

File: 21/481  
Date: 7 March 2022

Johnstone Concrete & Quarries Pty Ltd  
C/- Groundwork Plus  
PO Box 1779  
**MILTON QLD 4064**

Attention: Sam Lyons

Dear Sam

**Decision Notice –approval (with conditions)  
Material Change of Use  
Lot 1 on SP214649, Millmerran-Inglewood Road, Inglewood**

We wish to advise that on 7 March 2022 a decision was made to approve the material change of use development application for “*Industry activities*” – “*Extractive Industry*” (Up to 500,000 tonnes per year) and ERA 16(2)(b) Extracting in a year more than 100,000 tonnes but less than 1,000,000 tonnes and ERA 16(3)(b) Screening in a year more than 100,000 tonnes but less than 1,000,000 tonnes at Lot 1 on SP214649, Millmerran-Inglewood Road, Inglewood. In accordance with the *Planning Act 2016*, please find attached Council's Decision Notice for the application.

Please read the conditions carefully as these include actions which must be undertaken **prior to the commencement of the use** as well as requirements for the ongoing operation of the use.

All conditions are required to be either complied with or bonded prior to the commencement of the use. Please note **Condition 38**, which requires a letter to be submitted to Council prior to commencement of the use, outlining and demonstrating compliance with each condition.

The applicant is required to **notify Council in writing of the date of the commencement** of the use, within fourteen (14) business days of commencement.

If you require any further information, please contact Council's Manager of Planning Services, Mrs Ronnie McMahon, on (07) 4671 7400 or [rmcmahon@grc.qld.gov.au](mailto:rmcmahon@grc.qld.gov.au), who will be pleased to assist.

Yours faithfully



**Mrs Ronnie McMahon**  
Manager of Planning Services  
Goondiwindi Regional Council

## Decision Notice approval

### Planning Act 2016 section 63

Council File Reference: 21/48I  
Council Contact: Mrs Ronnie McMahon  
Council Contact Phone: (07) 4671 7400

**Applicant Details:** Johnstone Concrete & Quarries Pty Ltd  
C/- Groundwork Plus  
PO Box 1779  
**MILTON QLD 4064**

Attention: Sam Lyons

The development application described below was properly made to Goondiwindi Regional Council on 23 September 2021

#### Applicant details

---

Applicant name: Johnstone Concrete & Quarries Pty Ltd  
Applicant contact details: Sam Lyons C/- Groundwork Plus  
PO Box 1779, Milton, Qld 4064  
[slyons@groundwork.com.au](mailto:slyons@groundwork.com.au)  
(07) 3871 0411

#### Application details

---

Application number: 21/48I  
Approval sought: Development Permit  
Details of proposed development: *"Industry activities" - "Extractive Industry"* (Up to 500,000 tonnes per year) and ERA 16(2)(b) Extracting in a year more than 100,000 tonnes but less than 1,000,000 tonnes and ERA 16(3)(b) Screening in a year more than 100,000 tonnes but less than 1,000,000 tonnes

#### Location details

---

Street address: Millmerran-Inglewood Road, Inglewood  
Real property description: Lot 1 on SP214649

#### Decision

---

Date of decision: 7 March 2022  
Decision details: Approved in full with conditions. These conditions are set out in Attachment 1 and are clearly identified to indicate whether the assessment manager or a concurrence agency imposed them.

## Details of the approval

The following approvals are given:

	Planning Regulation 2017 reference	Development Permit	Preliminary Approval
Development assessable under the planning scheme, superseded planning scheme, a temporary local planning instrument, a master plan or a preliminary approval which includes a variation approval - building work assessable under the planning scheme - plumbing or drainage work - material change of use - reconfiguring a lot - operational work	N/A	<input type="checkbox"/>  <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Carrying out building work (assessable under the <i>Building Act 1975</i> )	Schedule 9, part 1	<input type="checkbox"/>	<input type="checkbox"/>
Development on airport land if the land use plan for the airport land states the development is assessable development - building work - plumbing or drainage work - material change of use (consistent with the land use plan) - reconfiguring a lot - operational work	Schedule 10, part 1, division 1	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>  <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>  <input type="checkbox"/> <input type="checkbox"/>
Making a material change of use on airport land that is inconsistent with the land use plan for the airport land	Schedule 10, part 1, division 1	<input type="checkbox"/>	<input type="checkbox"/>
Making a material change of use for a brothel	Schedule 10, part 2, division 2	<input type="checkbox"/>	<input type="checkbox"/>
Carrying out operational work for the clearing of native vegetation	Schedule 10, part 3, division 2	<input type="checkbox"/>	<input type="checkbox"/>
Making a material change of use on contaminated land	Schedule 10, part 4, division 1	<input type="checkbox"/>	<input type="checkbox"/>
Making a material change of use of premises for an environmentally relevant activity	Schedule 10, part 5, division 2	<input type="checkbox"/>	<input type="checkbox"/>
Making a material change of use of premises for aquaculture	Schedule 10, part 6, division 1, subdivision 1	<input type="checkbox"/>	<input type="checkbox"/>
Carrying out operational work that is completely or partly in a declared fish habitat area	Schedule 10, part 6, division 2, subdivision 1	<input type="checkbox"/>	<input type="checkbox"/>
Carrying out operational work that is the removal, destruction or damage of a marine plant	Schedule 10, part 6, division 3, subdivision 1	<input type="checkbox"/>	<input type="checkbox"/>

	Planning Regulation 2017 reference	Development Permit	Preliminary Approval
Carrying out operational work that is constructing or raising waterway barrier works	Schedule 10, part 6, division 4, subdivision 1	<input type="checkbox"/>	<input type="checkbox"/>
Making a material change of use for a hazardous chemical facility	Schedule 10, part 7, division 1	<input type="checkbox"/>	<input type="checkbox"/>
Development on a local heritage place (other than a Queensland heritage place) - building work assessable under the <i>Building Act 1975</i> - building work assessable under the planning scheme - plumbing or drainage work - material change of use - reconfiguring a lot - operational work	Schedule 10, part 8, division 1, subdivision 1	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Development on or adjoining a Queensland heritage place - building work assessable under the <i>Building Act 1975</i> - building work assessable under the planning scheme - plumbing or drainage work - material change of use - reconfiguring a lot - operational work	Schedule 10, part 8, division 2, subdivision 1	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Development interfering with koala habitat in koala habitat areas outside koala priority areas	Schedule 10, part 10, division 3, subdivision 1	<input type="checkbox"/>	<input type="checkbox"/>
Development interfering with koala habitat in koala habitat areas for extractive industries in key resource areas	Schedule 10, part 10, division 4, subdivision 1	<input type="checkbox"/>	<input type="checkbox"/>
Carrying out operational work for reconfiguring a lot, if the reconfiguration is also assessable development	Schedule 10, part 12, division 1	<input type="checkbox"/>	<input type="checkbox"/>
Development in a priority port's master planned area that the port overlay for the master planned area states is assessable development - building work - plumbing or drainage work - material change of use - reconfiguring a lot - operational work	Schedule 10, part 13, division 4, subdivision 1	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>



	<b>Planning Regulation 2017 reference</b>	<b>Development Permit</b>	<b>Preliminary Approval</b>
Development on strategic port land if the land use plan for the strategic port land states the development is assessable development - building work - plumbing or drainage work - material change of use (consistent with the land use plan) - reconfiguring a lot - operational work	Schedule 10, part 13, division 5, subdivision 1	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Making a material change of use on strategic port land that is inconsistent with the land use plan	Schedule 10, part 13, division 5, subdivision 1	<input type="checkbox"/>	<input type="checkbox"/>
Reconfiguring a lot under the <i>Land Title Act 1994</i>	Schedule 10, part 14, division 1	<input type="checkbox"/>	<input type="checkbox"/>
Making a material change of use of premises for a tourist activity or sport and recreation activity in the SEQ regional landscape and rural production area or the SEQ rural living area	Schedule 10, part 16, division 2, subdivision 1	<input type="checkbox"/>	<input type="checkbox"/>
Making a material change of use of premises for a residential care facility in the SEQ regional landscape and rural production area or the SEQ rural living area	Schedule 10, part 16, division 3, subdivision 2	<input type="checkbox"/>	<input type="checkbox"/>
Making a material change of use of premises for a community activity, other than a residential care facility, in the SEQ regional landscape and rural production area or the SEQ rural living area	Schedule 10, part 16, division 3, subdivision 2	<input type="checkbox"/>	<input type="checkbox"/>
Making a material change of use of premises for indoor recreation in the SEQ regional landscape and rural production area or the SEQ rural living area	Schedule 10, part 16, division 4, subdivision 1	<input type="checkbox"/>	<input type="checkbox"/>
Making a material change of use of premises for a biotechnology industry in the SEQ regional landscape and rural production area or the SEQ rural living area	Schedule 10, part 16, division 6, subdivision 2	<input type="checkbox"/>	<input type="checkbox"/>
Making a material change of use of premises for a service station in the SEQ regional landscape and rural production area or the SEQ rural living area	Schedule 10, part 16, division 6, subdivision 2	<input type="checkbox"/>	<input type="checkbox"/>
Making a material change of use of premises for an urban activity other than a biotechnology industry or service station in the SEQ regional landscape and rural production area or the SEQ rural living area	Schedule 10, part 16, division 6, subdivision 2	<input type="checkbox"/>	<input type="checkbox"/>

	Planning Regulation 2017 reference	Development Permit	Preliminary Approval
<p>Making a material change of use of premises for two or more of the following:</p> <ul style="list-style-type: none"> <li>(i) a community activity</li> <li>(ii) indoor recreation</li> <li>(iii) a sport and recreation activity</li> <li>(iv) a tourist activity</li> <li>(v) an urban activity,</li> </ul> <p>in the SEQ regional landscape and rural production area or the SEQ rural living area</p>	Schedule 10, part 16, division 7, subdivision 1	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Carrying out operational work that is tidal works or work carried out completely or partly in a coastal management district	Schedule 10, part 17, division 1	<input type="checkbox"/>	<input type="checkbox"/>
Carrying out operational work that involves taking, or interfering with, water	Schedule 10, part 19, division 1, subdivision 1	<input type="checkbox"/>	<input type="checkbox"/>
<p>Development for removing quarry material from a watercourse or lake</p> <ul style="list-style-type: none"> <li>- building work assessable under the <i>Building Act 1975</i></li> <li>- building work assessable under the planning scheme</li> <li>- plumbing or drainage work</li> <li>- material change of use</li> <li>- reconfiguring a lot</li> <li>- operational work</li> </ul>	Schedule 10, part 19, division 2, subdivision 1	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Carrying out operational work that is the construction of a dam or relates to a dam.	Schedule 10, part 19, division 3, subdivision 1	<input type="checkbox"/>	<input type="checkbox"/>
Carrying out operational work for construction of a new category 2 or 3 levee or for modification of an existing category 2 or 3 levee	Schedule 10, part 19, division 4, subdivision 1	<input type="checkbox"/>	<input type="checkbox"/>
Carrying out operational work that is high impact earthworks in a wetland protection area	Schedule 10, part 20, division 2	<input type="checkbox"/>	<input type="checkbox"/>
Making a material change of use of premises for a wind farm	Schedule 10, part 21, division 1	<input type="checkbox"/>	<input type="checkbox"/>

### Conditions

This approval is subject to the conditions in Attachment 1.

### Further development permits

Please be advised that the following development permits are required to be obtained before the development can be carried out:

1. Building Approval

### Properly made submissions

There were no properly made submissions for this application.

