



TEST REPORT

Photographic Detection Device (Traffic Regulation 1962 s210F)

Photographic Detection Device: Vitronic speed camera system model PoliScan FMI
(Traffic Regulation 1962 - Schedule 10 Part 5)

Serial Number: 963268

Date and Time of Test: 21/06/2024 @ 12:00

Date of Expiry: 21/06/2025

Test Results: As stated in SGS Report TC241735

Uncertainty of Value(s): As stated in SGS Report TC241735

Customer: VITRONIC Machine Vision Australia Pty Ltd
7/45-53 Duerdin Street, Notting Hill, VIC, 3168

The device was found to produce results within the manufacturer's specified speed accuracy of ± 2 km/h up to 100 km/h and ± 2 % above 100 km/h.

Following satisfactory completion of these tests, the device's speed computing unit was sealed using tamper evident adhesive seal.

Not Relevant

Sch.4 Part 4 s.6

Testing Officer

Not Relevant

Sch.4 Part 4 s.6

Approved Signatory

Testing Laboratory:

SGS Australia Pty Ltd, NATA Accredited Laboratory No. 18628
10/585 Blackburn Road, Notting Hill VIC 3168



Calibration Report

Report Reference Number	TC241735	
Test Scope	Certification of Scanning LIDAR Based Speed Measurement Device	
Date of Issue	26/06/2024	
Date and Time of Test	21/06/2024 @ 12:00	
Compiled by	Not Relevant	Sch.4 Part 4 s.6 Testing Officer
Approved by	Not Relevant	Sch.4 Part 4 s.6 Approved Signatory
Testing Laboratory		
SGS Australia Pty Ltd, NATA Accredited Laboratory No. 18628		
10/585 Blackburn Road, Notting Hill VIC 3168		
Applicant		
Vitronic Machine Vision Australia Pty Ltd		
7/45-53 Duerdin St, Notting Hill, VIC 3168		
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Summary of Results

The device under test is Compliant with the requirements of SGS test procedure PR-TE-027-1.

Comments:

- A compliant result indicates that the measurement results fall within specification limits by an amount at least equivalent to the uncertainty of measurement for all tests except for the speed simulation test where the measurement results fall within the specification limits combined with uncertainty of the test.
- Testing performed at Vitronic Machine Vision Australia Pty Ltd (7/45-53 Duerdin St, Notting Hill VIC 3168)

Device Under Test Description

Description:

Vitronic speed camera system model PoliScan FM1

Item	Model/Part No.	Serial No
Camera 1	VICAM-XD1012bC-1881FM 25mm	GX216468
Camera 2	VICAM-XD1012bC-1881FM 50mm	GX216910
Lidar	N/A	1689488
PoliScan FM1	148091	963268
Application Hash	cd832c405b77a2791983df4035bde0ce	
Software Version	5.13.4	

Condition:

- The device under test was found to be in a satisfactory physical condition.

Test Equipment

Item	ID	Calibration Due Date
Agilent Universal Counter	2022	30/08/2024
Digital Multimeter	2128	02/08/2024
Hygrometer	2117	28/09/2024
LRT	2114	24/11/2024
Target	2020	N/A
Target Simulator	2108	14/12/2024

Environmental Conditions

The ambient temperature and humidity at the time of test are shown below:

Ambient temperature (°C) +/-1 °C	Relative humidity (%) +/-4%
21.9	38.3

Test Results

Functional Test:

Test	Verdict
Low Voltage	Pass
OS Check	Pass
Visual Inspection	Pass

Time Accuracy Test

DUT Simulated Time (s)	Measured Elapsed Time (s)
0.999332	0.999012

Distance Test

Range (m)	DUT Indicated Range (m)
19.420	19.364

Lidar/Camera Relative Angle Test (Uncompensated)

Item	Angle (mRad)
Vertical deviation Lidar/Camera1	3.7
Horizontal deviation Lidar/Camera1	3.4
Vertical deviation Lidar/Camera2	0.3
Horizontal deviation Lidar/Camera2	1.4

Lidar/Camera Relative Angle Test (Compensated)

Item	Angle (mRad)
Vertical deviation Lidar/Camera1	0.0
Horizontal deviation Lidar/Camera1	-0.3
Vertical deviation Lidar/Camera2	0.0
Horizontal deviation Lidar/Camera2	-0.2

Speed Simulation Test

Simulated Speed (km/h)	DUT Indicated Speed (km/h)	UOM (km/h)
30	30	0.6
30	30	0.6
30	30	0.6
50	50	1.0
50	50	1.0
50	50	1.0
100	100	1.6
100	100	1.6
100	99	1.6
150	150	1.8(1.2%)
150	150	1.8(1.2%)
150	150	1.8(1.2%)
200	200	1.6(0.8%)
200	199	1.6(0.8%)
200	200	1.6(0.8%)

Released under RTI

Tamper Evident Seals

The device under test was sealed with SGS tamper evident seals A11930, A11931, A11932, A34234 and A34235.



Photo 1



Photo 2

Uncertainty of Measurement

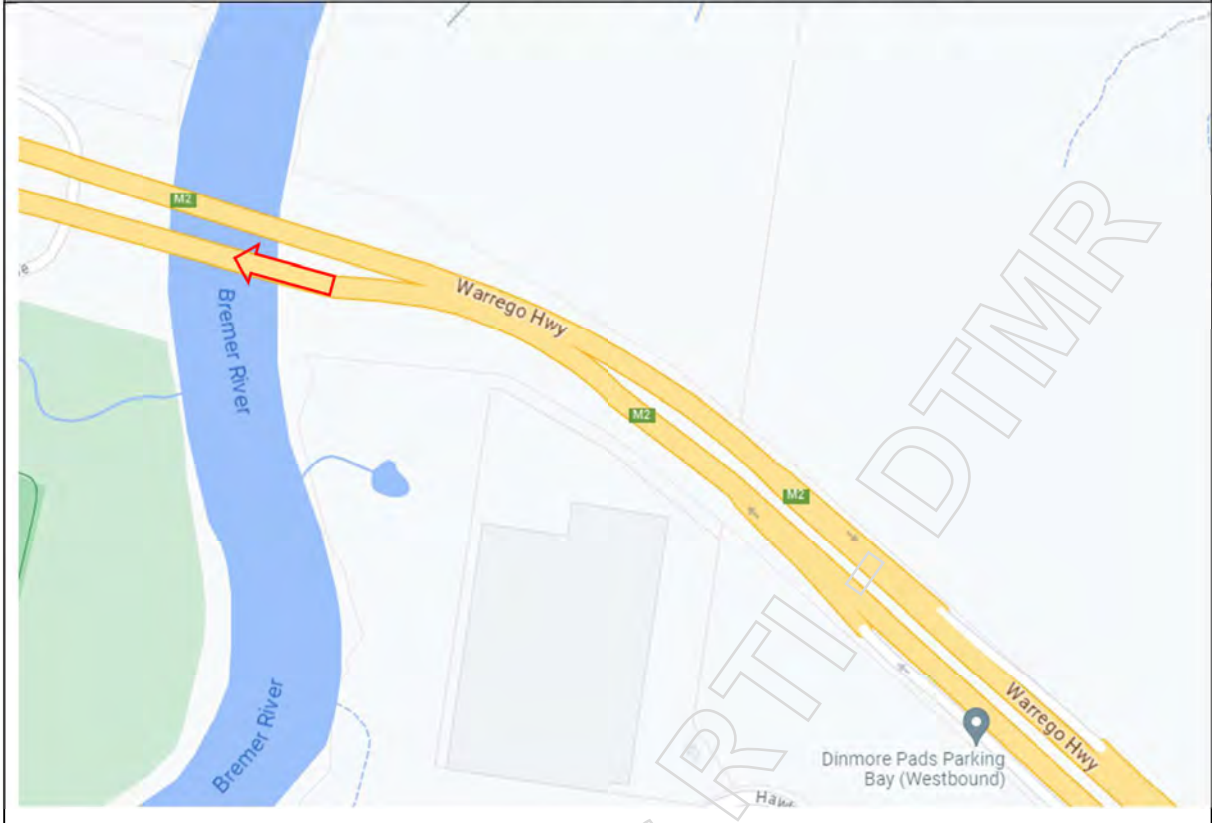
The estimated uncertainty of values quoted, at 95% confidence level, with a coverage “k” factor of 2 is:

- Elapsed time: $\pm 0.001218\text{s}$ at measured time
- Distance: $\pm 0.051\text{m}$ at measured distance
- Relative angle: $\pm 1.6\text{mRad}$ at measured angles

Released under RTI - DTMR

Item	Details
Site	Site number 4858001 Warrego Highway, Bundamba Approx. GPS Coordinates: -27.583292, 152.815863
Secondary Descriptor	Westbound Roadways Behaviour Monitoring System (RBMS) deployed approximately 150 metres east of Bremer River Bridge on the Warrego Highway in Bundamba
Roadworks	Bremer River Bridge Inspections
Photographic Detection Device	Vitronic PoliScan FM I
Offence type	Speed
Posted speed limit	Enforcement zone: 60km/h Prior to zone: 100 km/h
Digital 'Go Live' date	29 September 2023
Lanes	1
Target Identifier	Target identifier is an evaluation template Two images will be provided: <ul style="list-style-type: none"> • Image A includes the evaluation template • Image B used to confirm the licence plate details.
Adjudicating incidents	The below rules are to be followed to determine whether or not a particular incident qualifies as a valid speeding offence: <ol style="list-style-type: none"> 1. Vehicle travels in reported lane 2. Vehicle travels in the reported direction 3. In Image A – vehicle is within evaluation template parameters as specified by manufacturer's business rules. 4. In image B – number plate has no obscuration and is readable. 5. In both images – recommended that targeted vehicle make, model and colour is clear.
Data Block	<small> Date/Time: 27/09/2024 07:20:32 Location code: 4858001 System: PB-963288 Direction: receding Speed Limit: 60 km/h Speed: 87 km/h Image index: 2408270000-2-1 </small>

