div> <div>Blayney</div>	<div>Scale @ A3:</div>		<div>Drawing Number:</div> <div>AG.16</div>

Installed as per TCP and in accordance with any changes, as shown on TCP.

Team leader (on site):

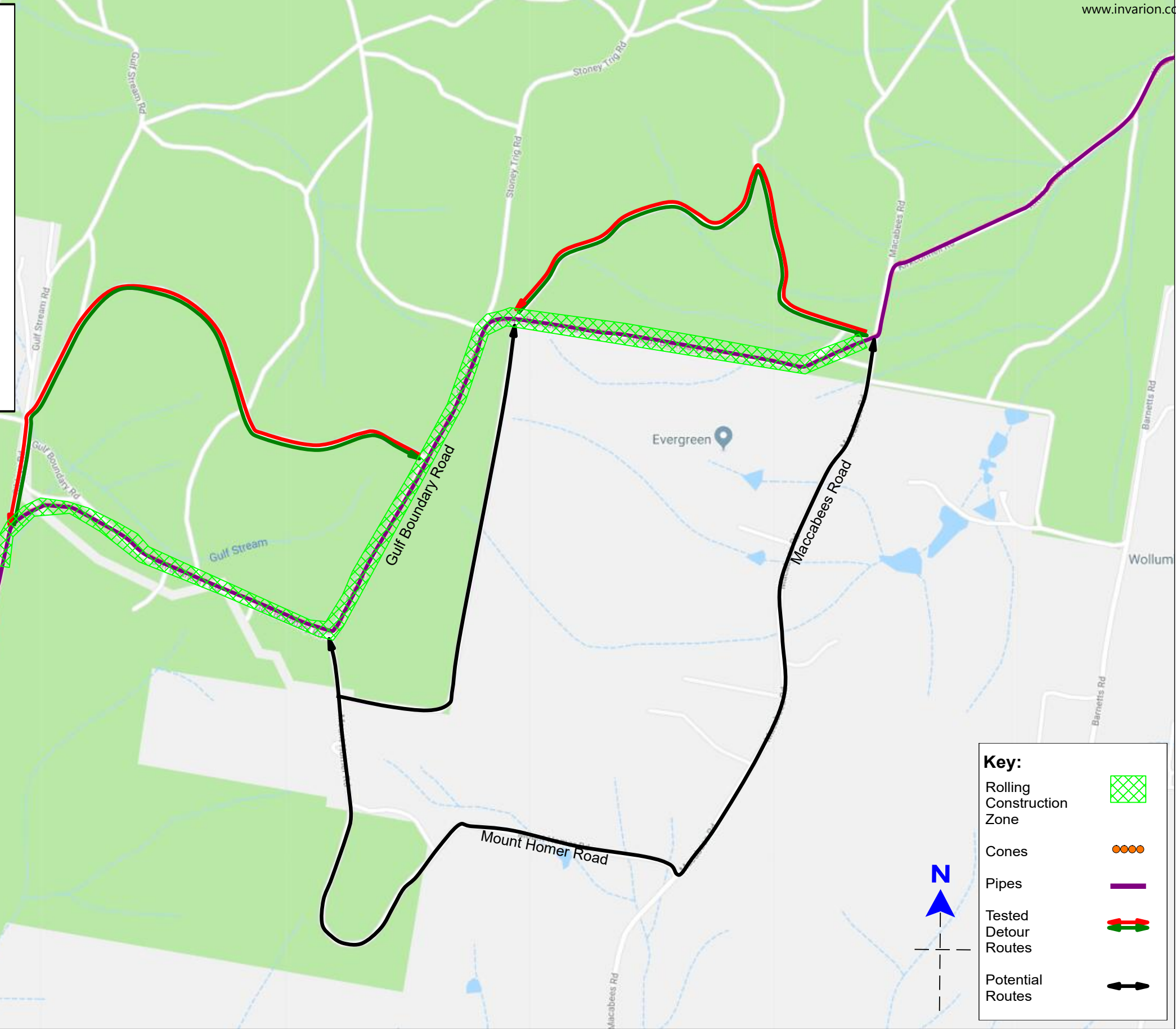
Signature:

Date:

Ticket: Orange/Red/Yellow (Circle appropriate ticket):

Ticket No:

Reason for modification:



Signs to be used

When to be used



On all approaches where a closure is ahead



On all roads where a closure occurs



On all corners within a detour route



At the end of all detour routes

Key:

Rolling Construction Zone



Cones



Pipes



Tested Detour Routes



Potential Routes



NOTES

- All vehicles to have flashing orange lights
- Ensure signs are visible to vehicles
- Cover vehicle required for hard protection while TC's or workers are exposed to live traffic
- All staff to have reflective safety vests
- All signs to be Class 1 retro-reflective
- Maintain daily logs of ALL activities
- This PVMP is drawn in accordance with AS1742.3, the RTA's TCWS Manual & WHS Manual

- All staff to have reflective safety vests
- All trucks are to have prior notice of UHF channel to radio Foreman on arrival

Closure:

Detour
Potential Detour Routes

Client:

Regis Resources

Project:

Job No: 0856
Address: McPhillamys Gold Mine
Gardiners Road

Drawing Title:

0856-Detour-17-McPhillamys Gold Mine_
Blayney

Date:

18/02/2019

Scale @ A3:

Drawing Number:
AG.17

asongroup

DESIGNER: JAMES LAIDLER
CERT: 0034322012

Installed as per TCP and in accordance with any changes, as shown on TCP.

Team leader (on site):

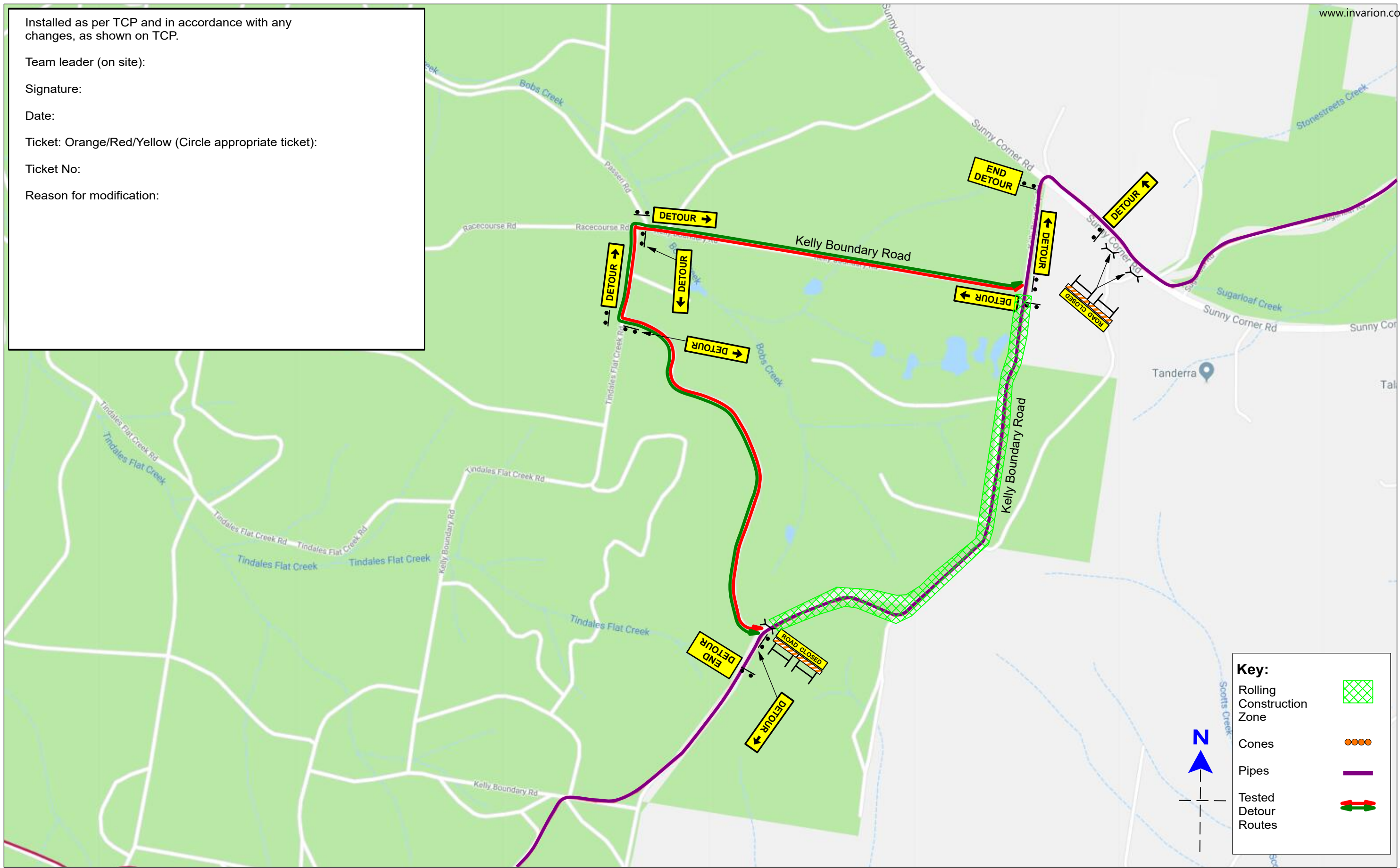
Signature:

Date:

Ticket: Orange/Red/Yellow (Circle appropriate ticket):

Ticket No:

Reason for modification:



NOTES <ul style="list-style-type: none">- All vehicles to have flashing orange lights- Ensure signs are visible to vehicles- Cover vehicle required for hard protection while TC's or workers are exposed to live traffic- All staff to have reflective safety vests- All signs to be Class 1 retro-reflective- Maintain daily logs of ALL activities- This PVMP is drawn in accordance with AS1742.3, the RTA's TCWS Manual & WHS Manual <ul style="list-style-type: none">- All staff to have reflective safety vests- All trucks are to have prior notice of UHF channel to radio Foreman on arrival	Closure: Detour Potential Detour Routes	Project: Job No: 0856 Address: McPhillamys Gold Mine Gardiners Road	Date: 18/02/2019	<div>asongroup</div> <div>DESIGNER: JAMES LAIDLER CERT: 0034322012</div> <div><i>Handwritten signature</i></div>
	Client: Regis Resources	Drawing Title: 0856-Detour-18-McPhillamys Gold Mine_ Blayney	Scale @ A3:	
			Drawing Number: AG.18	

Installed as per TCP and in accordance with any changes, as shown on TCP.

Team leader (on site):

Signature:

Date:

Ticket: Orange/Red/Yellow (Circle appropriate ticket):

Ticket No:

Reason for modification:

Key:

Rolling
Construction
Zone



Cones



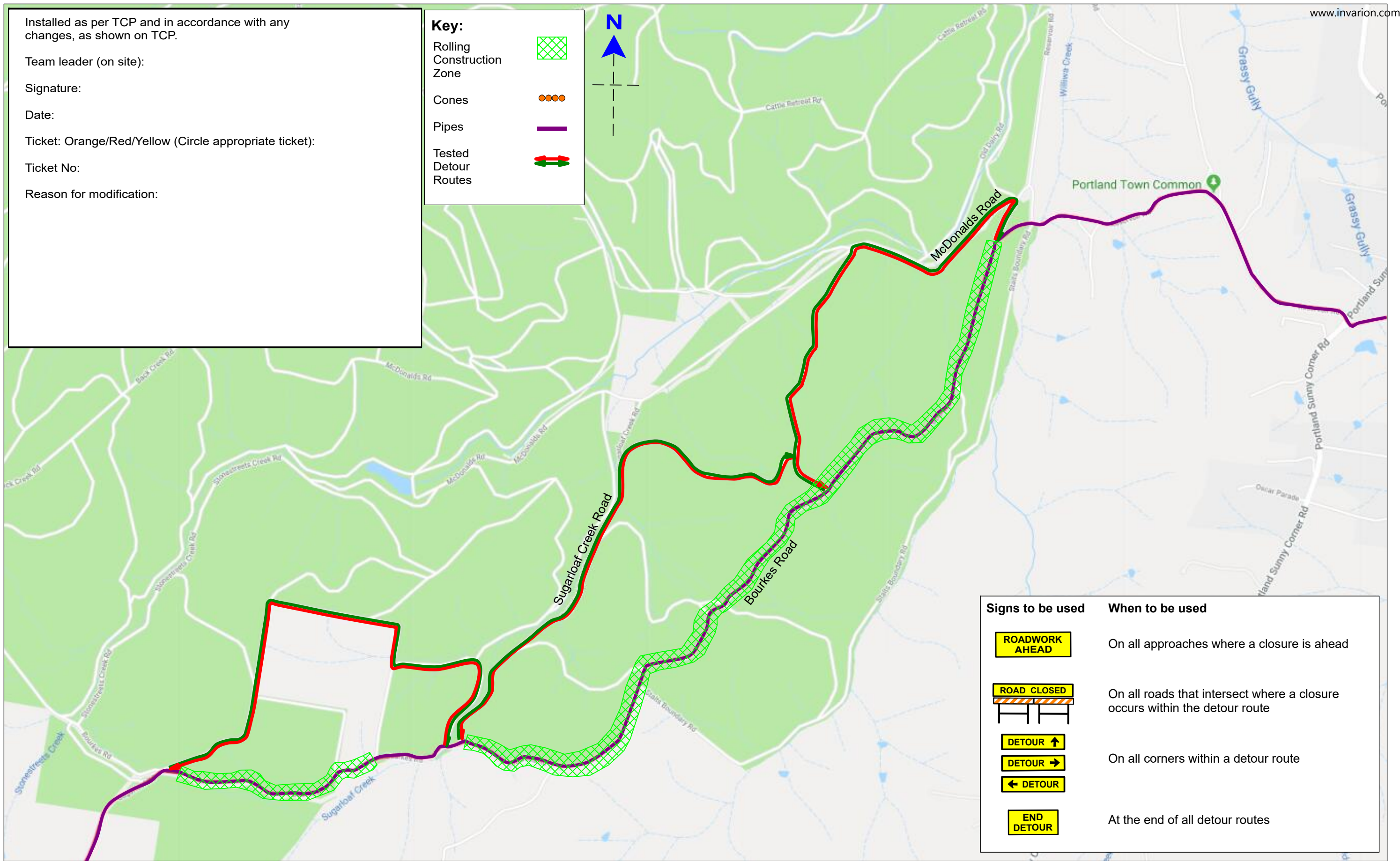
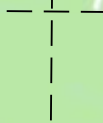
Pipes



Tested
Detour
Routes



N



Signs to be used

When to be used



On all approaches where a closure is ahead



On all roads that intersect where a closure occurs within the detour route



On all corners within a detour route



At the end of all detour routes

NOTES

- All vehicles to have flashing orange lights
- Ensure signs are visible to vehicles
- Cover vehicle required for hard protection while TC's or workers are exposed to live traffic
- All staff to have reflective safety vests
- All signs to be Class 1 retro-reflective
- Maintain daily logs of ALL activities
- This PVMP is drawn in accordance with AS1742.3, the RTA's TCWS Manual & WHS Manual

- All staff to have reflective safety vests
- All trucks are to have prior notice of UHF channel to radio Foreman on arrival

Closure:

Detour
Potential Detour Routes

Client:

Regis Resources

Project:

Job No: 0856
Address: McPhillamys Gold Mine
Gardiners Road

Drawing Title:

0856-Detour-19-McPhillamys Gold Mine_
Lithgow

Date:

18/02/2019

Scale @ A3:

Drawing Number:
AG.19

asongroup

DESIGNER: JAMES LAIDLER
CERT: 0034322012