### Referral agencies for the application

The referral agencies for this application are:

For an application involving	Name of referral agency	Advice agency or concurrence agency	Address
<p>As per Schedule 10, Part 5, Division 4, Table 2, Item 1 of the PR:</p> <p><i>Development application for a material change of use that is assessable development under section 8, if—</i></p> <p>(a) <i>the environmentally relevant activity the subject of the application has not been devolved to a local government under the Environmental Protection Regulation; and</i></p> <p>(b) <i>the chief executive is not the prescribed assessment manager for the application</i></p>	Department of State Development, Infrastructure, Local Government and Planning	Concurrence Agency	<p>Department of State Development, Infrastructure, Local Government and Planning, Post: PO Box 825, Visit: 128 Margaret Street, TOOWOOMBA QLD 4350</p> <p>ToowoombaSARA@dssdilg p.qld.gov.au</p> <p>Ph: (07) 4616 7307</p>
<p>As per Schedule 10, Part 9, Division 4, Subdivision 1, Table 1, Item 1 of the PR:</p> <p><i>Development application for an aspect of development stated in Schedule 20 that is assessable development under a local categorising instrument</i></p> <p>(a) <i>the development is for a purpose stated in schedule 20, column 1 for the aspect; and</i></p> <p>(b) <i>the development meets or exceeds the threshold—</i></p> <p>(i) <i>for development in local government area 1—stated in schedule 20, column 2 for the purpose; or</i></p>	Department of State Development, Infrastructure, Local Government and Planning	Concurrence Agency	<p>Department of State Development, Infrastructure, Local Government and Planning, Post: PO Box 825, Visit: 128 Margaret Street, TOOWOOMBA QLD 4350</p> <p>ToowoombaSARA@dssdilg p.qld.gov.au</p> <p>Ph: (07) 4616 7307</p>

For an application involving	Name of referral agency	Advice agency or concurrence agency	Address
<p>(ii) for development in local government area 2—stated in schedule 20, column 3 for the purpose; and</p> <p>c) for development in local government area 1—the development is not for an accommodation activity or an office at premises wholly or partly in the excluded area</p>			
<p>As per Schedule 10, Part 9, Division 4, Subdivision 2, Table 4, Item 1 of the PR:</p> <p><i>Development application for a material change of use, other than an excluded material change of use, that is assessable development under a local categorising instrument, if all or part of the premises—</i></p> <p>(a) are within 25m of a State transport corridor; or</p> <p>(b) are a future State transport corridor; or</p> <p>(c) are—</p> <p>(i) adjacent to a road that intersects with a State-controlled road; and</p> <p>(ii) within 100m of the intersection</p>	Department of State Development, Infrastructure, Local Government and Planning	Concurrence Agency	<p>Department of State Development, Infrastructure, Local Government and Planning, Post: PO Box 825, Visit: 128 Margaret Street, TOOWOOMBA QLD 4350</p> <p>ToowoombaSARA@dsdilg.p.qld.gov.au</p> <p>Ph: (07) 4616 7307</p>

### Approved plans and specifications

Copies of the following plans, specifications and drawings are enclosed.

Drawing Number	Title	Date
2573.DRG.002, Revision 2	Site and Surrounds	10/08/2021
2573.DRG.003, Revision 4	Site Layout Plan	06/09/2021
2573.DRG.008A	Proposed Building Plan & Elevations (Amenities)	14/09/2021
2573.DRG.008B	Proposed Building Plan & Elevations (Amenities)	14/09/2021

### **Currency period for the approval**

This development approval will lapse at the end of the period set out in section 85 of *Planning Act 2016*

### **Rights of appeal**

The rights of an applicant to appeal to a tribunal or the Planning and Environment Court against a decision about a development application are set out in chapter 6, part 1 of the *Planning Act 2016*. For certain applications, there may also be a right to make an application for a declaration by a tribunal (see chapter 6, part 2 of the *Planning Act 2016*).

#### Appeal by an applicant

An applicant for a development application may appeal to the Planning and Environment Court against the following:

- the refusal of all or part of the development application
- a provision of the development approval
- the decision to give a preliminary approval when a development permit was applied for
- a deemed refusal of the development application.

An applicant may also have a right to appeal to the Development tribunal. For more information, see schedule 1 of the *Planning Act 2016*.

#### Appeal by an eligible submitter

An eligible submitter for a development application may appeal to the Planning and Environment Court against the decision to approve the application, to the extent the decision relates to:

- any part of the development application that required impact assessment
- a variation request.

The timeframes for starting an appeal in the Planning and Environment Court are set out in section 229 of the *Planning Act 2016*.

**Attachment 5** is an extract from the *Planning Act 2016* that sets out the applicant's appeal rights and the appeal rights of a submitter.

To stay informed about any appeal proceedings which may relate to this decision visit: <https://planning.dsdmip.qld.gov.au/planning/our-planning-system/dispute-resolution/pe-court-database>.

**Attachment 4** is a Notice about decision - Statement of reasons, in accordance with section 63 (5) of the *Planning Act 2016*.

If you wish to discuss this matter further, please contact Council's Manager of Planning Services, Mrs Ronnie McMahon, on 07 4671 7400.

Yours faithfully

A handwritten signature in dark ink, appearing to read 'RM McMahon', followed by a long horizontal flourish.

**Mrs Ronnie McMahon**  
Manager of Planning Services  
Goondiwindi Regional Council

cc Department of State Development, Infrastructure, Local Government and Planning,  
PO Box 825,  
TOOWOOMBA QLD 4350

ToowoombaSARA@dsdilgp.qld.gov.au

enc Attachment 1—Assessment manager and concurrence agency conditions

- Department of State Development, Infrastructure, Local Government and Planning response dated 15 December 2021 (2110-25165 SRA)

Attachment 2—Approved Plans  
Attachment 3—Notice about decision – Statement of reasons  
Attachment 4—*Planning Act 2016* Extracts



## **ATTACHMENTS**

**Attachment 1 – Assessment Manager’s Conditions**

**Attachment 2 – Approved Plans**

**Attachment 3 – Infrastructure Charges Notice**

**Attachment 4 – Notice about decision - Statement of reasons**

**Attachment 5 – *Planning Act 2016* Extracts**

*Planning Act 2016 appeal provisions*

*Planning Act 2016 lapse dates*





## **Attachment 1 – Assessment Manager's Conditions**





## Assessment Manager's Conditions

<b>Description:</b>	<p><i>"Industry activities"</i></p> <ul style="list-style-type: none"> <li><i>"Extractive Industry"</i> (Up to 500,000 tonnes per year) and ERA 16(2)(b) Extracting in a year more than 100,000 tonnes but less than 1,000,000 tonnes and ERA 16(3)(b) Screening in a year more than 100,000 tonnes but less than 1,000,000 tonnes</li> </ul>
<b>Development:</b>	Material change of use – Development Permit
<b>Applicant:</b>	Johnstone Concrete & Quarries Pty Ltd C/- Groundwork Plus
<b>Address:</b>	Millmerran-Inglewood Road, Inglewood
<b>Real Property Description:</b>	Lot 1 on SP214649
<b>Council File Reference:</b>	21/481

GENERAL CONDITIONS																	
1.	Approval is granted for the purpose of a Material Change of Use for: <ul style="list-style-type: none"><li>“Industry activities” – “Extractive Industry” (Up to 500,000 tonnes per year) and ERA 16(2)(b) Extracting in a year more than 100,000 tonnes but less than 1,000,000 tonnes and ERA 16(3)(b) Screening in a year more than 100,000 tonnes but less than 1,000,000 tonnes</li></ul> as defined in the <i>Goondiwindi Region Planning Scheme 2018 (Version 2)</i> .																
2.	All conditions must be complied with or bonded prior to the commencement of the use, unless specified in an individual condition.																
3.	Except where changed by conditions of this approval, the development shall be in accordance with supporting information supplied by the applicant with the development application including the following plans: <table><tr><th>Drawing Number</th><th>Title</th><th>Date</th></tr><tr><td>2573.DRG.002, Revision 2</td><td>Site and Surrounds</td><td>10/08/2021</td></tr><tr><td>2573.DRG.003, Revision 4</td><td>Site Layout Plan</td><td>06/09/2021</td></tr><tr><td>2573.DRG.008A</td><td>Proposed Building Plan &amp; Elevations (Amenities)</td><td>14/09/2021</td></tr><tr><td>2573.DRG.008B</td><td>Proposed Building Plan &amp; Elevations (Amenities)</td><td>14/09/2021</td></tr></table> Please note these plans are not approved Building Plans.		Drawing Number	Title	Date	2573.DRG.002, Revision 2	Site and Surrounds	10/08/2021	2573.DRG.003, Revision 4	Site Layout Plan	06/09/2021	2573.DRG.008A	Proposed Building Plan & Elevations (Amenities)	14/09/2021	2573.DRG.008B	Proposed Building Plan & Elevations (Amenities)	14/09/2021
Drawing Number	Title	Date															
2573.DRG.002, Revision 2	Site and Surrounds	10/08/2021															
2573.DRG.003, Revision 4	Site Layout Plan	06/09/2021															
2573.DRG.008A	Proposed Building Plan & Elevations (Amenities)	14/09/2021															
2573.DRG.008B	Proposed Building Plan & Elevations (Amenities)	14/09/2021															
4.	Complete and maintain the approved development as follows: <ul style="list-style-type: none"><li>(i) Generally in accordance with development approval documents; and</li></ul>																

	<p>(ii) Strictly in accordance with those parts of the approved development which have been specified in detail by Council unless Council agrees in writing that those parts will be adequately complied with by amended specifications.</p> <p>All development shall comply with any relevant provisions in the <i>Goondiwindi Region Planning Scheme 2018 (Version 2)</i>, Council's standard designs for applicable work and any relevant Australian Standard that applies to that type of work.</p> <p>The development approval documents are the material contained in the development application, approved plans and supporting documentation including any written and electronic correspondence between applicant, Council or any relevant Agencies during all stages of the development application assessment processes.</p>
5.	The developer shall contact Council's Engineering Department to ensure the correct specifications are obtained for all civil works prior to commencement of any works onsite.
6.	It is the developer's responsibility to obtain all other statutory approvals required prior to commencement of any works on site and the commencement of the use.
<b>OPERATION OF THE USE</b>	
7.	Unless otherwise approved in writing by Council, operating hours shall be operated generally between the hours of 6:00am and 6:00pm, Monday to Saturday.
8.	Blasting activities associated with the Extractive Industry shall occur between the hours of 9:00am and 5:00pm, Monday to Friday.
9.	No activities are to occur on site on Sundays or Public Holidays.
<b>PUBLIC UTILITIES</b>	
10.	The development shall be connected to a suitable electricity and telecommunications supply system, at no cost to Council.
<b>ESSENTIAL SERVICES</b>	
11.	<p>Prior to commencement of use, it shall be demonstrated to Council that the development has an adequate volume and supply of potable water, including for fire-fighting purposes, to relevant engineering and environmental standards, to the satisfaction of and at no cost to Council.</p> <p>It shall be demonstrated to Council that on-site water storage of not less than 5,000L is provided by way of dam, swimming pool or tank fitted with fire brigade tank fittings.</p>

12.	Prior to the commencement of the use, the development shall be connected to an onsite effluent disposal sewerage system in accordance with the Queensland Plumbing and Wastewater Code, to the satisfaction of and at no cost to Council. All sewer infrastructure (including effluent disposal areas) shall be fully located within site boundaries, to the satisfaction of and at no cost to Council.
	<b>ROADS AND VEHICLES</b>
13.	<p>Design and construct the full length of Gray's Road from the intersection of Millmerran-Inglewood Road to the site access with a minimum 7 metre wide bitumen sealed carriageway on an 8 metre wide formation in accordance with Schedule 6.2.1 – Planning Scheme Policy 1 – Land Development Standards of the <i>Goondiwindi Region Planning Scheme 208 (Version 2)</i> and relevant Austroads' Standards to the satisfaction of and at no cost to Council. The proposed road design must be certified by a suitably qualified Registered Professional Engineer of Queensland (RPEQ).</p> <p>The applicant is responsible for the carrying out and cost of maintenance of Gray's Road for the duration of the extractive industry operation.</p> <p>All road maintenance work must be conducted with prior approval from Council. In the event that road maintenance work is not carried out in a timely manner, Council reserves the right to carry out necessary maintenance work at the applicant's expense.</p>
14.	<p>The site access shall be constructed from the edge of the bitumen seal to the property boundary in accordance Schedule 6.2.1 – Standard Drawing in Schedule 6.2 – Planning Scheme Policy 1 – Land Development Standards of the <i>Goondiwindi Region Planning Scheme 208 (Version 2)</i>, to the satisfaction of and at no cost to Council.</p> <p>Crossovers shall be either constructed or bonded prior to the commencement of the use.</p> <p>The developer shall contact Council's Engineering Department to ensure the correct specifications are obtained for all civil works prior to commencement of any works onsite.</p> <p>A qualified Council Officer may inspect construction works at the request of the developer to ensure compliance with this condition.</p>
15.	<p>All areas where vehicles manoeuvre and park shall be constructed to a dust suppressant standard in accordance with Schedule 6.2 – Planning Scheme Policy 1 – Land Development Standards of the <i>Goondiwindi Region Planning Scheme 2018 (Version 2)</i>, to the satisfaction of and at no cost to Council.</p> <p>Parking and manoeuvring areas shall be either constructed or bonded prior to the commencement of the use.</p> <p>The developer shall contact Council's Engineering Department to ensure the correct specifications are obtained for all civil works prior to commencement of any works onsite.</p> <p>A qualified Council Officer may inspect construction works at the request of the developer to ensure compliance with this condition.</p>