Camera Location & Direction of Travel (maps Image)



Camera Location (satellite image)



Speed Detection Example Image

Date/Time: 27/09/2024 03:20:32 Location code: 4858001 System: PS-903288 Direction: receding
Speed Limit: 60 km/h Speed: 87 km/h Image index: 2408270000 - 2 - 1

VITRON



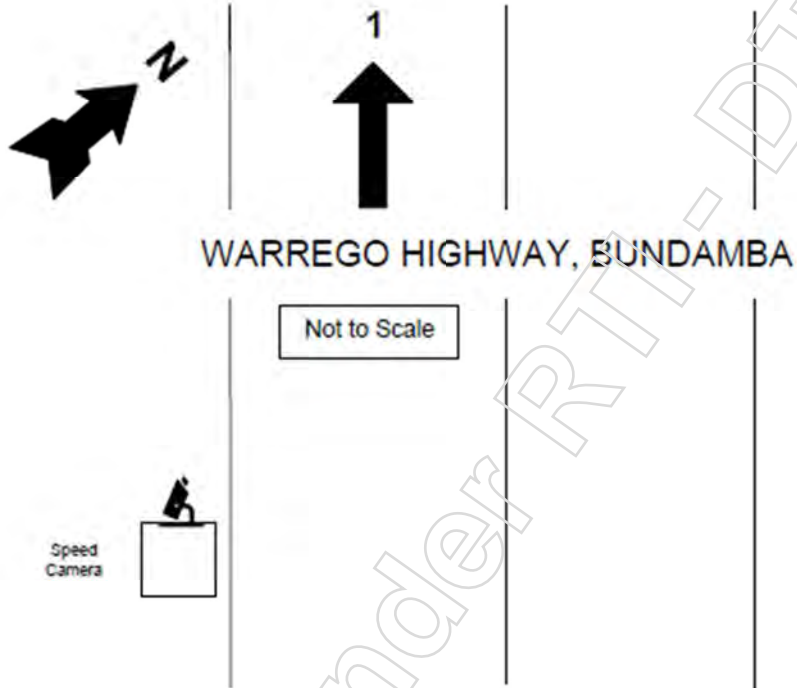
Released under RTI - DTMR

Traffic Camera Coding Manual

SITE NUMBER:	4858001
LOCATION:	Warrego Highway, Bundamba

DIRECTION OF TRAVEL: Northwest
SECONDARY DESCRIPTOR: Approximately 150 metres southeast of Bremer River Bridge on Warrego Highway, Bundamba

COMMISSIONED: 29/09/2023
LANES: 2 (lane 1)
ROADWORKS: Bremer River Bridge Maintenance
SPEED LIMIT: 60 km/h

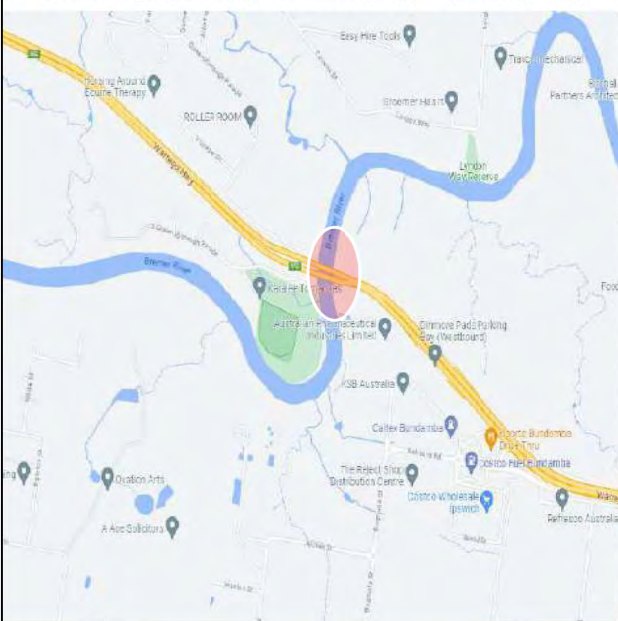


Site Code	Type	Primary Descriptor	Secondary Descriptor	SpeedLimit	Direction of Travel	Latitude	Longitude	Project
485800	Roadworks	Warrego Highway, Bundamba	Roadways Behaviour Monitoring System (RBMS) deployed approximately 150 metres Southeast of Bremer River Bridge on the Warrego Highway in Bundamba	60	Westbound	-27.582187	152.812224	Bremer River Bridge Maintenance

Not Relevant

Released under RTI - DTMR

LOCATION MAP



TGS INSTALLATION GENERAL

TTM measures shall be installed, maintained and removed in a planned and safe manner. Prior to commencing, the TMI shall check and review the approved TMP / TGS, the worksite and the proposed activity to ensure they are complementary and are appropriate. This section provides best principles and practices guidance.

The TMI shall check the road environment, especially the "on the day" traffic flows, to ensure that it is at an appropriate level for the TTM intended. A 5-minute count of traffic should provide an appropriate estimate of volumes to reference against values recorded in the TMP or the TGS.

If the worksite and the approved TMP are not complementary, before occupying the worksite the TMI shall determine whether they can:

- make compliant adjustments (e.g. lengthen taper within tolerances) to the TGS
- contact the TMD to approve relevant modifications (e.g. additional signs or distances outside of tolerances) to the TGS
- contact the relevant Road Infrastructure Manager traffic control facility to initiate actions identified on the TGS to be taken (e.g. change in the VMS, Variable Speed Limit Signs, or Lane Usage Signage).

Where the TMP and TGS cannot be suitably adjusted or modified, the TMI should advise the Principal Contractor that they are not appropriate, and the works should be postponed.

All adjustments and authorized modifications are to be recorded on the TMP and TGS or on-site record.

TYPICAL INSTALLATION PRINCIPLES

Installation is typically carried out applying one of the processes in accordance with QGTTM Part 5 as "short term - low impact works" to protect the TTM staff. The examples in this section are based on limiting high risk maneuvers during installation including U-Turns and loops exposing workers to live traffic without protection.

Fundamental principles that should be complied with to ensure safety during this work activity are that:

- travel should only be in a forward direction on any road
- the TTM vehicle may be used as added protection considering the:
 - availability of safe park up area(s) near the signage placement location
 - line of sight to approaching vehicles
 - visibility of the worker and TTM vehicle to approaching vehicles
 - location of signage/devices on vehicle which need to be accessed
 - worker access to vehicle (e.g. not through crush zones)
 - available space on road shoulder or median
 - geometry/terrain of shoulder or median
 - distance between vehicle and travel path / shoulder drop off
 - TMI proximity to 'expected travel path while traversing between vehicle and signage location
 - likely area in which the vehicle may move if impacted
 - availability of 'gaps in traffic' or lookout
- turn around procedures shall be conducted in a safe and legal manner
- TMI shall face the traffic when placing devices
- all workers shall know their escape route at all times
- the vehicle mounted warning device shall be operating and the hazard/arrow board used as required
- all workers shall wear correct PPE
- a lookout person/spotter shall be used for all activities where required in accordance with QGTTM Part 5
- full co-ordination of any ITS infrastructure which may assist the TGS installation
- the locations and types of devices are recorded in the diary
- the TGS is implemented as approved and a copy is available on site.

If it is considered too dangerous due to speed or volume to install the TGS using the protections defined in QGTTM Part 5, then consideration needs to be given to adopting a mobile convoy (refer QGTTM Part 4) or other controls e.g. manual traffic control to hold traffic during installation under its own TGS (refer QGTTM Part 3). A different installation sequence may need to be adopted to address any site-specific circumstances

TGS INSTALLATION PROCESS

The general procedure for setting up a site is to:

1. locate the work area using GPS, landmarks, side streets, chainage
2. install devices as outlined in the TGS for side streets first
3. install devices as outlined in the TGS for the non-working lane (un-affected direction)
4. install devices as outlined in the TGS for the working lane (affected direction) to complete installation.

All sign spacings and taper lengths will be noted on the TGS and should be in accordance with QGTTM Part 3.

PLACEMENT OF SIGNS & DEVICES

The scenarios in this Section are designed to encourage workers to review the safest installation process.

Many factors can influence the appropriate sequence for installation including but not limited to road geometry, hills, crests, curves, surface condition, lane widths, shoulder width, traffic volumes, peak traffic flows, road user travel speed, road user make up (e.g. % of heavy vehicles or cyclists), lighting and time of day, and weather.

POSITION OF SIGNS & DEVICES

Signs and devices are to be positioned and erected so that:

- a. they are properly displayed and securely mounted
- b. they are within the line of sight of the intended road user.
- c. they cannot be obscured from view (e.g. by vegetation or parked cars).
- d. they do not obscure other devices from the line of sight of the intended road user
- e. they do not become a possible hazard to workers, pedestrians, cyclists or vehicles
- f. they do not deflect traffic or vulnerable road users into an undesirable path
- g. they do not restrict sight distance for drivers entering from side roads, streets or private driveways
- h. they are not installed using supports that could be a hazard if struck by a vehicle.