16.	Vehicle manoeuvring areas shall be provided on-site so that all vehicles, including all heavy vehicles, can enter and leave the site in a forward direction.
<b>STORMWATER</b>	
17.	<p>Prior to the commencement of the use and at all times while the use continues, the site shall be adequately drained and all stormwater shall be disposed of to a legal point of discharge in accordance with Schedule 6.2 – Planning Scheme Policy 1 – Land Development Standards of the <i>Goondiwindi Region Planning Scheme 2018 (Version 2)</i>, to the satisfaction of and at no cost to Council.</p> <p>Any increase in volume, concentration or velocity of stormwater from the site shall be channelled to lawful points of discharge or to other storage or dispersal arrangements which all must be agreed to in writing by Council.</p> <p>There shall be no change in direction or increase in the volume, concentration or velocity in any overland flow from the site to any adjoining properties unless agreed in writing by Council and the owners of any adjoining properties affected by these changes.</p> <p>The stormwater system shall be designed to include appropriate pollution control devices or methods to ensure no contamination or silting of waterways.</p>
18.	<p>Stormwater shall not be allowed to pond on the site during the development process and after development has been completed unless the type and size of ponding has been agreed in writing by Council.</p> <p>No ponding, concentration or redirection of stormwater shall occur on adjoining properties unless specifically agreed to in writing by Council and the owners of any adjoining properties affected by these changes.</p>
<b>EARTHWORKS AND EROSION CONTROL</b>	
19.	<p>Any filling or excavation shall be undertaken in accordance with Schedule 6.2 – Planning Scheme Policy 1 – Land Development Standards of the <i>Goondiwindi Region Planning Scheme 2018 (Version 2)</i> or to other relevant engineering standards to the satisfaction of and at no cost to Council.</p> <p>Excavation or filling within 1.5 metres of any site boundary is battered or retained by a wall that does not exceed 1 metre in height.</p>
20.	<p>All works associated with the development must be carried out in a manner that minimises erosion and controls sediment. Best practice erosion and sediment control measures shall be in place at the location of all works prior to work commencing and remain until work is completed in accordance with Schedule 6.2 – Planning Scheme Policy 1 – Land Development Standards of the <i>Goondiwindi Region Planning Scheme 2018 (Version 2)</i> to the satisfaction of and at no cost to Council.</p> <p>Control procedures are to be established to ensure sediment from the site is not deposited off site. The developer shall ensure no increase in any silt loads or contaminants in overland</p>

	flow from the site during the development process and after development has been completed.
	<b>ENVIRONMENT</b>
21.	The development shall be designed and constructed to avoid significant adverse impacts on areas of environmental significance identified within the site.
22.	The design, layout and operation of the development shall minimise adverse impacts on matters of state environmental significance by providing and maintaining adequate buffers and setbacks to regulated vegetation and watercourses.
	<b>AVOIDING NUISANCE</b>
23.	At all times while the use continues, the development shall be conducted in accordance with the provisions of the <i>Environmental Protection Act 1994</i> (the Act) and all relevant regulations and standards under that Act. All necessary licences under the Act shall be obtained and shall be maintained at all times while the use continues.
24.	At all times while the use continues it shall be operated in such a manner as to ensure that no nuisance shall arise to adjoining premises as a result of dust, noise, lighting, odour, vibration, rubbish, contaminants, stormwater discharge or siltation or any other potentially detrimental impact.
25.	At all times while the use continues, provision must be made on site for the collection of general refuse in covered waste containers with a capacity sufficient for the use.  Waste receptacles shall be placed in a screened area. The site must maintain a general tidy appearance.
26.	The operator shall be responsible for mitigating any complaints arising from on-site operations.
27.	Construction works must occur so they do not cause unreasonable interference with the amenity of adjoining premises.  The site must be kept on a clean and tidy state at all times during construction.
	<b>DEVELOPER'S RESPONSIBILITIES</b>
28.	It is the developer's responsibility to ensure that the development is resilient to flood events by ensuring design and built form appropriately responds to the potential risks of flooding.

<b>29.</b>	It is the developer's responsibility to ensure that the development directly, indirectly and cumulatively avoids any increase in water flow velocity or flood level, and does not increase the potential for flood damage either on-site or on other properties.
<b>30.</b>	It is the developer's responsibility to ensure that potential bushfire hazards are appropriately mitigated to reflect the hazard level of the site in regard to vegetation type and proximity, slope and aspect, bushfire history, on-site environmental values, ease of maintenance and any specific implications on the development shall be submitted to Council prior to the commencement of the use.
<b>31.</b>	The developer shall ensure that vehicular access is designed to mitigate against bushfire hazard by ensuring adequate access for fire fighting and other emergency vehicles, and adequate access for the evacuation of residents and emergency personnel in an emergency situation.
<b>32.</b>	Any alteration or damage to roads and/or public infrastructure that is attributable to the progress of works or vehicles associated with the development of the site shall be repaired to Council's satisfaction or the cost of repairs paid to Council.
<b>33.</b>	All contractors and subcontractors shall hold current, relevant and appropriate qualifications and insurances in place to carry out the works.
<b>34.</b>	All costs reasonably associated with the approved development, unless there is specific agreement by other parties to meet these costs, shall be met by the developer.
<b>35.</b>	At all times while the use continues, all requirements of the conditions of the development approval must be maintained.
<b>COMMENCEMENT OF USE</b>	
<b>36.</b>	<p>At its discretion, Council may accept bonds or other securities to ensure completion of specified development approval conditions or Council may accept cash payments for Council to undertake the necessary work to ensure completion of specified development approval conditions.</p> <p>It may be necessary for Council to use such bonds for the completion of outstanding works without a specific timeframe agreed.</p> <p>The decision to accept bonds or other securities to satisfy a condition will be that of Council, not the applicant.</p>
<b>37.</b>	Council must be notified in writing of the date of the commencement of the use within 14 days of commencement.

	<p>This approval will lapse if the use has not commenced within <b>six (6) years</b> of the date the development approval takes effect, in accordance with the provisions contained in section 85(i)(a) of the <i>Planning Act 2016</i>.</p> <p>Section 86 of the <i>Planning Act 2016</i> sets out how an extension to the period of approval can be requested.</p>
<b>38.</b>	<p>A letter outlining and demonstrating that conditions have been, or will be, complied with shall be submitted to Council and approved by a relevant Officer of Council prior to commencement of the use at each relevant stage. Council Officers may require a physical inspection to confirm that all conditions have been satisfied to relevant standards.</p>
<b>PLEASE READ CAREFULLY - NOTES AND ADVICE</b>	
	<p><i>When approval takes effect</i></p> <p>This approval takes effect in accordance with section 85 of the <i>Planning Act 2016</i>.</p> <p><i>When approval lapses</i></p> <p>This approval will lapse if the use has not commenced within <b>six (6) years</b> of the date the development approval takes effect.</p> <p>Section 86 of the <i>Planning Act 2016</i> sets out how an extension to the period of approval can be requested.</p>
	<p>It is the applicant's responsibility to obtain all statutory approvals prior to commencement of any works onsite.</p>
	<p>This approval in no way removes the duty of care responsibility of the applicant under the <i>Aboriginal Cultural Heritage Act 2003</i>. Pursuant to Section 23(1) of the <i>Aboriginal Cultural Heritage Act 2003</i>, a person who carries out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal cultural heritage (the "cultural heritage duty of care").</p>
	<p>This approval in no way authorises the clearing of native vegetation protected under the <i>Vegetation Management Act 1999</i>.</p>
	<p>The approved development does not authorise any deviation from the applicable Australian Standards nor from the application of any laws, including laws covering workplace health and safety.</p>



## **Attachment 2 – Approved Plans**









GOONDIWINDI REGIONAL COUNCIL  
Approved Plan referred to in Council's Decision Notice

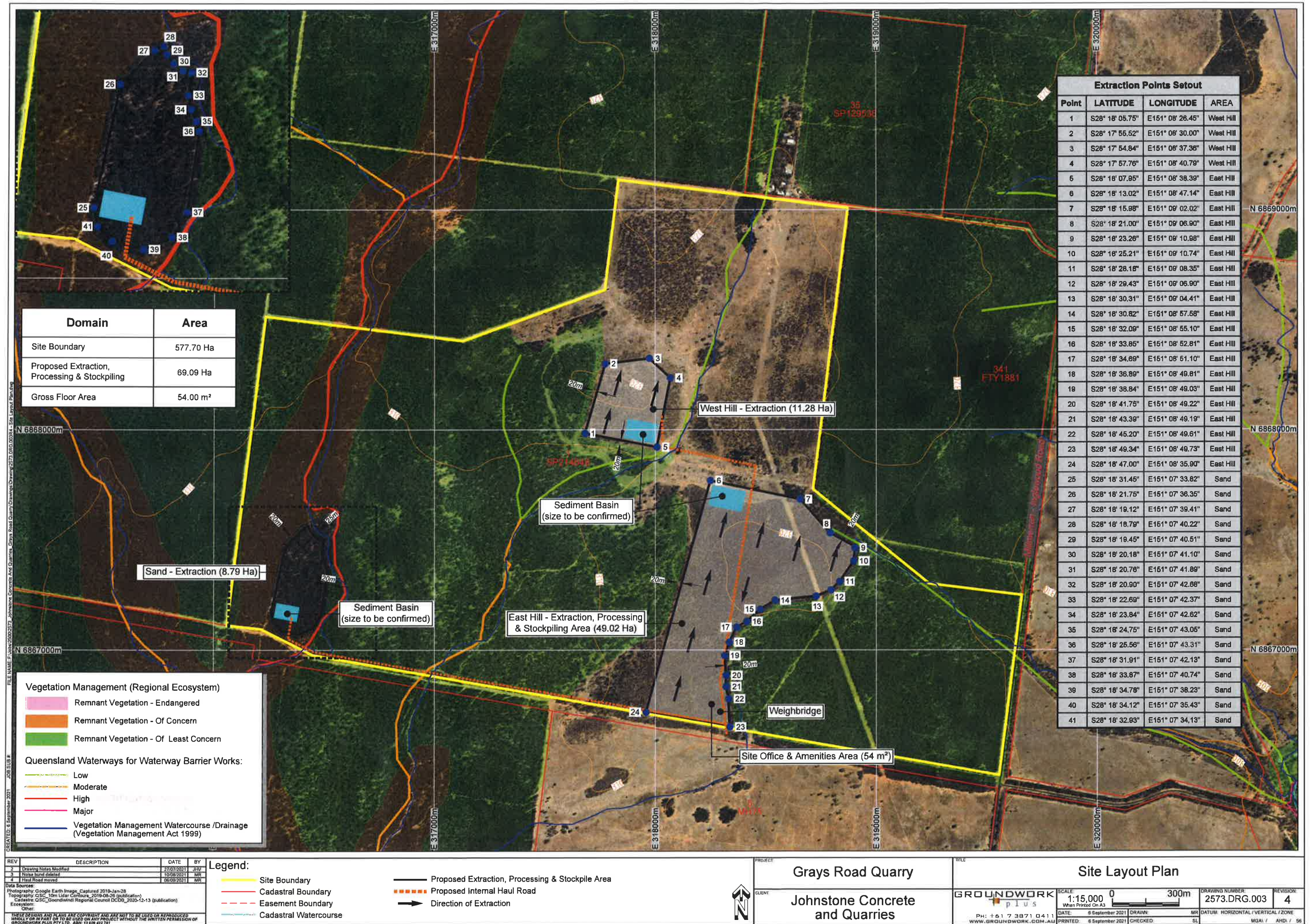
Council Reference: 21/481

Dated: 07-03-2022

Signed: R.M.M.

Print Name: ROSIE McMAHON  
(Under Delegation) ASSESSMENT MANAGER







GOONDIWINDI REGIONAL COUNCIL  
Approved Plan referred to in Council's Decision Notice  
Council Reference: 21/481  
Dated: 07-03-2022  
Signed: RM  
Print Name: RONNIE MCMAHON  
(Under Delegation) ASSESSMENT MANAGER

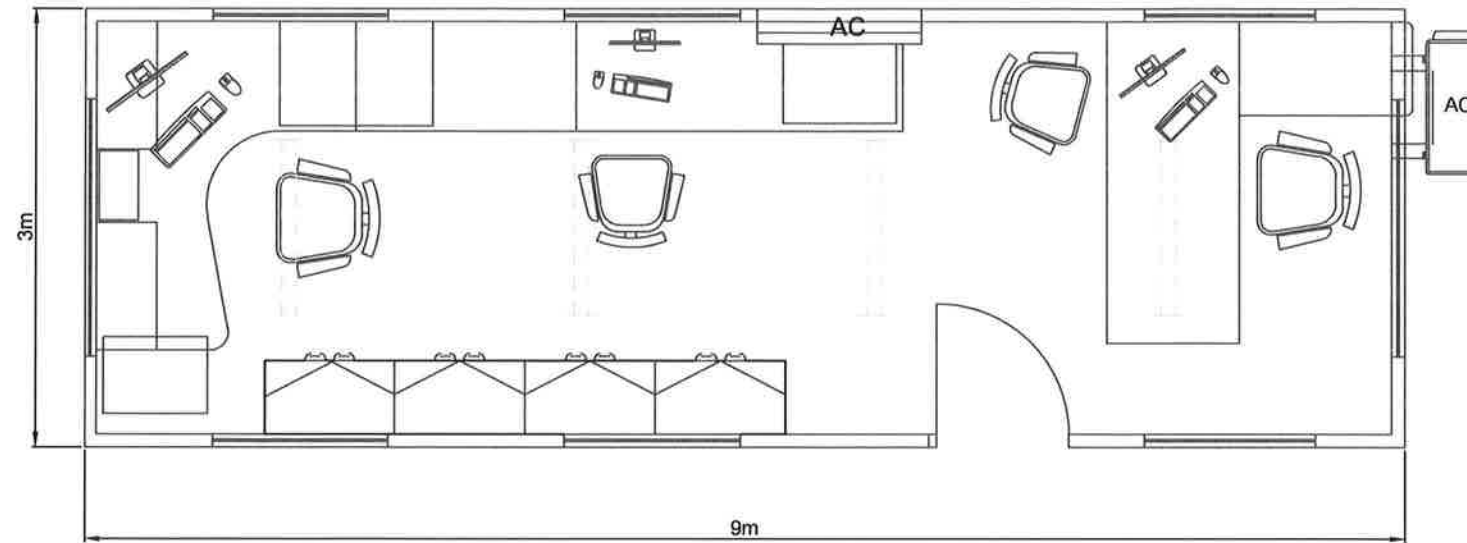
GOONDIWINDI REGIONAL COUNCIL  
Approved Plan referred to in Council's Decision Notice

Council Reference: 21/481

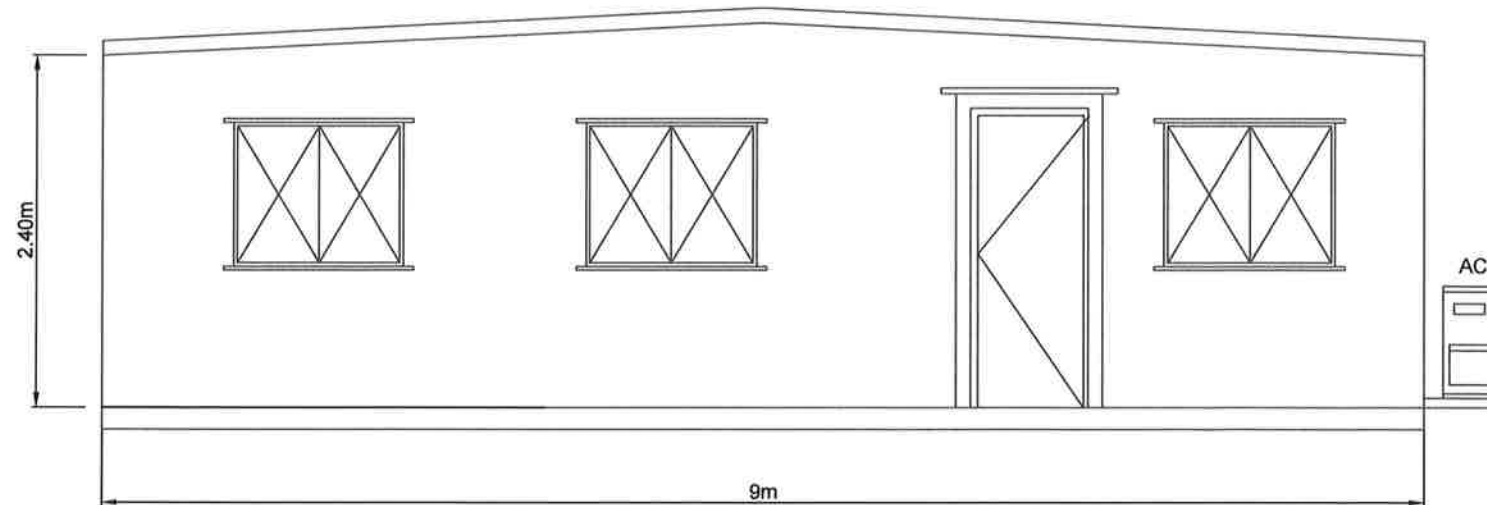
Dated: 07-03-2022

Signed: *RM*

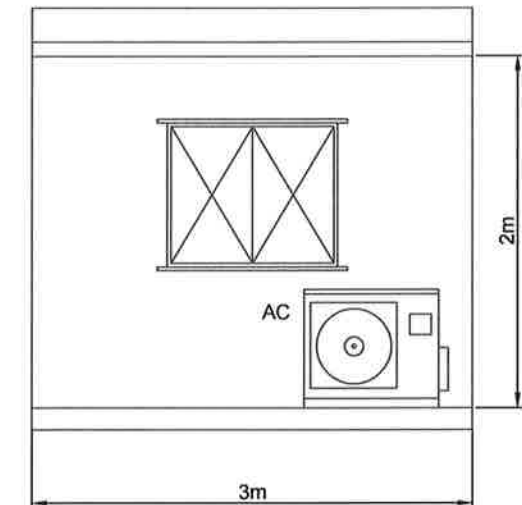
Print Name: RONNIE MCMAHON  
(Under Delegation) ASSESSMENT MANAGER



Site Office  
Plan Layout



Site Office  
Front Elevation



Site Office  
Side Elevation

REV	DESCRIPTION	DATE	BY

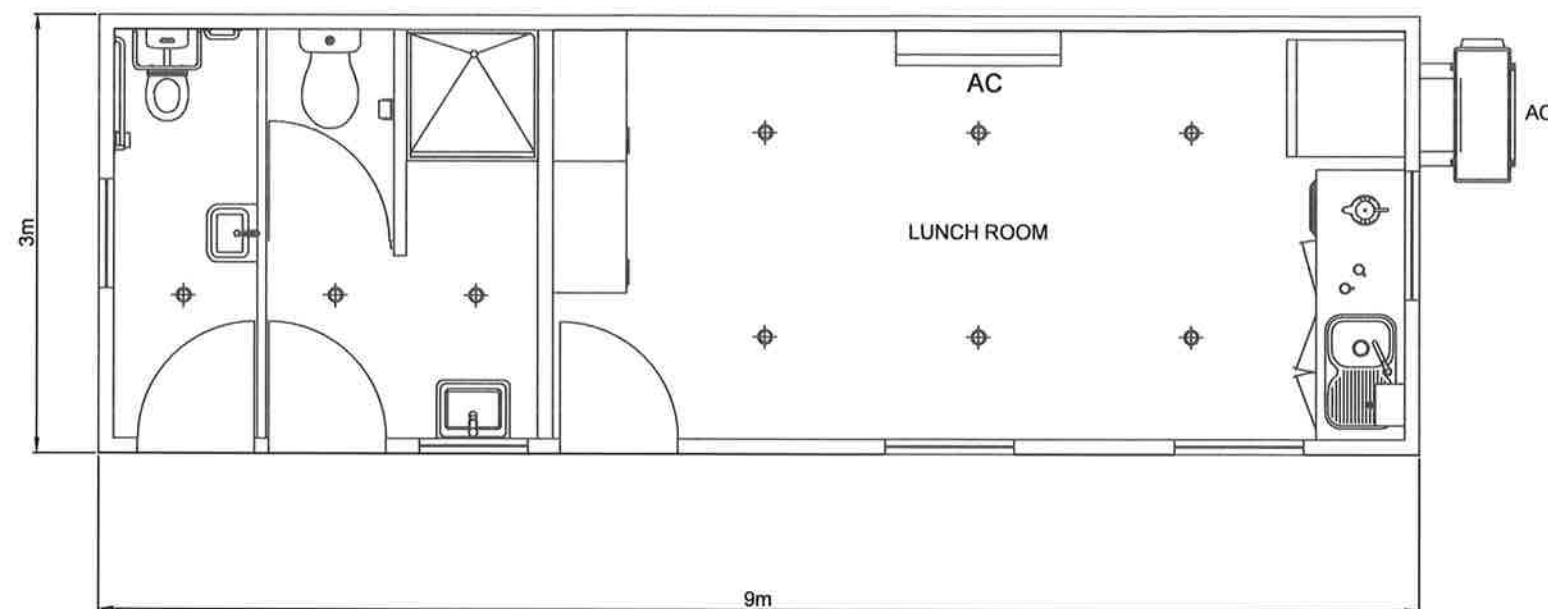
Data Sources:  
Photography:  
Topography:  
Cadastral:  
Ecosystem:  
Other:

THESE DESIGNS AND PLANS ARE COPYRIGHT AND ARE NOT TO BE USED OR REPRODUCED IN WHOLE OR IN PART OR TO BE USED ON ANY PROJECT WITHOUT THE WRITTEN PERMISSION OF GROUNDWORK PLUS PTY LTD. ABN: 51 609 422 791