It is important that pavement markings and raised pavement markers are considered in conjunction with the placement of other delineation devices, temporary barriers and channelising barricades, to ensure road users are safely directed through the site without conflicting messages. Delineating devices (e.g. traffic cones, bollards, post mounted delineators) should be placed as per the location on the TGS as designed by the TMD, or if not noted should generally be placed as follows:

- A. Edge of traffic lane to line of traffic cones, bollards or longitudinal channelising devices:
 - i. 0.5m offset for posted speed limit during roadworks up to and including 60 km/h
 - ii. 1.0m offset for posted speed limit during roadworks over 60 km/h
- B. Edge of traffic lane to road work delineators or temporary hazard markers - 1.0 m
- C. Edge of traffic lane to road safety barrier system:
 - i. 0.3m for a posted speed limit during roadworks up to and including 40 km/h
 - ii. 0.5m for a posted speed limit during roadworks 50 km/h to 60km/h
 - iii. 1.0m for a posted speed limit during roadworks 70 km/h to 80km/h
 - iv. 2.0m for a posted speed limit during roadworks greater than 80 km/h

TYPICAL LOCATIONS FOR SIGNS

Short term - Signs mounted on portable supports used for short-term operation should generally be located as follows:

- (i) In open road areas
 - On the road shoulder a minimum of 1m clear of the travelled path if practical.
 - (ii) In built-up areas
 - Behind the kerb if visible to oncoming traffic and not obstructing pedestrians or cyclists, otherwise on the pavement as near as practicable to the kerb without the sign becoming obscured and without obstructing moving traffic or cyclists

All signs on portable supports shall be a minimum height of 200mm above the level of the nearest lane of traffic and shall be level.

TOLERANCES

Adjustments to a TTM installation are the relocation of signs and devices within approved tolerances. Any changes that exceed tolerances are classed as a modification and shall be endorsed and authorised by a TMD. If signs and devices are required to be moved due to obstructions, and relocation exceeds tolerances, the TMI shall contact the TMD for instruction on alternate installation methods or options.

Local constraints may not allow signs and devices to be placed exactly in accordance with the relevant TGS.

Judgement will therefore be necessary to place signs and devices as close as possible to the locations / spacings indicated. Should variations to the recommended spacing be required then it is generally preferable to increase the spacing within tolerances.

Tolerances in distances. (All values are in meters)		
Measurement	-10%	+25%
15	13	18
20	18	25
30	27	37
45	41	56
60	54	75
90	81	112

TOLERANCES for placement of signs are:

- i. up to 10% less than the distances given
- ii. up to 25% more than the distances given

Tolerances for placement of delineation is:

- i. no minimum and up to 10% more the distances given

Tolerances for taper lengths are:

- i. up to 10% less than the distances given
- ii. up to 25% more than the distances given

Any sign or device location adjustments are to be marked and initialled on the TGS held on site, with the name of the person making the adjustments clearly shown.

ORIENTATION OF SIGNS AND DEVICES

Signs are to face towards approaching traffic approximately at right angles to the line of sight from the driver to the sign.

Long term

In open road areas and on kerbed roads in built-up areas where signs are to be mounted on posts, they should normally be placed clear of the outer edge of the shoulder and at least 2m clear of the traveled path, whichever is the greater clearance. They should be erected 1.5m minimum above the level of the nearest edge of the traveled path to the underside of the sign.

On kerbed roads in built-up areas where signs are mounted on posts adjacent to a footpath or where vehicle parking may occur, they should be placed at a minimum of 300mm clear distance behind the kerb and erected a minimum of 2.2m above the level of the kerb or footpath to the underside of the sign, to reduce interference from parked vehicles. Where neither pedestrians nor parked vehicles have to be considered (e.g. on a traffic island or median), a mounting height of 1.5m may be more appropriate.

REV	DATE	DETAILS
0	26/07/2024	Initial Release.
1	26.07.24	
2		
3		
4		
5		
6		
7		

TRAFFIC CONTROLLERS

Worksites are hazardous areas so use manual traffic control only where PTCDs are insufficient to provide the safety, capacity and efficiency required for effective traffic control. When traffic controllers are used, traffic controllers cannot direct a road user to contradict upcoming intersection signals. Traffic controllers are to coordinate activities with operating signals. If traffic controllers are operating within close proximity to a signalised intersection and the lights are flashing yellow or are off, a traffic controller shall only control one lane and the approach to this intersection shall be reduced to one lane of traffic. Where works cause delays to traffic flow or a side road intersects the worksite, do not use an automated PTCD, a traffic controller is required. The following requirements and recommendations apply when using traffic controllers:

- Only competent persons with appropriate certification shall be appointed as a traffic controller (see QGTTM Part 7).
- Speed shall be 60 km/h maximum. Provide a temporary speed limit of 60 km/h or less on the approach to a traffic controller if the speed is higher (see Section 5.5.1).
- An escape route shall be identified for each traffic controller from their traffic control position.
- Traffic controllers shall be positioned a clear sight distance from approaching road users (see QGTTM Part 3 Section 2.5.4) with no obstruction and where they are not obstructing visibility to traffic control devices (i.e. signs). No obstruction should be located in the area between the traffic controller and the end of the line of four cones.
- Ensure that a work vehicle is not parked in a way that impacts the visibility of the traffic controller or, limits the traffic controller's escape route or, is parked between the traffic controller and the taper.
- Ensure that traffic controllers are visible at all times of the day, particularly at dawn, dusk, against low morning or evening sun, when in the shade on a sunny day or working in dusty conditions.
- Ensure that traffic controllers are well illuminated at night. Where required, provide additional lighting.
- Relieve traffic controllers from traffic controller duties at least every 2 hours for at least 15 minutes.
- If cone tapers are used, position the traffic controller 6 m in front of the taper on the left-hand shoulder or edge of the road and facing approaching traffic.
- Place four traffic cones spaced 4 m apart, on the centre-line 6 m in front of the traffic controller position.
- If there is a queue, traffic controllers can move to the driver's side when safe to do so to remain visible to all road users.
- Under no circumstances are traffic controllers to stand or operate unprotected in a lane carrying traffic.
- Traffic controllers are to only communicate with a road user once the vehicle has stopped and is safe to do so.
- Ensure a single traffic controller never controls more than one lane of traffic or more than one approach.

A single traffic controller can operate two PTSS at one time in special circumstances.

- Provide a traffic controller at intersections to guide road users entering from a side road.
- Some intersections require three or more traffic controllers. Where multiple traffic controllers are used they are required to:
 - ensure that road users are not seeing conflicting message from other traffic controllers at different locations of the worksite
 - be in continuous radio contact with each other when they are not visible to each other.

For detailed guidance on traffic controllers see QGTTM Part 7.

FATIGUE MANAGEMENT

Active Traffic Controllers

- 2-4 Requires 1 Additional TC
- 5-8 Requires 2 Additional TC's
- 8-12 Requires 3 Additional TC's

SCOPE OF WORKS

Operation:	Permanent Signage
Term:	Long Term
Road Type:	Multi Lane One Way Road - 100 km/h
Travelled Path:	
(a) Direction:	Both
(b) Width:	N/A
(c) Footpath:	N/A
(d) Vehicle:	Past worksite
Control:	Speed Reduction



WORKFORCE ROAD SERVICES QLD

TM Registration: 0355

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Resource	Quantity
Sign Ute	0
Traffic Controller	4
VMS Ute	1
TMA Truck	1
Cone Truck	1

Job No: 36475 - 1 to 2 - Detailed NOTES, Page 13 of 37

Client Details	Roadtek	Location Details	Bremer River Bridge
	Wayne Hansford		
	Not Relevant		
Authoritative Reference:	QMUTCD (Nov 23)/AS-1742.3:2019, QGTTM (Nov 23) & AGTTM (V 1.0)		
Scale:	(nts)	Approved By / Lic. No.	Signed
		Sch.4 Part 4 s.6	

Planner, TMD	Comments
Sch.4 Part 4 s.6	Initial Design
Sch.4 Part 4 s.6	Added Queue Length
	Not Relevant

AADT: AADT	
Rev	Date
A	15/05/2024
B	
C	
D	
Contact Number: 07 4297 4550	



Through, Past, Around Analysis for: Permanent Highway Signage

Options	Option Features	Works Comments	Selected?	
Through the Worksite	LOS maintained. Travel Path Maintained. Minimal Delays. Minimal Disruption.	ADOPTED: No disruptions to travelled path. Speed Reduction implimented.	Not Adopted	
Past the Worksite	Shoulder Closure	LOS maintained. Travel Path Maintained. Minimal Delays. Minimal Disruption.	NOT ADOPTED: No closures required. Permanent signage w/ speed reduction implimented	Not Adopted
	Lane Closure	LOS is acceptable. Personel and plant separated from traffic. Work Area directly accessible to workers and plant.	NOT ADOPTED: No closures required. Permanent signage w/ speed reduction implimented.	Adopted
	Lateral Shift	LOS is acceptable. Minimal Delays. Minimal Disruption.	NOT ADOPTED: No closures required. Permanent signage w/ speed reduction implimented	Not Adopted
Around the Worksite	Detour	Work area is accessible to workers, plant, & site vehicles. Traffic is separated from workers, plant, & site vehicles. More efficient & timely works - allows site vehicles, plant, & delivery vehicles to park & unload at the works areas. Reduces the possibility of collision with persnnel, plant, site vehicles, & the public.	NOT ADOPTED: No closures required. Permanent signage w/ speed reduction implimented	Not Adopted
	Side-Track	Work area is accessible to workers, plant, & site vehicles. Traffic is separated from workers, plant, & site vehicles. More efficient & timely works - allows site vehicles, plant, & delivery vehicles to park & unload at the works areas. Reduces ine possibility of collision with persnnel, plant, site vehicles, & the public.	NOT ADOPTED: No closures or diversions required. Permanent signage w/ speed reduction implimented	Not Adopted
	Crossover (Contra-Flow)	Work area is accessible to workers, plant, & site vehicles. Traffic is separated from workers, plant, & site vehicles. More efficient & timely works - allows site vehicles, plant, & delivery vehicles to park & unload at the works areas. Reduces possibility of collision with persnnel, plant, site vehicles, & the public.	NOT ADOPTED: No closures or diversions required. Permanent signage w/ speed reduction implimented	Not Adopted
Short Term, Low Impact Works	LOS is acceptable. Minimal Delays. Minimal Disruption.	ADOPTED: No closures or diversions required. Permanent signage w/ speed reduction implimented		