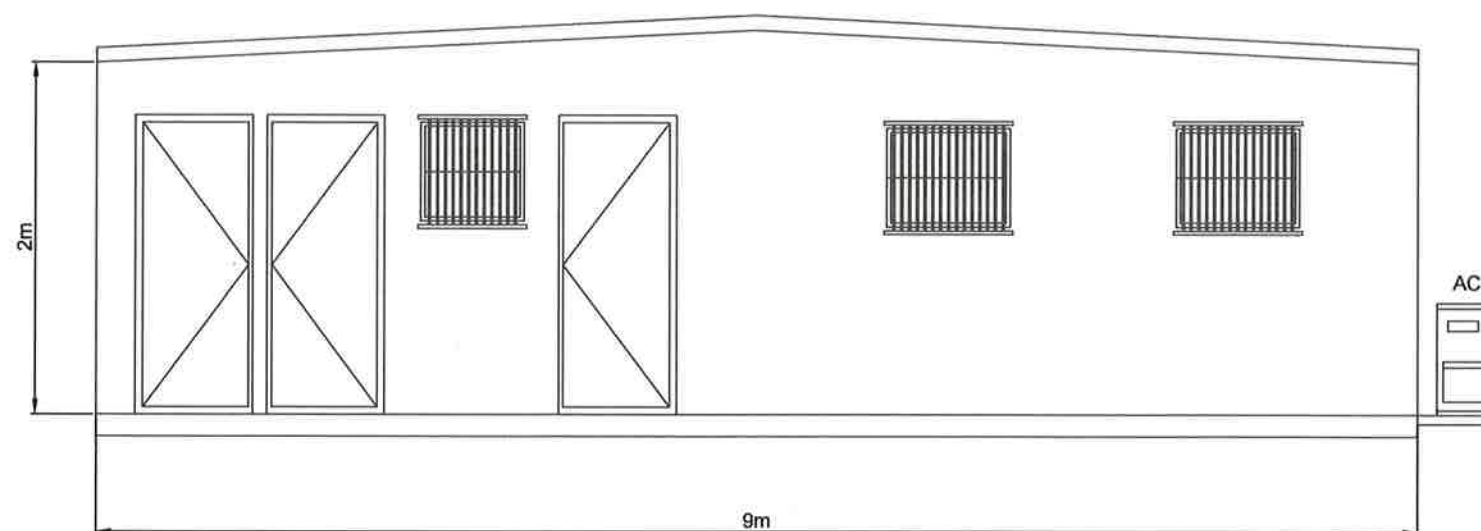
PROJECT	Grays Road Quarry	TITLE	Proposed Building Plan & Elevations (Amenities)
CLIENT	Johnstone Concrete and Quarries	GROUNDWORK plus	SCALE: 0
			When Printed On A3
			DATE: 14 September 2021 DRAWN: Mirecal
			PRINTED: 14 September 2021 CHECKED: S Lyons
			DATUM: HORIZONTAL / VERTICAL / ZONE
			DRAWING NUMBER: 2573.DRG.008A
			REVISION: / /

FILE NAME: F:\Users\20002573\Documents\Grays Road Quarry\Quarry\Quarry\2573.DWG.008 Proposed Building Plan & Elevations.dwg  
CREATED: 14 September 2021 JOB SUB #

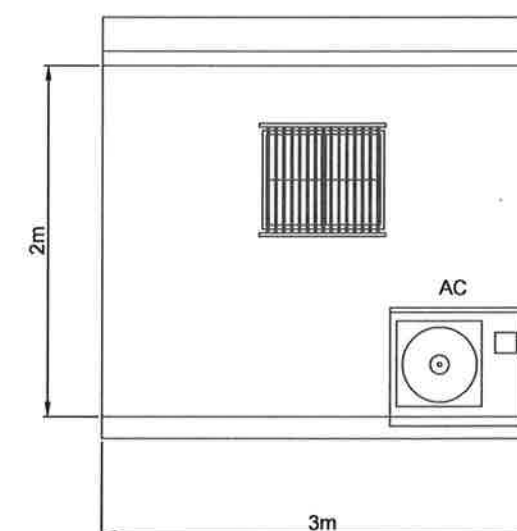
GOONDIWINDI REGIONAL COUNCIL  
Approved Plan referred to in Council's Decision Notice  
Council Reference: 21/481  
Dated: 07-03-2022  
Signed: R.M.M.  
Print Name: RONNIE M'MAHON  
(Under Delegation) ASSESSMENT MANAGER



Amenities  
Plan Layout



Amenities  
Front Elevation



Amenities  
Side Elevation

REV	DESCRIPTION	DATE	BY

Data Sources:  
Photography:  
Topography:  
Cadastral:  
Ecosystem:  
Other:

THESE DESIGNS AND PLANS ARE COPYRIGHT AND ARE NOT TO BE USED OR REPRODUCED WHOLLY OR IN PART OR TO BE USED ON ANY PROJECT WITHOUT THE WRITTEN PERMISSION OF GROUNDWORK PLUS PTY LTD. ABN 13 609 452 721

PROJECT	Grays Road Quarry	TITLE	Proposed Building Plan & Elevations (Amenities)
CLIENT	Johnstone Concrete and Quarries	GROUNDWORK plus	SCALE: 0 When Printed On A3
DATE	14 September 2021	DRAWN	Mrescor
PRINTED	14 September 2021	CHECKED	SLYone
DRAWING NUMBER:	2573.DRG.008B	DATUM:	HORIZONTAL / VERTICAL / ZONE
REVISION			



SARA reference: 2110-25165 SRA  
Council reference: 21/481

15 December 2021

Chief Executive Officer  
Goondiwindi Regional Council  
LMB 7  
INGLEWOOD QLD 4387  
mail@grc.qld.gov.au

Attention: Ronnie McMahon

Dear Ronnie

## SARA response—Millmerran Inglewood Road, Canning Creek

(Referral agency response given under section 56 of the *Planning Act 2016*)

The development application described below was confirmed as properly referred by the State Assessment and Referral Agency (SARA) on 7 October 2021.

### Response

---

Outcome:	Referral agency response – with conditions.
Date of response:	15 December 2021
Conditions:	The conditions in <b>Attachment 1</b> must be attached to any development approval.
Advice:	Advice to the applicant is in <b>Attachment 2</b> .
Reasons:	The reasons for the referral agency response are in <b>Attachment 3</b> .

### Development details

---

Description:	Development permit	Material Change of Use for “Industry Activities” – “Extractive Industry” (up to 500,000 tonnes per year) and Environmentally Relevant Activity (ERA) 16(2)(b) Extracting, other than by dredging, in a year more than 100,000 tonnes but less than 1,000,000 tonnes and ERA 16(3)(b) Screening in a year more than 100,000 tonnes but less than 1,000,000
--------------	--------------------	---

tonnes

SARA role:	Referral Agency.
SARA trigger:	<p>Schedule 10, Part 5, Division 4, Table 2, Item 1 (10.5.4.2.1)– Environmentally relevant activities (Planning Regulation 2017)</p> <p>Schedule 10, Part 9, Division 4, Subdivision 1, Table 1, Item 1 (10.9.4.1.1.1) – Material change of use impacting on state transport infrastructure (Planning Regulation 2017)</p> <p>Schedule 10, Part 9, Division 4, Subdivision 2, Table 4, Item 1 (10.9.4.2.4.1) – Material change of use of premises within 25m of a state transport corridor and within 100m of a state-controlled road intersection (Planning Regulation 2017)</p>
SARA reference:	2110-25165 SRA
Assessment Manager:	Goondiwindi Regional Council
Street address:	Millmerran Inglewood Road, Canning Creek
Real property description:	Lot 1 on SP214649
Applicant name:	Johnstone Concrete and Quarries Pty Ltd C/- Groundwork Plus
Applicant contact details:	PO Box 1779 Milton QLD 4064 planning@groundwork.com.au
Environmental Authority:	<p>This referral included an application for an environmental authority under section 115 of the <i>Environmental Protection Act 1994</i>. Below are the details of the decision:</p> <ul style="list-style-type: none"> <li>• Approved</li> <li>• Reference: P-EA-100145071</li> <li>• Effective date: 13 December 2021</li> <li>• Prescribed environmentally relevant activity (ERA): <ul style="list-style-type: none"> <li>– ERA 16 - Extraction and Screening - 2(b) - Extracting, other than by dredging, in a year, the following quantity of material - more than 100,000t but not more than 1,000,000t</li> <li>– ERA 16 - Extraction and Screening - 3(b) - Screening, in a year, the following quantity of material - more than 100,000t but not more than 1,000,000t</li> </ul> </li> </ul> <p>If you are seeking further information on the environmental authority, the Department of Environment and Science's website includes a register. This can be found at: <a href="http://www.des.qld.gov.au">www.des.qld.gov.au</a></p>

## Representations

An applicant may make representations to a concurrence agency, at any time before the application is decided, about changing a matter in the referral agency response (s.30 Development Assessment Rules) Copies of the relevant provisions are in **Attachment 4**.

A copy of this response has been sent to the applicant for their information.



For further information please contact Brittany Hughes, A/Senior Planning Officer, on 07 4616 7332 or via email [ToowoombaSARA@dsdilgp.qld.gov.au](mailto:ToowoombaSARA@dsdilgp.qld.gov.au) who will be pleased to assist.

Yours sincerely



Darren Cooper  
Manager - DDSW (Planning)

cc Johnstone Concrete and Quarries Pty Ltd, [planning@groundwork.com.au](mailto:planning@groundwork.com.au)

enc Attachment 1 - Referral agency conditions  
Attachment 2 - Advice to the applicant  
Attachment 3 - Reasons for referral agency response  
Attachment 4 - Representations about a referral agency response  
Attachment 5 - Approved plans and specifications

## Attachment 1—Referral agency conditions

(Under section 56(1)(b)(i) of the *Planning Act 2016* the following conditions must be attached to any development approval relating to this application) (Copies of the plans and specifications referenced below are found at Attachment 5)

No.	Conditions	Condition timing																		
Material Change of Use																				
<b>10.9.4.2.4.1— Material change of use of premises within 25m of a state transport corridor and within 100m of a state-controlled road intersection</b> —The chief executive administering the <i>Planning Act 2016</i> nominates the Director-General of the Department of Transport and Main Roads to be the enforcement authority for the development to which this development approval relates for the administration and enforcement of any matter relating to the following condition(s):																				
1.	<p>(a) Pay a monetary contribution to the Department of Transport and Main Roads, Darling Downs Office, towards protecting or maintaining the pavement structure of Millmerran Inglewood Road (337) in accordance section 146(2)(a) of the <i>Planning Act 2016</i>. The amount of the contribution</p> <p>i. must be calculated at twelve monthly commencing on the first day that material hauled under this approval is transported from the site by road; and</p> <p>ii. is to be indexed based on the Road and Bridge Construction Index, Queensland – Class 3101, published quarterly by the Australian Bureau of Statistics (ABS Cat No. 6427, Series ID A2333727L) to the date of payment.</p> <table><tr><th>Material Hauled – tonnes/year</th><th>Contribution – cents/tonne</th></tr><tr><td>100,000</td><td>19.67</td></tr><tr><td>150,000</td><td>23.70</td></tr><tr><td>200,000</td><td>30.46</td></tr><tr><td>250,000</td><td>30.71</td></tr><tr><td>350,000</td><td>39.00</td></tr><tr><td>400,000</td><td>62.51</td></tr><tr><td>450,000</td><td>71.31</td></tr><tr><td>500,000</td><td>71.90</td></tr></table> <p>(b) Maintain records which document the quantity of material hauled on the state-controlled road network and submit these records to the Department of Transport and Main Roads', Darling Downs Office via <a href="mailto:downs.south.west.idas@tmr.qld.gov.au">downs.south.west.idas@tmr.qld.gov.au</a>, at the time of payment referenced in part (a) of this condition.</p>	Material Hauled – tonnes/year	Contribution – cents/tonne	100,000	19.67	150,000	23.70	200,000	30.46	250,000	30.71	350,000	39.00	400,000	62.51	450,000	71.31	500,000	71.90	<p>(a) Within 30 days of the end of the financial year until the transportation of material hauled from the site by road under this approval ceases.</p> <p>(b) As indicated</p>
Material Hauled – tonnes/year	Contribution – cents/tonne																			
100,000	19.67																			
150,000	23.70																			
200,000	30.46																			
250,000	30.71																			
350,000	39.00																			
400,000	62.51																			
450,000	71.31																			
500,000	71.90																			
2.	<p>(a) Road works comprising the following must be provided at the Millmerran Inglewood Road/Unnamed Road (site access) intersection in accordance with the Traffic and Pavement Impact Assessment Report prepared by Traffic Transport Plus, dated 1 July 2021, ref 20210701_10518_TIA:</p> <p>– Basic Left (BAL) and Basic Right (BAR) turn treatment on Millmerran Inglewood Road to cater for Type 1 Road Trains.</p>	Prior to the commencement of use.																		