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Resource	Quantity	Job No: 36475 - 1 to 2 - Through, Past, Around, Page 14 of 37				AADT: AADT	
Sign Ute	0	<small>Client Details</small> Roadtek	<small>Location Details</small> Bremer River Bridge	Planner, TMD	Comments	Rev	Date
Traffic Controller	4	Wayne Hansford		Sch.4 Part 4 s.6	Initial Design	A	15/05/2024
VMS Ute	1	Not Relevant		Sch.4 Part 4 s.6	Added Queue Length	B	
TMA Truck	1				Not Relevant	C	
Cone Truck	1					D	
		<small>Authoritative Reference:</small> QMUTCD (Nov 23)/AS-1742.3:2019, QGTTM (Nov 23) & AGTTM (V 1.0)	<small>Scale:</small> (nts)	<small>Approved By / Lic. No.</small> Sch.4 Part 4 s.6	<small>Signed</small>	<small>Contact Number:</small> 07 4297 4550	





WORKFORCE ROAD SERVICES QLD
 TM Registration: 0335
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Resource	Quantity
Sign Ute	0
Traffic Controller	4
VMS Ute	1
TMA Truck	1
Cone Truck	1

Job No: 36475 - 1 to 2 - LHS Lane Closure, Page 1 of 4

Client Details Roadtek	Location Details Bremer River Bridge
Wayne Hansford	
Not Relevant	
Authoritative Reference: QMUTCD (Nov 23)/AS-1742.3:2019, QGTTM (Nov 23) & AGTTM (V 1.0)	

Planner, TMD	Comments
Sch.4 Part 4 s.6	initial Design
Sch.4 Part 4 s.6	Added Queue Length
	Not Relevant
Approved By / Lic. No.	Signed
Sch.4 Part 4 s.6	

AADT: AADT	
Rev	Date
A	15/05/2024
B	26.07.24
C	
D	
Contact Number: 07 4297 4550	



Signage to be used in conjunction with permanent signage already installed on the job for current Long term Bridge Works
TGS to be revised if at any time Long term project signage is removed



TGS to Be Used with Site Suitable
Chicane TGS and EB Closures for Over dimensional Vehicles

800m

Warrego Highway

Ashburn Road

River Road

River Road

WORKFORCE ROAD SERVICES QLD
TM Registration: 0335
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Resource	Quantity
Sign Ute	0
Traffic Controller	4
VMS Ute	1
TMA Truck	1
Cone Truck	1

Job No: 36475 - 1 to 2 - LHS Lane Closure, Page 2 of 4	
<small>Client Details</small> Roadtek Wayne Hansford Not Relevant	<small>Location Details</small> Bremer River Bridge
<small>Authoritative Reference:</small> QMUTCD (Nov 23)/AS-1742.3:2019, QGTTM (Nov 23) & AGTTM (V 1.0)	

Planner, TMD	Comments
Sch.4 Part 4 s.6	Initial Design
Sch.4 Part 4 s.6	Added Queue Length
	Not Relevant
Approved By / Lic. No.	Signed
Sch.4 Part 4 s.6	

AADT: AADT	
Rev	Date
A	15/05/2024
B	26.07.24
C	
D	
<small>Contact Number:</small> 07 4297 4550	



Signage to be used in conjunction with permanent signage already installed on the job for current Long term Bridge Works
TGS to be revised if at any time Long term project signage is removed

Queued Traffic Calculator
Select calculation options:
 Traffic cones AADT hourly count AADT daily count

Oversize vehicle measurement:
 Number Percentage

Count from nearest vehicle approach to the traffic controller in a 5-minute period, then enter the values in the fields below.
 Note: This calculator is only for assessment at this constant time.

Max Stopping Time: minutes
 Total Vehicles:
 Percentage of oversize vehicles: %

Estimated Max Queue Length:
651 metres

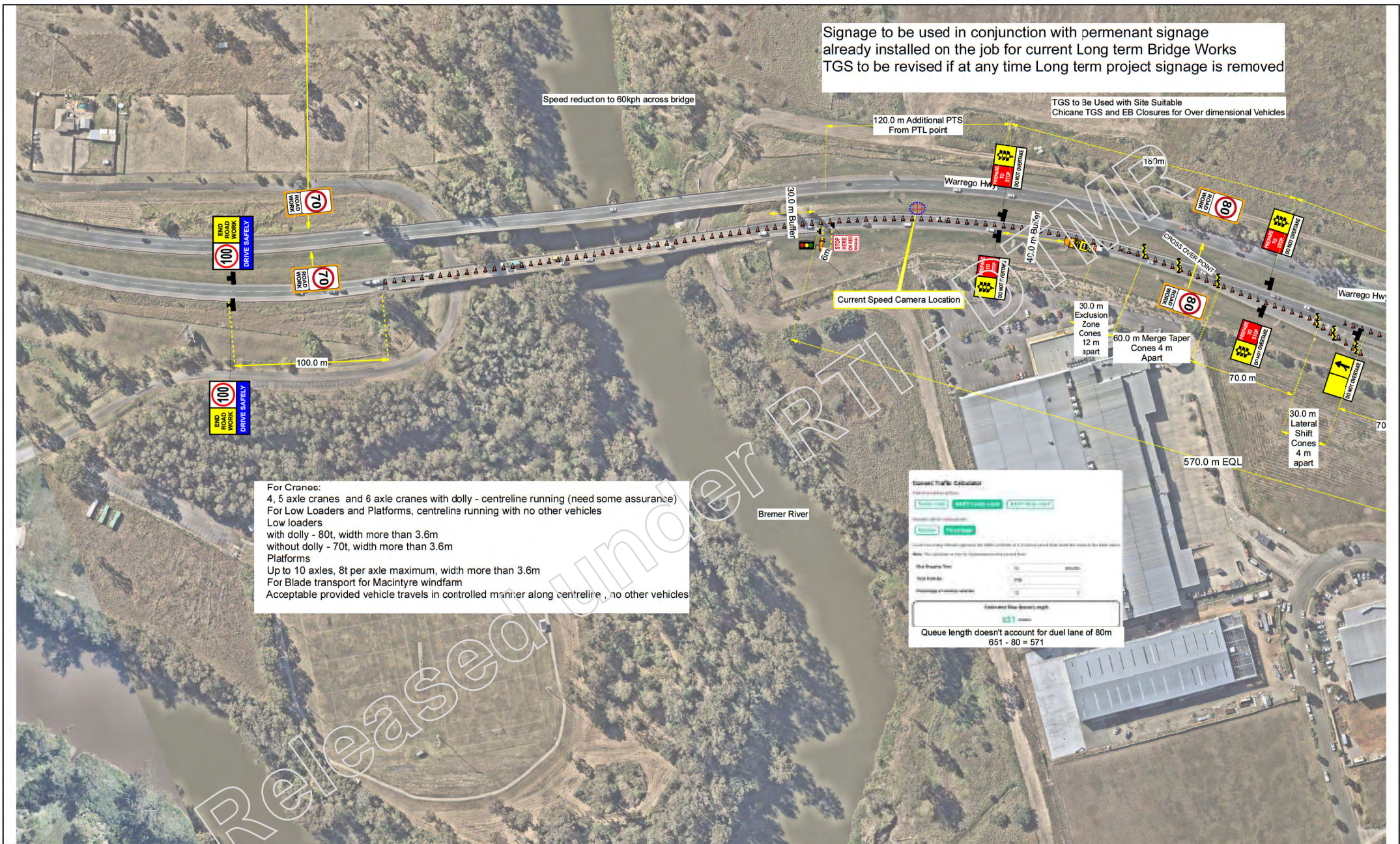
Queue length doesn't account for dual lane of 80m
 $651 - 80 = 571$



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 TM Registration: 0335
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 Stapylton, QLD, 4207
 QLD.Plans@workforce.com.au

Resource	Quantity	Job No: 36475 - 1 to 2 - LHS Lane Closure, Page 3 of 4		AADT: AADT	
Sign Ute	0	Client Details	Roadtek	Location Details	Bremer River Bridge
Traffic Controller	4		Wayne Hansford		
VMS Ute	1		Not Relevant		
TMA Truck	1	Authoritative Reference:	QMUTCD (Nov 23)/AS-1742.3:2019, QGTTM (Nov 23) & AGTTM (V 1.0)		Scale: (nts)
Cone Truck	1			Planner, TMD	Comments
				Sch.4 Part 4 s.6	Initial Design
				Sch.4 Part 4 s.6	Added Queue Length
					Not Relevant
				Approved By / Lic. No.	Signed
				Sch.4 Part 4 s.6	
					Contact Number: 07 4297 4550