	<ul style="list-style-type: none"> <li>– Sealing of the unnamed road access for 25m (minimum) from the Millmerran Inglewood Road/ Unnamed Road intersection tangent point;</li> <li>– Advanced truck warning signage on Millmerran Inglewood Road for both approaches to the Unnamed road access.</li> <li>– Give way signage and line marking on the Unnamed road approach to the Millmerran Inglewood Road.</li> </ul> <p>(b) The road works must be designed and constructed in accordance with Transport and Main Roads' Road Planning and Design Manual, Manual of Uniform Traffic Control Devices and any other technical documents referenced therein.</p>	
--	---	--

## Attachment 2—Advice to the applicant

General advice	
1.	Terms and phrases used in this document are defined in the <i>Planning Act 2016</i> its regulation or the State Development Assessment Provisions (SDAP) (v2.6). If a word remains undefined it has its ordinary meaning.
2.	<p><b>Road access works approval:</b> Under section 33 of the <i>Transport Infrastructure Act 1994</i>, written approval is required from the Department of Transport and Main Roads to carry out road works that are road access works (including driveways) on a state-controlled road. Please contact the Department of Transport and Main Roads on 07 4639 0828 to make an application for road works approval. This approval must be obtained prior to commencing any works on the state-controlled road reserve. The approval process may require the approval of engineering designs of the proposed works, certified by a Registered Professional Engineer of Queensland (RPEQ). The road access works approval process takes time—please contact Transport and Main Roads as soon as possible to ensure that gaining approval does not delay construction.</p> <p><i>The applicant should note that reference to the approved plans imply conceptual approval only. Further modifications and inclusions are likely to be required in order for submitted detailed designs to comply with DTMR standards at the roadworks application (s33 TIA) stage. In particular, detailed designs may require, but should not limited to, necessary lane widening for provision of cycle lanes, lengthening of turn lanes, installation of lighting, signage and line marking, pavements, utilities and services, and roadsides and roadside furniture</i></p>

## Attachment 3—Reasons for referral agency response

(Given under section 56(7) of the *Planning Act 2016*)

### The reasons for the SARA's decision are:

The development complies with State code 1: Development in a state-controlled road environment; State code 6: Protection of state transport networks and State code 22: Environmentally Relevant Activity of the SDAP. Specifically, the development:

- does not create a safety hazard for users of a state-controlled road
- does not compromise the structural integrity of state-controlled roads, road transport infrastructure or road works
- does not result in a worsening of the physical condition or operating performance of state-controlled roads and the surrounding road network
- does not compromise the state's ability to construct, or significantly increase the cost to construct state-controlled roads and future state-controlled roads
- does not compromise the state's ability to maintain and operate state-controlled roads, or significantly increase the cost to maintain and operate state-controlled roads
- does not compromise the structural integrity of public passenger transport infrastructure or compromise the operating performance of public passenger transport services
- is suitably located and designed to avoid or mitigate environmental harm to the acoustic environment
- is suitably located and designed to avoid or mitigate environmental harm to the receiving waters environment.
- minimises and mitigates impacts on category C areas and category R areas of vegetation after demonstrating avoidance is not reasonably possible

### Material used in the assessment of the application:

- The development application material and submitted plans
- *Planning Act 2016*
- Planning Regulation 2017
- The SDAP (version 2.6), as published by SARA
- The Development Assessment Rules
- SARA DA Mapping system
- *Human Rights Act 2019*

## **Attachment 4—Representations about a referral agency response**

---

(page left intentionally blank)

## **Attachment 5—Approved plans and specifications**

---

(page left intentionally blank)

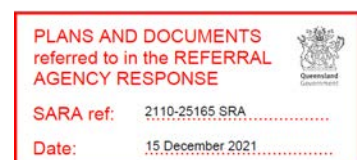
Grays Road Quarry

# TRAFFIC AND PAVEMENT IMPACT ASSESSMENT REPORT

Prepared for: Johnstone Concrete and Quarries

Date:  
July 2021

File Ref:  
documents / 20210701\_10518\_TIA





## Table of Contents

### Project / Report Details

<i>Document Title:</i>	Traffic and Pavement Impact Assessment Report
<i>Principal Author:</i>	Margaret Mak
<i>Client:</i>	Johnstone Concrete and Quarries
<i>Ref. No.</i>	20210701_10518_TIA

### Document Status

<i>Issue</i>	<i>Description</i>	<i>Date</i>	<i>Author</i>	<i>Reviewer</i>
1	Traffic Report	01 July 2021	Margaret Mak	Bryce Trevilyan

### Distribution Record

<i>Recipient</i>	<i>Distribution Method</i>
Groundwork Plus	1e

Traffic and Transport Plus ABN: 54 619 700 239

Queensland  
6 Mayneview Street, Milton Qld 4064  
PO Box 1779, Milton BC, Qld 4064  
P: +61 7 3871 0411  
F: +61 7 3367 3317  
E: enquiry@ttplus.com.au

Copyright ©

*These materials or parts of them may not be reproduced in any form, by any method, for any purpose except with written permission from Traffic and Transport Plus.*

## Table of Contents

1	Introduction .....	5
2	Subject Site.....	6
2.1	Site Location and Site Layout Plan.....	6
2.2	Existing Road Network .....	7
3	The Transport Routes.....	9
4	Traffic Volumes .....	11
4.1	2021 Traffic Volumes.....	11
4.2	Base Traffic Volumes.....	12
4.3	Trip Generating Characteristics of the Proposal.....	12
4.4	Design Traffic Volumes.....	13
5	Traffic Impact Assessment .....	14
5.1	Intersection Performance of the Millmerran–Inglewood Road Site Access Intersection.....	14
5.2	Intersection Performance of the Cunningham Highway / Millmerran–Inglewood Road Intersection .....	15
6	Safety Assessment .....	17
6.1	Sight Distances.....	17
6.2	Turn Lane Treatments .....	18
6.2.1	Turn Lane Assessment of the Millmerran–Inglewood Road Site Access Intersection .....	20
6.2.2	Turn Lane Assessment of the Cunningham Highway / Millmerran–Inglewood Road Intersection.....	21
6.3	Crash Statistics.....	22
6.4	Conclusions in relation to Safety .....	22
7	Pavement Contribution Assessment.....	23
7.1	Pavement Contribution Assessment on State–controlled Roads .....	23
7.1.1	Assessment Parameters .....	23
7.1.2	Project Operational Parameters.....	23
7.1.3	Pavement Contributions on State–controlled Roads.....	23
8	Summary of Findings .....	25

## Table of Contents

### TABLES

Table 2-1 – Existing Local Road Hierarchy .....	8
Table 5-1 – 2022 and 2032 Operational Characteristics of the Millmerran–Inglewood Road Site Access Intersection .....	15
Table 5-2 – 2022 Operational Characteristics of the Cunningham Highway / Millmerran–Inglewood Road Intersection .....	16
Table 5-3 – 2032 Operational Characteristics of the Cunningham Highway / Millmerran–Inglewood Road Intersection .....	16
Table 6-1 – Review of the Sight Distances .....	17
Table 6-2 – Design Traffic Volume Parameters – Millmerran–Inglewood Road Site Access Intersection .....	20
Table 6-3 – Design Traffic Volume Parameters – Cunningham Highway / Millmerran–Inglewood Road Intersection .....	21
Table 7-1 – Pavement Contributions associated with Different Annual Production Rates .....	24
Table 7-1 – Pavement Contributions associated with Different Annual Production Rates (duplicated) .....	26

### FIGURES

Figure 2-1 – Locality Map .....	6
Figure 2-2 – Location of the Site Access Road .....	7
Figure 2-3 – Road Reserve .....	7
Figure 3-1 – Transport Routes .....	9
Figure 3-2 – Multi-Combination Routes in Queensland .....	10
Figure 4-1 – Location of Traffic Surveys .....	11
Figure 5-1 – Proposed Configuration of the Millmerran–Inglewood Road Site Access Intersection .....	14
Figure 5-2 – Modelled Existing Configuration of the Cunningham Highway / Millmerran–Inglewood Road Intersection .....	15
Figure 6-1 – Contour Map and Sight Distances .....	18
Figure 6-2 – Warrants for Turn Lane Treatments .....	19
Figure 6-3 – Calculation of Major Road Traffic Volumes .....	20
Figure 6-4 – Warrants for Turn Lane Treatments – Millmerran–Inglewood Road Site Access Intersection .....	21
Figure 6-5 – Warrants for Turn Lane Treatments – Cunningham Highway / Millmerran–Inglewood Road Intersection .....	22

### APPENDICES

Appendix A	Site Layout Plan
Appendix B	Traffic Volume Diagrams
Appendix C	Results of SIDRA Analyses
Appendix D	Results of Traffic Surveys
Appendix E	Results of Pavement Contribution Assessment

# 1 Introduction

---

Traffic & Transport Plus (TTPlus) has been commissioned by Johnstone Concrete and Quarries (Johnstone) to prepare a traffic and pavement impact assessment report as part of a development application for Grays Road Quarry located at Millmerran–Inglewood Road, Canning Creek (Subject Site).

This development application proposes that the quarry will produce up to 500,000 tonnes per annum (tpa), commencing in 2022 (the Proposal). Therefore, adopting the traditional ten–year design horizon planning approach, the design horizon year for the Proposal is 2032.

The demand for material follows economic cycles, so it is often difficult to provide definitive volume output estimates. Johnstone has advised that the average annual production would be likely to be between 150,000 tpa to 300,000 tpa. For the purpose of this traffic impact assessment, the traffic impacts associated with the applied for production rate of 500,000 tpa has been assessed.

An assessment of the operational impacts of the Proposal on the external road network has been undertaken using SIDRA 9 intersection analysis software (SIDRA). As part of the SIDRA analysis, the assessment philosophy has included the concept of a **“peak hour factor” (more information provided in Section 4.3), to provide additional surety that suitable infrastructure is in place** at commencement of, and through the life of the Proposal, **to cater for the likely ‘worst–case–scenario’ peak operating conditions** of the Proposal. This methodology is considered to be a suitably conservative approach to the analysis.

This report addresses the following traffic–related issues:

- The transport routes;
- Additional trips (both heavy and light vehicles) associated with the Proposal;
- Traffic impacts on the adjacent external road network associated with the Proposal;
- Safety issues on the adjacent external road network in consideration of the additional traffic generated by the Proposal, and
- Pavement impacts / contributions associated with the Proposal.

A summary of findings is provided in Section 8.

## 2 Subject Site

### 2.1 Site Location and Site Layout Plan

The Subject Site is located approximately 13km north-east of the Cunningham Highway / Millmerran–Inglewood Road intersection. Figure 2–1 illustrates the location of the site relative to Millmerran–Inglewood Road and the Cunningham Highway.

It is proposed to construct a site access road south of the Subject Site. The alignment of the proposed site access road is illustrated as Figure 2–2 and the location of the proposed site access is demonstrated by the green arrow on Figure 2–1. The proposed site access road is located within the road reserve as illustrated on Figure 2–3.

The site layout plan for the Proposal is included as Appendix A.



Figure 2–1 – Locality Map

Source: Google Earth [annotations and road names added by TTPlus]

Note: The red shaded lines indicate State-controlled roads.



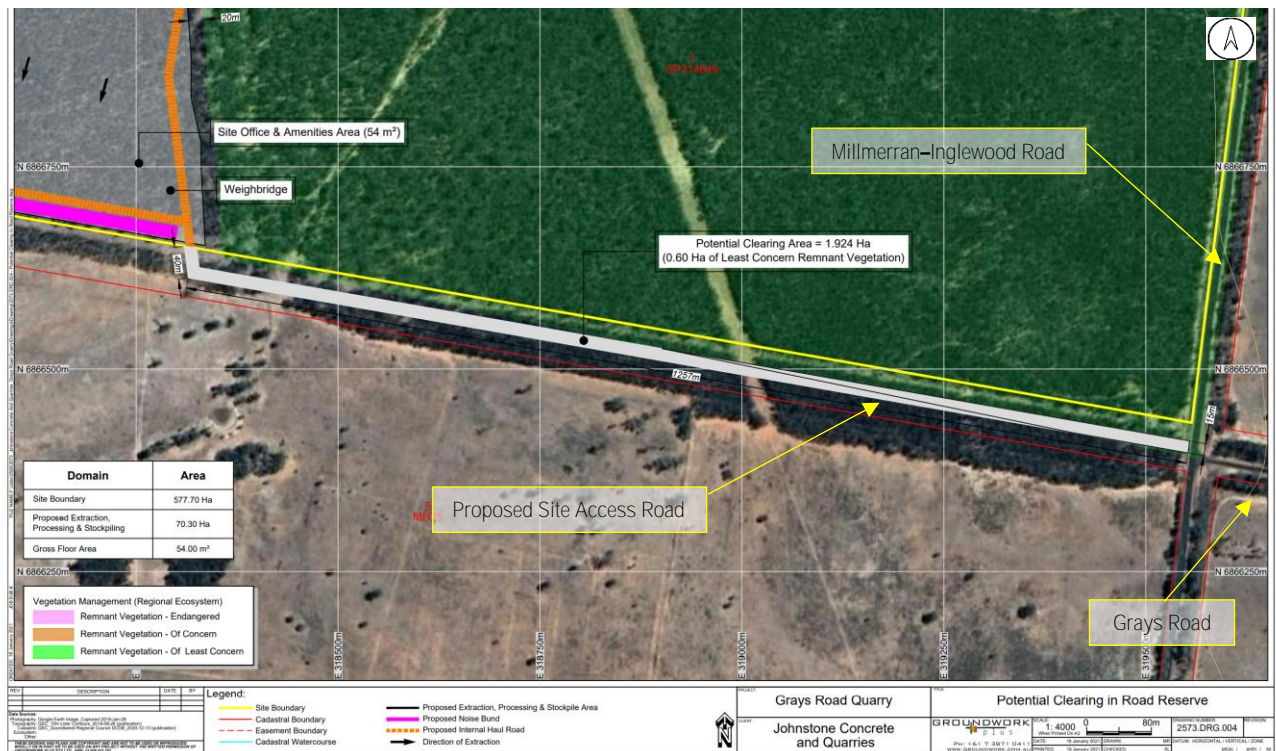


Figure 2-2 – Location of the Site Access Road  
[annotations and road names added by TTPlus]



Figure 2-3 – Road Reserve  
Source: <https://qldglobe.information.qld.gov.au> (the yellow parcels indicate the road reserve) [annotations and road names added by TTPlus]

## 2.2 Existing Road Network

The hierarchical classification and characteristics of the roads in the vicinity of the Subject Site are described in below.

*Table 2-1 – Existing Local Road Hierarchy*

Road	Traffic Lanes	Authority	Speed Limit*
Millmerran–Inglewood Road	2 (undivided)	Department of Transport and Main Roads (DTMR)	100km/h*
Grays Road	2 (undivided)	Goodiwindi Regional Council	100km/h**
Cunningham Highway	2 (undivided)	DTMR	Eastbound: 60km/h at Inglewood and changes to 80km/h ~100m west of Millmerran–Inglewood Road* Westbound: 100km/h and changes to 80km/h ~100m west of Millmerran–Inglewood Road*

\*Speed limits have been identified using Google Street View

\*\*There is no posted speed limit on Grays Road (noting that the speed limit outside built-up areas in Queensland is 100km/h unless otherwise indicated by signs).



### 3 The Transport Routes

TTPlus has been advised that the quarried material is anticipated to be transported towards Millmerran (north), Inglewood (south-west) and Warwick (south-east).

The road network in the vicinity of the Subject Site has been assessed to assist in determining the appropriate transport routes for haulage of material to the likely destinations. The proposed transport routes, illustrated on Figure 3-1, are the recommended transport routes to be used for haulage of material from the site.

The proposed transport routes are detailed below:

- To / from the north (towards Millmerran):
  - via Millmerran–Inglewood Road (north);
- To / from the south-west (towards Inglewood):
  - via Millmerran–Inglewood Road (south) and the Cunningham Highway (west), and
- To / from the south-east (towards Warwick):
  - via Millmerran–Inglewood Road (south) and the Cunningham Highway (east).

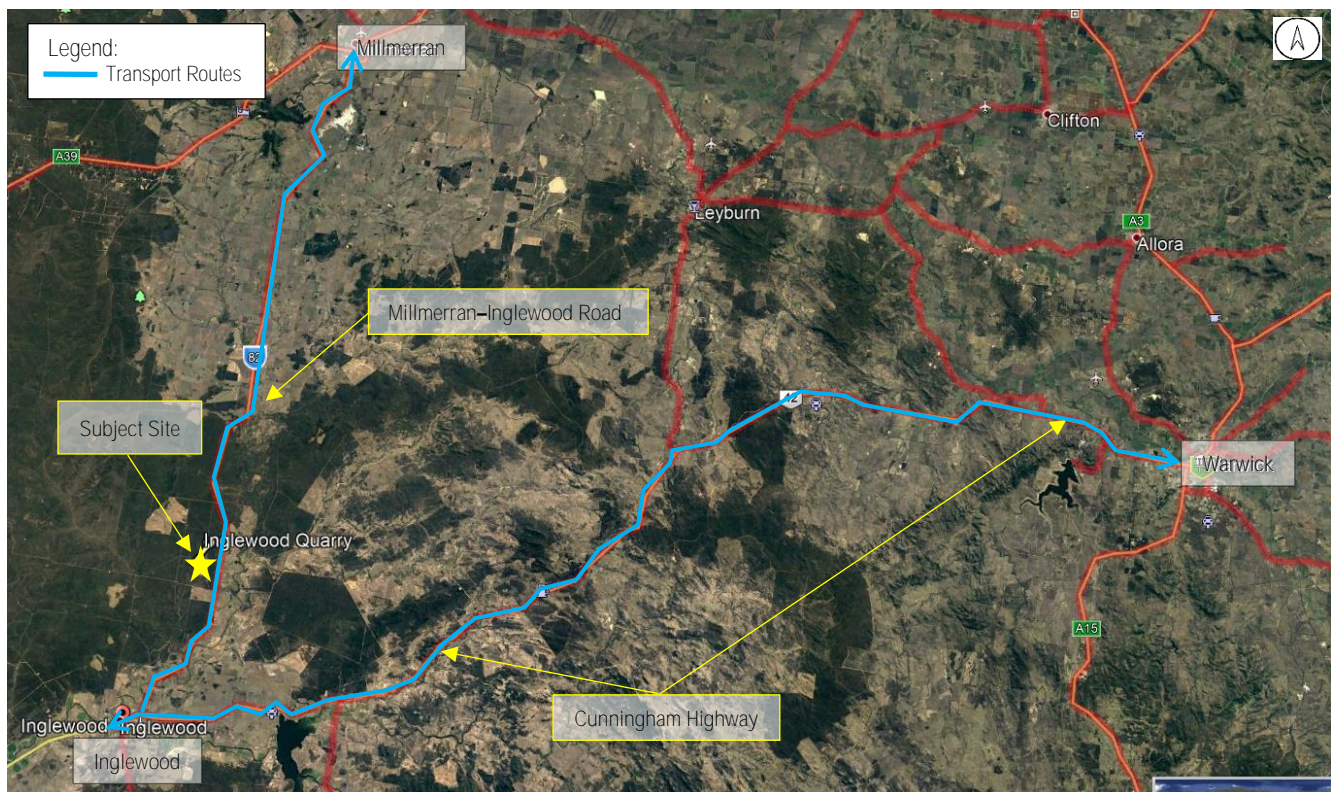


Figure 3-1 – Transport Routes

Source: Google Earth [annotations added by TTPlus]

Note: The red shaded lines indicate State-controlled roads.

The maximum size vehicle sought to be used by the site for the loading and hauling activities is an AB-triple (less than 36.5m long). DTMR's "Guideline for Multi-combination Vehicles" states that "B-triple and AB-triple combinations up to 36.5m are categorised as a Type 1 road train". The DTMR document "Multi-Combination Routes in Queensland – Inglewood" illustrates that all state-controlled roads included in the proposed transport routes outlined above are suitable for vehicles up to at least a Type 1 road train. As such, the proposed transport routes are appropriate for the typical haulage / delivery vehicles associated with the Proposal. An annotated map of the "Multi-Combination Routes in Queensland – Inglewood" indicating the location of the Subject Site, is duplicated as Figure 3-2.