Signage to be used in conjunction with permanent signage already installed on the job for current Long term Bridge Works TGS to be revised if at any time Long term project signage is removed

TGS to be Used with Site Suitable Chicane TGS and EB Closures for Over dimensional Vehicles

Speed reduction to 60kph across bridge

120.0 m Additional PTS From PTL point

18.0m

Warrego Hwy

Warrego Hwy

Current Speed Camera Location

30.0 m Exclusion Zones Cones 12 m apart

60.0 m Merge Taper Cones 4 m Apart

70.0 m

30.0 m Lateral Shift Cones 4 m apart

570.0 m EQL

For Cranes:
 4, 5 axle cranes and 6 axle cranes with dolly - centreline running (need some assurance)
 For Low Loaders and Platforms, centreline running with no other vehicles
 Low loaders with dolly - 80t, width more than 3.6m
 without dolly - 70t, width more than 3.6m
 Platforms
 Up to 10 axles, 8t per axle maximum, width more than 3.6m
 For Blade transport for Macintyre windfarm
 Acceptable provided vehicle travels in controlled manner along centreline, no other vehicles

Queue Length Calculator

Queue length doesn't account for dual lane of 80m
 651 - 80 = 571

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Resource	Quantity
Sign Ute	0
Traffic Controller	4
VMS Ute	1
TMA Truck	1
Cone Truck	1

Job No: 36475 - 1 to 2 - LHS Lane Closure, Page 4 of 4

Client Details	Roadtek Wayne Hansford Not Relevant	Location Details	Bremer River Bridge
Authoritative Reference:	QMUTCD (Nov 23)/AS-1742.3:2019, QGTTM (Nov 23) & AGTTM (V 1.0)		
Scale:	(nts)		

Planner, TMD	Comments
Sch.4 Part 4 s.6	Initial Design
Sch.4 Part 4 s.6	Added Queue Length
	Not Relevant
Approved By / Lic. No.	Signed
Sch.4 Part 4 s.6	

AADT: AADT	Rev	Date
	A	15/05/2024
	B	26.07.24
	C	
	D	
Contact Number:	07 4297 4550	





Resource		Quantity	Job No: 36475 - 1 to 2 - RHS Lane Closure, Page 1 of 4		AADT: AADT	
Sign Ute		0	Client Details	Location Details	Planner, TMD	Comments
Traffic Controller		4	Roadtek	Bremer River Bridge	Sch.4 Part 4 s.6	Initial Design
VMS Ute		1	Wayne Hansford		Sch.4 Part 4 s.6	Added Queue Lengh
TMA Truck		1	Not Relevant			Not Relevant
Cone Truck		1				
			Authoritative Reference:	Scale:	Approved By / Lic. No.	Signed
			QMUTCD (Nov 23)/AS-1742.3:2019, QGTTM (Nov 23) & AGTTM (V 1.0)	(nts)	Sch.4 Part 4 s.6	
						Contact Number:
						07 4297 4550

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Signage to be used in conjunction with permanent signage already installed on the job for current Long term Bridge Works
TGS to be revised if at any time Long term project signage is removed

TGS to Be Used with Site Suitable
Chicane TGS and EB Closures for Over dimensional Vehicles



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Resource	Quantity
Sign Ute	0
Traffic Controller	4
VMS Ute	1
TMA Truck	1
Cone Truck	1

Job No: 36475 - 1 to 2 - RHS Lane Closure, Page 2 of 4	
<small>Client Details</small> Roadtek Wayne Hansford Not Relevant	<small>Location Details</small> Bremer River Bridge
<small>Authoritative Reference:</small> QMUTCD (Nov 23)/AS-1742.3:2019, QGTTM (Nov 23) & AGTTM (V 1.0)	

Planner, TMD	Comments
Sch.4 Part 4 s.6	Initial Design
Sch.4 Part 4 s.6	Added Queue Length
	Not Relevant
<small>Scale:</small> (nts)	<small>Approved By / Lic. No.</small> Sch.4 Part 4 s.6

AADT: AADT	
Rev	Date
A	15/05/2024
B	26.07.24
C	
D	
<small>Contact Number:</small> 07 4297 4550	



Signage to be used in conjunction with permanent signage already installed on the job for current Long term Bridge Works
TGS to be revised if at any time Long term project signage is removed

TGS to Be Used with Site Suitable
Chicane TGS and EB Closures for Over dimensional Vehicles

Speed reduction to 60kph across bridge

Current Speed Camera Location

120.0 m Additional PTS
From PTL point

180.0 m

Warrego Hwy

CROSS OVER POINT

War

30.0 m
Exclusion
Zone
Cones
12 m
apart

80.0 m

70.0 m

30.0 m

570.0 m EQL

Bremer River

For Cranes:
4, 5 axle cranes and 6 axle cranes with dolly - centreline running (need some assurance)
For Low Loaders and Platforms, centreline running with no other vehicles
Low Loaders
with dolly - 80t, width more than 3.6m
without dolly - 70t, width more than 3.6m
Platforms
Up to 10 axles, 8t per axle maximum, width more than 3.6m
For Blade transport for Macintyre windfarm
Acceptable provided vehicle travels in controlled manner along centreline, no other vehicles

Queue Length Calculator

Queue length doesn't account for dual lane of 80m
651 - 80 = 571

Released under RTI

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Resource	Quantity	Job No: 36475 - 1 to 2 - RHS Lane Closure, Page 4 of 4				AADT: AADT	
Sign Ute	0	Client Details	Roadtek	Location Details	Bremer River Bridge	Planner, TMD	Comments
Traffic Controller	4		Wayne Hansford		Sch.4 Part 4 s.6	Initial Design	Rev Date
VMS Ute	1		Not Relevant		Sch.4 Part 4 s.6	Added Queue Length	A 15/05/2024
TMA Truck	1					Not Relevant	B 26.07.24
Cone Truck	1	Authoritative Reference:	QMUTCD (Nov 23)/AS-1742.3:2019, QGTTM (Nov 23) & AGTTM (V 1.0)		Scale: (nts)	Approved By / Lic. No.	C
						Signed	D
							Contact Number: 07 4297 4550

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Equal Insurance



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Resource	Quantity
Sign Ute	0
Traffic Controller	0
VMS Ute	0
TMA Truck	0
Cone Truck	0

Job No: 36475 - 1 to 2 - Permanent Signage, Page 1 of 6

Client Details	Roadtek Wayne Hansford Not Relevant	Location Details	Bremer River Bridge
Authoritative Reference:	QMUTCD (Nov 23)/AS-1742.3:2019, QGTTM (Nov 23) & AGTTM (V 1.0)		Scale (nts)

Planner, TMD	Comments
Sch.4 Part 4 s.6	Initial Design
Approved By / Lic. No.	Signed
Sch.4 Part 4 s.6	

AADT: AADT	
Rev	Date
A	15/05/2024
B	
C	
D	
Contact Number: 07 4297 4550	





VMS 3
TRUCKS MUST
USE LEFT LANE
ON BRIDGE

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Resource	Quantity
Sign Ute	0
Traffic Controller	0
VMS Ute	0
TMA Truck	0
Cone Truck	0

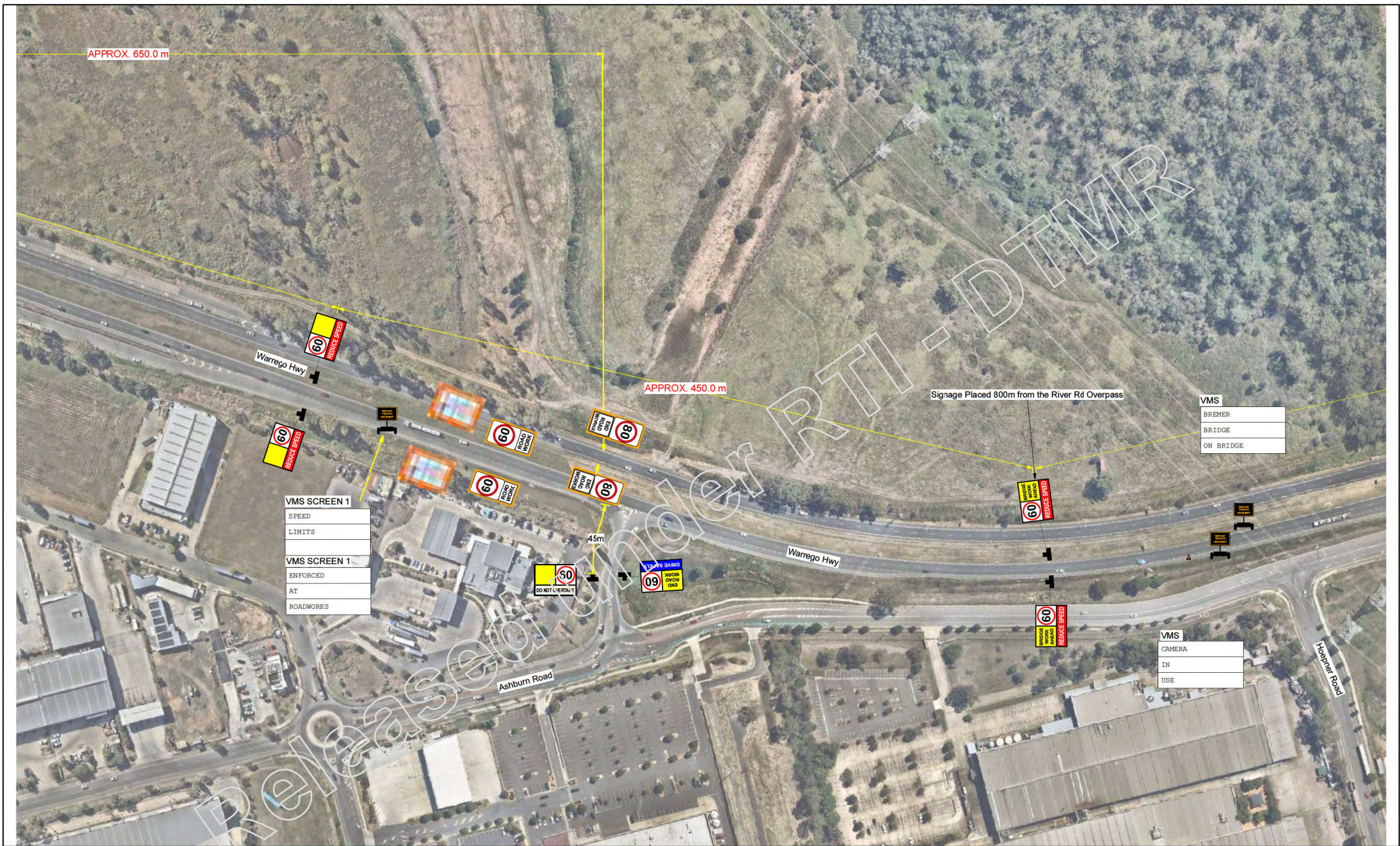
Job No: 36475 - 1 to 2 - Permanent Signage, Page 2 of 6

Client Details	Location Details
Roadtek Wayne Hansford Not Relevant	Bremer River Bridge
Authoritative Reference: QMUTCD (Nov 23)/AS-1742.3:2019, QGTTM (Nov 23) & AGTTM (V 1.0)	Scale: (nts)

Planner, TMD	Comments
Sch.4 Part 4 s.6	Initial Design
Approved By / Lic. No.	Signed
Sch.4 Part 4 s.6	

AADT: AADT	
Rev	Date
A	15/05/2024
B	
C	
D	
Contact Number: 07 4297 4550	





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Resource	Quantity
Sign Ute	0
Traffic Controller	0
VMS Ute	0
TMA Truck	0
Cone Truck	0

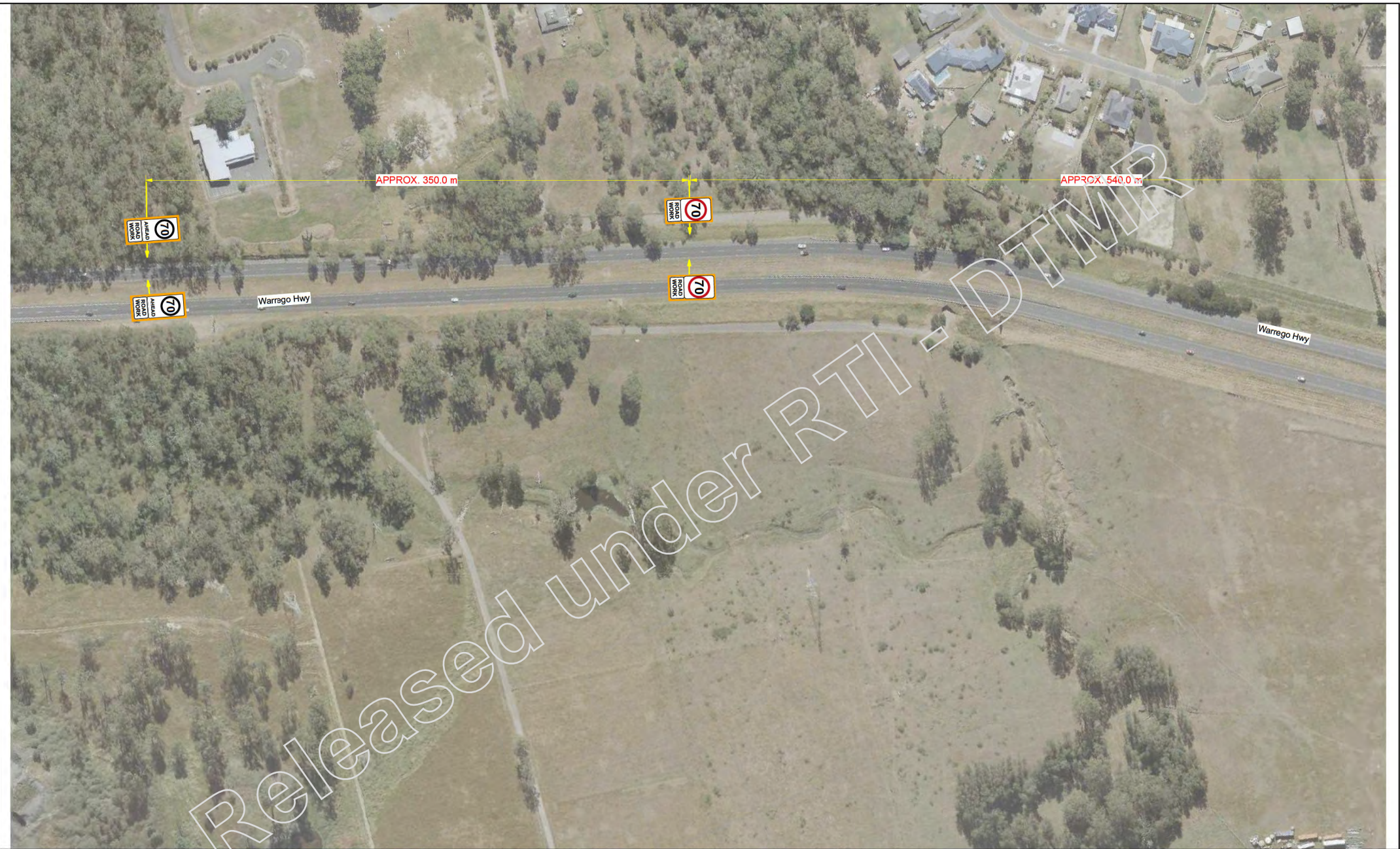
Job No: 36475 - 1 to 2 - Permanent Signage, Page 3 of 6




Client Details	Roadtek Wayne Hansford Not Relevant	Location Details	Bremer River Bridge
Authoritative Reference:	QMUTCD (Nov 23)/AS-1742.3:2019, QGTTM (Nov 23) & AGTTM (V 1.0)		
Scale	(nts)		

Planner, TMD	Comments	AADT: AADT
Sch.4 Part 4 s.6	Initial Design	Rev Date
		A 15/05/2024
		B
		C
		D
Approved by / Lic. No.	Signed	Contact Number:
Sch.4 Part 4 s.6		07 4297 4550

VMS	BREMER
VMS	BRIDGE
VMS	ON BRIDGE
VMS	CAMERA
VMS	IN
VMS	USE

ISO 9001 Certified
 Equal Assurance
 AS 4801 Certified
 Equal Assurance



Resource		Quantity	Job No: 36475 - 1 to 2 - Permanent Signage, Page 6 of 6				AADT: AADT				
 WORKFORCE ROAD SERVICES QLD <small>TM Registration: 0335</small> 15 / 38 Eastern Service Rd, Stapylton, QLD, 4207 QLD.Plans@workforce.com.au	Sign Ute	0	Client Details	Roadtek Wayne Hansford Not Relevant	Location Details	Bremer River Bridge	Planner, TMD	Comments	Rev	Date	 
	Traffic Controller	0				Sch.4 Part 4 s.6	Initial Design	A	15/05/2024		
	VMS Ute	0						B			
	TMA Truck	0						C			
	Cone Truck	0						D			
			Authoritative Reference:	QMUTCD (Nov 23)/AS-1742.3:2019, QGTTM (Nov 23) & AGTTM (V 1.0)		Scale	Approved By / Lic. No.	Signed	Contact Number:		
						(nts)	Sch.4 Part 4 s.6		07 4297 4550		

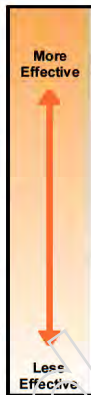


PART A: RISK ASSESSMENT DETAILS		PLAN TYPE:	New: <input checked="" type="checkbox"/> Amendment: <input type="checkbox"/>
Job Location:	Warrego Hwy, Riverview	Client:	Roadtek
Order Number:		TGS No.:	30830
Order creation date:		Drawn on:	20/03/2024
Depot:	Chermside	Planner:	Sch.4 Part 4 s.6

NOTE: In RapidPlan, goto: Plan Properties >> Plan Options >> Text Variables >> EDIT, to edit these text variables

PART B: RISK ASSESSMENT & HIERARCHY OF CONTROLS

1	Eliminate the hazard completely: e.g. get rid of the dangerous machinery.
2	Substitute the hazard with a safer alternative, e.g. Replace the machine with a safer version.
3	Isolate the hazard from everyone who could be harmed, e.g. keep the machine in a closed room & operate it remotely.
4	Use engineering controls to reduce the risk, e.g. attach guards to the machine to protect users.
5	Use administrative controls to reduce the risk, e.g. train workers on how to use the machine safely.
6	Use PPE, e.g. wear gloves & goggles when using the machine.



STEP 1 - Consequence (Impact)					
Negligible (1)	Minor (2)	Moderate (3)	Major (4)	Severe (5)	
FIRST AID Treatment Very minor injury that requires no treatment or only simple first aid	MEDICAL Treatment Injury / illness which requires medical treatment & may temporarily restrict a person ability to work	LOST TIME Injury Injury / illness which temporarily renders a person unfit to work in any capacity	PERMANT IMPAIRMENT Injury Injury / illness which permanently alters a person's future (eg. spinal injury, amputation, deafness)	FATALITY	Health & Safety
Short term Enviro damage	Limited but medium term Enviro damage	Significant but recoverable Ecological damage	Heavy Ecological damage, costly restoration	Permanent widespread Ecological damage	Enviro
Brief delay / slight impact on works service delivery	Local or worksite specific impact on service delivery or customer satisfaction	Temporary impact on service delivery or customer satisfaction at a local client / project level	Serious impact on service delivery or customer satisfaction at a state client / large project level	Long term or very severe impact on service delivery or customer satisfaction resulting in a loss of business nationally	Quality

STEP 2 - Probability (Likelihood)	Almost Certain (5)	The threat can be expected to occur 75% to 99 %	Common / Frequent occurrence	More than 1 event per month	Moderate (8)	High (16)	High (18)	High (21)	Extreme (25)
	Likely (4)	The threat will quite commonly occur 50% to 75%	Is know to occur or "It has happened regularly"	More than 1 event per year	Moderate (7)	Moderate (10)	High (17)	High (20)	High (24)
	Possible (3)	The threat may occur occasionally 25% to 50%	Could occur or "I've near of it happening"	1 event per 1 to 10 years	Low (3)	Moderate (9)	Moderate (12)	High (19)	High (23)
	Unlikely (2)	The threat could infrequently occur 10% to 25%	Not likely to occur very often	1 event per 10 to 100 years	Low (2)	Low (5)	Moderate (11)	Moderate (14)	High (22)
	Rare (1)	The threat may occur in exceptional circumstances 0% to 10%	Conceivable but only in exceptional circumstances	Less than 1 event per 100 years	Low (1)	Low (4)	Low (6)	Moderate (13)	Moderate (15)

STEP 3 - RISK RATING: intersection of the Probability row and Consequence column



Item	Worksite Component	Potential Hazard - what could go wrong	Initial Risk			Present	Control Measures	Residual Risk		
			C	P	R			C	P	R
Acceptance										
1.1	TGS drawn by unqualified person or organisation Traffic control carried out by an unqualified person or organisation	TGS or Traffic Management not adequate for the project	5	3	23	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Always: - provide name and TMD number of person who designed the TGS - provide name and TMD number of person who approved the TGS - give the TGS an accurate and appropriate title - use TMR qualified contractors if traffic control is required - provide proposed traffic controller names and registration numbers - carry out and submit a Risk Assessment in accordance with QLD WHS procedures - any departures from QMUTCD/QGTTM must be RPEQ approved	4	1	13
1.2	Traffic controllers used instead of PTC	Traffic controller hit by vehicle	5	4	24	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	- Consider use of shadow vehicles if practical - Ensure best possible escape route when allocating traffic control station on the TGS - Ensure best line of sight where practical. Should best line of sight not be possible, use repeater signs in advance warning - Traffic controller to remain clear of the travelled path at all times	4	2	14
Advanced Warning										
1.3	VMS	Motorist collides with VMS Motorist confused by VMS	4	4	16	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	- Always place VMS outside the clear zone (80 km/h = 5 m, 60 km/h = 3 m, 40 km/h = 1.2 m), or on vehicles - Always use a concise message (2 screens max: QMUTCD 4.22.3)	3	2	11
1.4	Long Term Works	Confused motorist collides with worker	4	4	20	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	- Always install Roadwork Ahead on long-term road work sites - Consider using VMS's	3	3	12
1.5	Delays or Queue extends beyond advance warning signs	Motorist collides with end of queue	4	4	20	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Always: - work according to approved & appropriate Road Occupancy License - use 2-way communications with trucks & give them priority when possible - monitor traffic queue lengths - install additional signs or use additional traffic controllers or stop work & clear traffic if end-of-queue extends beyond stated Max Queue Length - give Emergency vehicles and Wide Loads priority Consider: - working outside of peak periods - liaising with TMC for assistance with traffic signal phasing - notify emergency services - adding flashing beacons to the Advance Warning signage - use of queue length monitors - use VMS signs	4	2	14



Item	Worksite Component	Potential Hazard - what could go wrong	Initial Risk			Present	Control Measures	Residual Risk		
			C	P	R			C	P	R
Advanced Warning cont'd										
1.6	Changed traffic conditions (eg. slippery surface, no lines, changed line marking, banned turning movements, detours, etc.)	Motorist loses control, is confused, or attempts a banned maneuver causing a Motor Vehicle Accident (MVA)	4	4	20	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Always: - install Roadwork Ahead if diverting traffic along a side track, detour, or unexpected conditions such as loose stones, or the absence of line marking - erect Condition signs in accordance with QMUTCD & QGTTM - provide delineation or temporary line marking & ensure this is clearly shown on the TGS - use Traffic Control if traffic is required to perform illegal manoeuvres such as crossing double lines - check setup before commencing work - obtain appropriate permissions before implementing any detours - reduce speed to 80 km/h where there are changed traffic conditions on the site such as, reduction in the number or width of lanes & varying surfaces - consider using VMS's	3	2	11
1.7	After Care	Inadequate signage resulting in motorist losing control & crashing or motorist becomes frustrated due to inappropriate signage	4	4	16	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Always: - install Roadwork Ahead if diverting traffic along a side track, detour, or unexpected conditions such as, loose stones, or the absence of line marking - cover any signs that are not applicable - erect Condition signs in accordance with QMUTCD & QGTTM - provide delineation or temporary line marking - return speed to normal if safe or if this is not possible, it should be no more than 20 km/h below the normal speed	3	3	12
1.8	Poor sight distance or speed compliance or approach speed > 85 km/h, or multi-lane roads with multi-lane volume > 10,000 vpd	Speeding vehicle doesn't have time to react and fails to negotiate merge taper	5	4	24	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Always: - install Roadwork Ahead 1 km before for approach speeds > 80 km/h or if the sight distance is < 150 m - install End Roadwork - Install Roadwork Ahead whenever a TC Station exists - use 700+ mm cones where traffic speeds are greater than 70 km/h - duplicate Lane Status signs. If duplication is not practicable, repeat signage 1x sign spacing after the initial sign Consider: - installing Roadwork Ahead signs - position and length of tapers - ensure proper sign spacing as per QGTTM Book 3, Table 2.2 - using TMA for worker protection and for TC protection during site setup - adding Repeater signs 15 m past any intersections which lead into the work area or between the PTS sign and the Traffic Control Station	4	2	14



Item	Worksite Component	Potential Hazard - what could go wrong	Initial Risk			Present	Control Measures	Residual Risk		
			C	P	R			C	P	R
Advanced Warning cont'd										
1.9	Side Roads	Vehicles enter work site from a side road and collide with workers	3	4	17	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Always install RW/On Side Road only on the Through Road prior to side road intersections when insufficient room on the Side Road in order to provide adequate warning to drivers on the Through Road	3	2	11
1.10	Temporary Speed Zone	Motorist travelling too fast for the conditions and causes a MVA	5	4	24	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Always: - Install dual signage on high speed/high volume roads when practicable or place the 2nd sign 1x sign spacing after the first sign - install signs as per QGTTM Book 3, Table 2.2 while accounting for the 200 m sign spacing rule (Fig. 2.2, Section 2.5.3) - reduce speed to 80 km/h where a transition zone is required in 100+ km/h zones where a 60 km/h or 40 km/h roadwork speed zone is used & the use of a Speed Limit AHEAD sign is considered inadequate - restrict speed zones of ≤ 40 km/h to areas immediately adjacent to road workers and distances ≤ 500 m in length - return speed to 60 km/h at end of 40 zone - place End Road Work/<SPEED> across from the opposite sides start of 60 km/h zone - rarely use of END-60 instead of <SPEED> - SPEED must legally be reinstated, unless there is a risk exception	4	2	14
Transition										
1.11	Lane closure or Lateral Shift	Motorist fails to negotiate taper and collides with worker, vehicle, or plant	5	4	24	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Always: - install taper lengths as per QGTTM Table 5.6 - separate consecutive tapers as per QGTTM Table 5.7 - maximum spacing of cones as per QGTTM Table 5.3 - install Lane Status signs, when practicable, on both sides of the road - if duplication is not possible, double up on same side with 1x spacing - use a minimum of 2x Temporary Hazard Markers in tapers - for 60+ km/h roads, install a 20 to 30 m safety buffer before work zone - consider using shadow vehicles, with flashing lights, to protect workers - ensure best line-of-sight for tapers to ensure adequate warning - check setup before commencing works	4	2	14



Item	Worksite Component	Potential Hazard - what could go wrong	Initial Risk			Present	Control Measures	Residual Risk		
			C	P	R			C	P	R
Work Area										
1.12	Traffic Control	Motorist not concentrating or speeding collides with end of queue or traffic controller	5	4	24	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	ALWAYS: - install PTS and Traffic Controller Ahead signs, & repeaters - install Roadwork Ahead signs - provide proposed traffic controller's names, registration numbers, & TMR TC Industry Authority No/CRN - use approved Portable Traffic Control Devices (PTCD) unless it's safer not to as per on-site Risk Assessment - clearly show the position of traffic controllers or PTCD on TGS - Ensure speed is reduced to ≤ 60 km/h before the 1st PTS sign - Check sight distance from sign to Primary PTS as per QGTTM Table 2.3 - ensure that there is an unobstructed escape route - check that traffic controllers are not position in or before a safety buffer - install 4 cones, @ 4 m spacing, on centerline, 6 m before TC - consider extending distances in wet weather and also; - consult client to consider an alternative setup or cancellation - traffic controllers shall be positioned a clear sight distance from approaching road users (QGTTM, Book-03, Section 2.5.4) - ensure that drivers' sight distance to the PTS sign is maintained - ensure that the traffic controllers sight distance to the PTS is maintained	4	2	14
1.13	Working adjacent to travel lane	Motorist collides with worker, vehicle, or plant	4	4	20	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Always: - install Workman signs when workers are visible to drivers - set cone spacing as per QGTTM Table 5.3 - check setup before commencing work - reduce speed to 80 km/h when workers on foot or plant are within 3 to 6 m of the traffic lane without a protective barrier system - reduce speed to 60 km/h when workers are within 1.2 m to 3 m of a live lane - reduce speed to 40 km/h when workers will work within 1.2 m of a live lane - used a shadow vehicle(s) with flashing lights to protect workers - consider using spotters with the workers	4	2	14
General										
1.14	Night work	Due to poor visibility motorist collides with end of queue, worker, vehicle, or plant	5	4	24	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	- Traffic Control Station is required to be properly illuminated; consider the need to provide portable lighting on the TGS - Use correct bio-motion retro-reflective & yellow fluoro PPE clothing	4	2	14



Item	Worksite Component	Potential Hazard - what could go wrong	Initial Risk			Present	Control Measures	Residual Risk		
			C	P	R			C	P	R
Advanced Warning cont'd										
1.15	Wind / Rain / Fog / Obstructions	Rain/fog reduces visibility & causes road to be slippery increasing risk of collision with workers, plant, or other traffic Wind blows over signs Vehicle parks in front of sign	5	4	24	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	- Always monitor weather and traffic - Always regularly check setup to ensure signs are visible. If they have become obstructed, consider shifting them, duplicating them, or repeating them - Consider extending distances in wet weather - Liaise with client to reconsider setup or continuation of works	3	3	12
1.16	Vehicle Movements	Plant collides with motorist, workers, or other plant	4	3	19	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	- Consider using Traffic Control and/or Spotters Always: - use two-way communications - provide Reversing BEEPERS on plant and vehicles - provide Flashing Beacons on plant and vehicles - prepare a Vehicle Movement Plan (VMP) if more than 20 truck movements in a shift - signpost entry and exit gates and show them clearly on the VMP	3	3	12
1.17	Pedestrians	Pedestrian enters work zone or travel lane & is hit by vehicle or plant	4	5	21	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	- Always delineate the work zone - Consider Pedestrians and appropriate signage - Consider using Traffic Control at crossing points especially where contra-flow arrangements exist - Traffic Controllers to monitor and assist where safe and possible - Close footpath and detour pedestrians	4	2	14
1.18	Cyclists	Cyclist enters work zone or travel lane & is hit by vehicle or	4	5	20	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	- Consider use of Watch For Cyclists signs - Minimum lane widths as per QGTTM, Book 3, Table 2.5 - Use of traffic control to manage and assist cyclists	4	2	14
1.19	Bus Stops	Bus unable to pull up safely causing a MVA	3	3	12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	- Consider notifying bus companies which operate in the area - Always provide adequate provision for busses or carry out work at night when busses aren't operating - Where temporary bus stops are created, ensure buses are able to meet the kerb - Ensure TGS clearly shows affect bus stops - Traffic Controllers to manage and assist where save and possible	2	2	5
1.20	Property accesses - commercial or private	Property owner enters work zone & collides with worker, vehicle, or plant, or cannot gain access to their property	3	4	17	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	- Consider staging work outside of business hours - Create a physical barrier to prevent traffic from entering site - Restrict access from driveways - TC's to hold traffic or TC to direct drivers	2	2	5
1.21	Excavations < 500 mm within 3 m of the travelled path	Errant vehicle drives into the excavation	5	5	25	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	- Always use traffic control or define the excavation using barrier boards perpendicular to the traffic flow or use closely spaced cones	4	2	14
1.22	Excavations > 500 mm within 3 m of the	Errant vehicle drives into the excavation	4	4	20	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	- Always install a temporary Safety Barrier if travel is within 3 m - Consider installing a temporary Safety Barrier if travel is more than 3 m from the excavation	4	2	14



Item	Worksite Component	Potential Hazard - what could go wrong	Initial Risk			Present	Control Measures	Residual Risk		
			C	P	R			C	P	R
General continued										
1.23	Parking	Parked vehicle, or workers exiting vehicles hit by passing vehicles	4	4	20	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> - Ensure adequate parking is available for workers & visitors - Consider establishing a safe parking area for workers - TC's can hold traffic while vehicles exit/enter 	3	3	12
1.24	Concurrent Works	Motorist confused by conflicting signs causing MVA	3	4	17	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> - Always establish communications with other sites if possible - Always cover conflicting signs - Always check with approved TMD before changing a TGS - Always schedule works as appropriate 	3	3	12
Mobile Works										
1.25	General Traffic	Motorist speeding / not concentrating / tired / distracted Not given enough time to merge causing a MVA	5	5	25	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<ul style="list-style-type: none"> - Always use a minimum of 1 Advance Warning Vehicle (AWV) - Consider the use of a second AWV - Reduce speeds to at least 60 km/h - Ensure sight distances between AWV, shadow vehicles, and workers, are clearly labeled on TGS - TMA on high speed roads / high volume roads (>3000 v/d & > 60 km/h; ; >10,000 v/d for all road speeds, QGTTM Section 5.8.1) - Ensure a TMA roll-ahead buffer of 40 m - Positive communications at all times - workers to be shadowed at all times - Monitor traffic queues on all road configurations - convoy to clear the roadway if required until the traffic has cleared 	4	2	14

Released under the OIA



PART C: REGULATORY COMPLIANCE AND QUALITY ASSURANCE

Item	Criteria	Yes	No	N/A	Control Measure
2.1	Sign spacing is correct for section speeds as per 200 m rule?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If no.... <input type="checkbox"/> Check the spacing value (QGTTM, Bk 3, Tbl 2.2)
2.2	For speeds ≥ 60 km/h, has a 20 m to 30 m safety buffer been implemented?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If no.... <input type="checkbox"/> Install correct buffer zone (QGTTM Sections: 3.6, 4.6, 5.6, 6.3)
2.3	Is the taper type, & the taper length, & taper separation distances correct?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If no.... <input type="checkbox"/> Check if a different taper type can be used (QGTTM Tbls 5.6 & 5.7)
2.4	If the speed limit has been reduced for work safety, is it justified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If no.... <input type="checkbox"/> Raise the speed limit to a suitable limit as per QGTTM
2.5	If the speed limit has been reduced for vehicle safety, is it justified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If no.... <input type="checkbox"/> Raise the speed limit to a suitable limit as per QGTTM
2.6	Have speed zones been implemented in correct/reasonable steps?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If no.... <input type="checkbox"/> Arrange appropriate speed reductions
2.7	Do all speed zones meet minimum & maximum distance requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If no.... <input type="checkbox"/> Adjust lengths of speed zones
2.8	Are signs in the correct order and logically linked?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If no.... <input type="checkbox"/> Adjust the arrangement of signs
2.9	Has the Job Number been entered?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If no.... <input type="checkbox"/> Enter the job number
2.10	Has the TGS drawing number been entered?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If no.... <input type="checkbox"/> Enter TGS number
2.11	Correct client details entered (Client Company Name, Contact, Phone)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If no.... <input type="checkbox"/> Enter client company and contact details
2.12	Has the correct job location been entered?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If no.... <input type="checkbox"/> Enter the works location
2.13	Have map references been added, if available?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If no.... <input type="checkbox"/> Enter a map reference, if appropriate
2.14	Is the legend correct, complete, and up to date?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If no.... <input type="checkbox"/> Update the legend
2.15	Has magnetic North been included and is it correct?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If no.... <input type="checkbox"/> Edit the North indicator
2.16	Has the correct Version Number been entered?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If no.... <input type="checkbox"/> Update the version numbers & associated Planner info
2.17	If a new version of the TGS, has the previous/original been saved/archived?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	If no.... <input type="checkbox"/> Save the original/previous version (for document control purposes)
2.18	Has a map been included on the TGS when there are no cross streets?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	If no.... <input type="checkbox"/> Include an overview map and/or GPS details



Item	PART D: ADDITIONAL CONTROL MEASURES
3.1	Speed reduction for public safety and the slowing of HV to the upcoming Bremer River Bridge
3.2	Conflicting signage to be covered
3.3	Signage at Location 1 and 2 are doubled up on Left hand shoulder for safety due to not enough room on right hand shoulder to mirror image
3.4	Once reduced to 60 KM/h repeater signage spaced AT 500M INTERVALS for driver confirmation of reduced speed
3.5	Speed reduced to 60 km/h west bound west of the River Rd over pass
3.6	15 min hold times for Welding works no vehicles to access bridge whilst welding is being undertaken
3.7	Use of Permenant VMS boards shall they be required for excessive Queeing of traffic
3.8	
3.9	
3.10	

NOTE: In RapidPlan, goto: Plan Properties >> Plan Options >> Text Variables >> EDIT, to edit these text variables

Planner:	Sch.4 Part 4 s.6	Approved by:	Sch.4 Part 4 s.6
Planner Signature:	Not Relevant	Signature:	Not Relevant
Date:	20/03/24	Date:	20/03/24