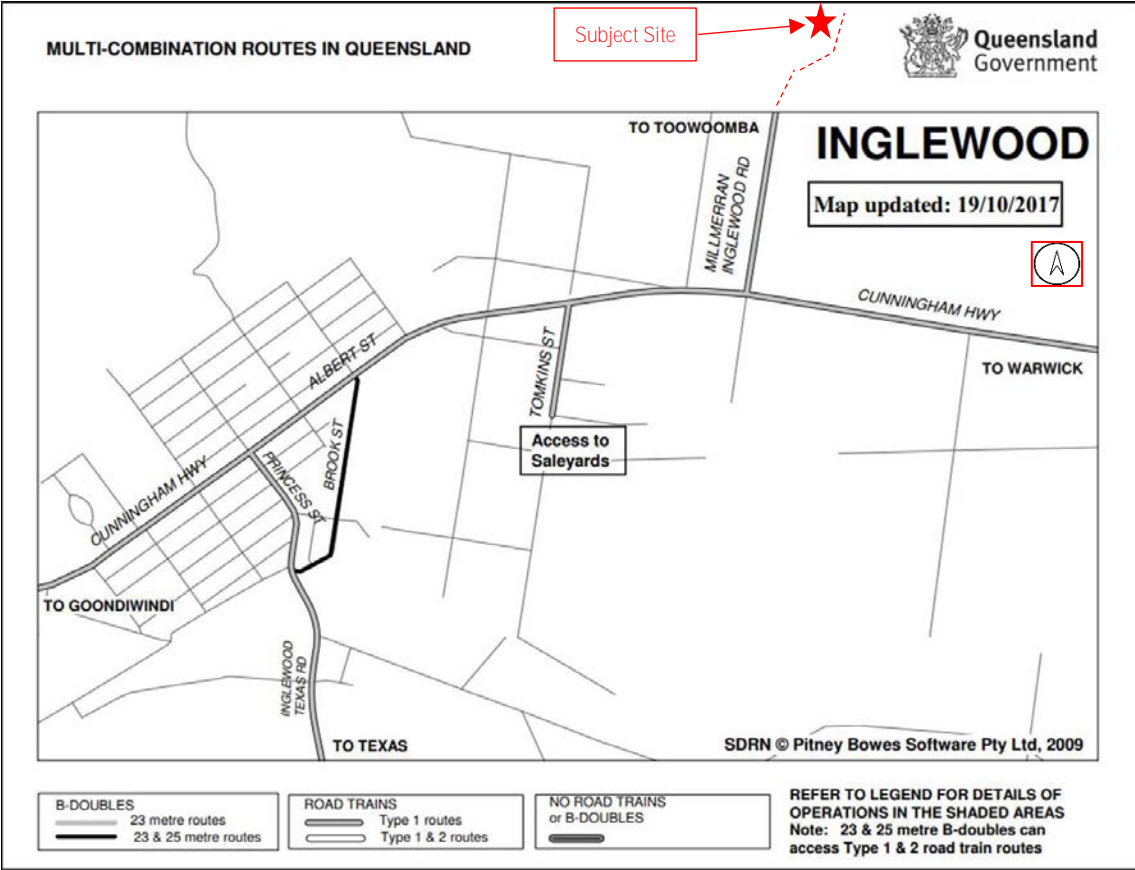


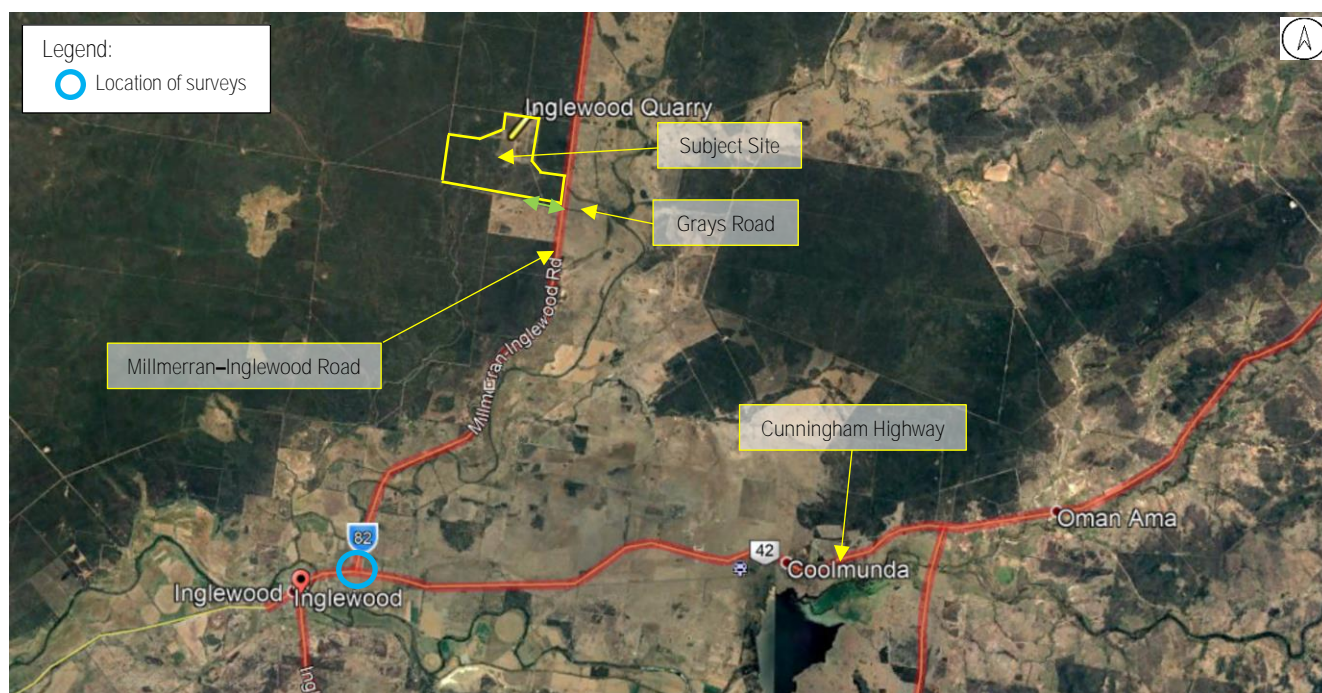
Figure 3-2 – Multi-Combination Routes in Queensland  
Source: Queensland Government [red annotations added by TTPlus]

## 4 Traffic Volumes

### 4.1 2021 Traffic Volumes

To assist in the preparation of this assessment, determination of existing background traffic volumes is required. Traffic surveys were undertaken at the Cunningham Highway / Millmerran–Inglewood Road intersection on Thursday 25 March 2021 from 6:30am to 9:30am and from 2:30pm to 6:00pm. The location of the traffic surveys is illustrated on Figure 4–1.

The detailed results of the traffic surveys are included in Appendix D.



**Figure 4–1 – Location of Traffic Surveys**  
Source: Google Earth [Survey location and annotations added by TTPlus]  
Note: The red shaded lines indicate State-controlled roads.

The observed AM and PM peak hour periods were identified as being 8:15am to 9:15am and 4:00pm to 5:00pm. Figure B1 within Appendix B illustrates the 2021 observed AM and PM peak hourly traffic volumes.

## 4.2 Base Traffic Volumes

As discussed earlier in this report, the Proposal would start operation in 2022, and therefore adopting the traditional ten-year design horizon planning approach, the design horizon year for the Proposal is 2032.

Background traffic data was sourced from DTMR traffic census stations along the Cunningham Highway and Millmerran–Inglewood Road to assist in forecasting an appropriate background traffic growth rate to utilise for assessment purposes. The average annual daily traffic (AADT) and growth rates of the nearby state-controlled roads (SCRs) are listed below:

- Millmerran–Inglewood Road (station no. 50024), near the Subject Site:
  - From 248 vehicles per day (vpd) in 2010 to 336vpd in 2019
  - Growth rate: 3.4% p.a. (compound)
- Millmerran–Inglewood Road (station no. 32562):
  - From 716vpd in 2010 to 688vpd in 2019
  - Growth rate: –0.4% p.a. (compound)
- Cunningham Highway (station no. 51840), west of Millmerran–Inglewood Road:
  - From 1,915vpd in 2010 to 2,178vpd in 2019
  - Growth rate: 1.4% p.a. (compound)
- Cunningham Highway (station no. 50005), east of Millmerran–Inglewood Road:
  - From 1,475vpd in 2010 to 1,635vpd in 2019
  - Growth rate: 1.2% p.a. (compound)

Whilst future traffic growth can only be estimated, for the purpose of this assessment, a traffic growth rate of 2% p.a. (compound) has been adopted to estimate future background traffic volumes on SCRs proximate to the Subject Site.

Figures B2 and B3 within Appendix B illustrate the 2022 and 2032 base AM and PM peak hour traffic volumes (without the Proposal).

## 4.3 Trip Generating Characteristics of the Proposal

TTPlus has been advised that the operational hours of the haulage activities of the Proposal sought are from 7:00am to 6:00pm (11 hours) from Monday to Saturday (6 days). No haulage activities will occur on Sunday or public holidays.

It is difficult to forecast the future actual peak production per annum at this planning stage, therefore in this instance, the identified maximum production of 500,000 tpa has been adopted to assess the traffic impacts of the Proposal. This conservative approach has been adopted to enable all potential traffic impacts to be quantified. In reality, the actual production rate would be likely to be less than this modelled production.

### Truck Trips

**In order to ensure sufficient infrastructure is in place to cater for the ‘worst-case’ operational scenario, the analysis has conservatively assumed that the site would be likely to generate more than the typical hourly traffic volumes during the peak hour periods by introducing the concept of a “peak hour factor”. In this instance, a peak hour factor of 3 has been adopted – refer to second footnote below which outlines the details of the “peak hour factor”.**

The estimated trip generation associated with the Proposal is outlined below.

- Annual production rate: 500,000 tpa;
- Operational weeks per year: 50 weeks;
- Operational days per week: 6 days per week (from Monday to Saturday);
- Operational hours: 7:00am to 6:00pm;
- Average Operational hours per day: 11 hours per day;
- Average mass of material per vehicle\*: 46.23 tonnes per vehicle;
- Peak hour factor\*\*: 3;
- Peak hour traffic volume (IN):  $500,000 / 50 / 6 / 11 / 46.23 \times 3 = 9.8 \rightarrow 10\text{vph}$ , and
- Peak hour traffic volume (OUT): 10vph (assumed same as IN traffic volumes).

\*TTPlus has been advised that 13.0t payload tandem trucks (2%), 26.5t payload semi-trailers (8%), 40.0t payload B-doubles (10%), 40.0t payload truck and dogs (30%), 51.5t payload double road trains (30%) and 62.0t payload AB-triple road trains (20%) would be used for haulage. The average mass of material assumed to be transported per vehicle has been calculated by factoring the mass of material able to be transported by these vehicles and the relative proportions of them within the vehicle fleet. Therefore, the average mass of material per vehicle =  $13.0t \times 0.02 + 26.5t \times 0.08 + 40.0t \times 0.10 + 40.0t \times 0.30 + 51.5t \times 0.30 + 62.0t \times 0.20 = 46.23$  tonnes per vehicle.

\*\*The peak hour factor is the ratio of the absolute peak operating conditions to the average operating conditions, as modelled for the Subject Site. This represents what is considered to be the 'worst-case' peak operational scenario and accounts for all aspects of variations expected throughout each day and the year.

These resultant volume forecasts are considered to be appropriately conservative for the purpose of this assessment. It is also conservatively assumed within the modelling that the development peak and the on-road peak are coincident.

**This 'worst-case' operational scenario is a design consideration only and is unlikely to occur as part of the actual day to day operations.** The analysis methodology used is intended to ensure that sufficient infrastructure is provided in the vicinity of the site and to enable the safe and efficient operation of the surrounding road network.

### Car Trips

TTPlus has been advised that there would be 5–10 staff working at the site.

Staff and visitors would generally not arrive / leave the site during the AM and PM haulage peak periods; notwithstanding this, allowances of 8vph (6vph IN + 2vph OUT) during the AM peak hour period and 8vph (2vph IN + 6vph OUT) during the PM peak hour period have been included in the analysis. This is a conservatively high allowance for staff / visitor car trips coinciding with the haulage and on-road peak periods (noting that the assumption that haulage and on-road peaks coincide is also conservative). The allowance for additional trips generated by staff and visitors (car trips) is in addition to the additional trips generated by the haulage activities (truck trips) of the Proposal. The travel routes of staff / visitors are not known at this stage, however, for the purpose of this assessment, it has been assumed that 80% of the staff would travel to / from the site from / to the south-west (Inglewood) and the remaining 20% would travel to / from the site from / to the south-east (Warwick).

### Trip Distribution

TTPlus has been advised that ~20% of the quarried material would be transported to Millmerran (north), 40% would be transported to Inglewood (south-west) and the remaining ~40% would be transported to Warwick (south-east).

The trips forecast to be generated by the Proposal are illustrated on Figure B4 within Appendix B.

## 4.4 Design Traffic Volumes

For the reasons outlined earlier in this report, the resultant volume forecasts are considered to be appropriately conservative for the purpose of this assessment. It is also conservatively assumed within the modelling that the development peak and the on-road peak hours coincide.

Adding the forecast peak hour trips generated by the Proposal [Figure B4] to the 2022 and 2032 base traffic volumes [Figure B2 and Figure B3] yields the 2022 and 2032 design peak hour traffic volumes with the Proposal. These are illustrated on Figures B5 and B6 within Appendix B.

## 5 Traffic Impact Assessment

Future operation of the Millmerran–Inglewood Road site access intersection and the Cunningham Highway / Millmerran–Inglewood Road intersection have been assessed. The following sections of this report outline the results of the analyses of the key intersections. The detailed results of the SIDRA analyses for both intersections are provided as Appendix C.

### 5.1 Intersection Performance of the Millmerran–Inglewood Road Site Access Intersection

It is proposed to construct a site access road south of the Subject Site, which would form a four-way intersection with Millmerran–Inglewood Road and Grays Road. The proposed configuration of the Millmerran–Inglewood Road site access intersection as assessed using SIDRA, is shown as Figure 5–1.

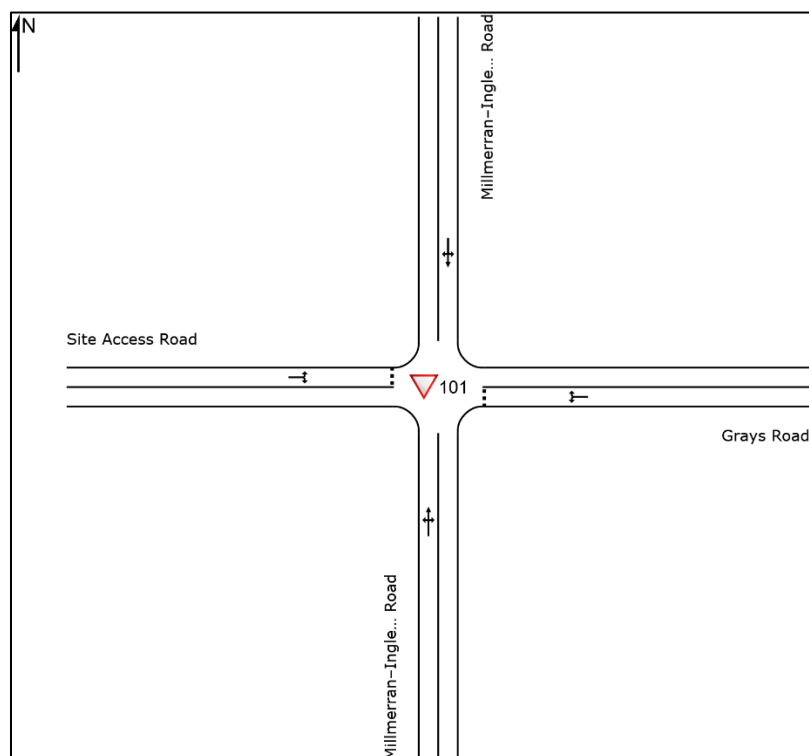


Figure 5–1 – Proposed Configuration of the Millmerran–Inglewood Road Site Access Intersection

Results from the analyses of the Millmerran–Inglewood Road site access intersection for the design scenarios with the Proposal in 2022 (first operational year) and in 2032 (10-year design horizon) are summarised in Figure 5–1.

*Table 5-1 – 2022 and 2032 Operational Characteristics of the Millmerran–Inglewood Road Site Access Intersection*

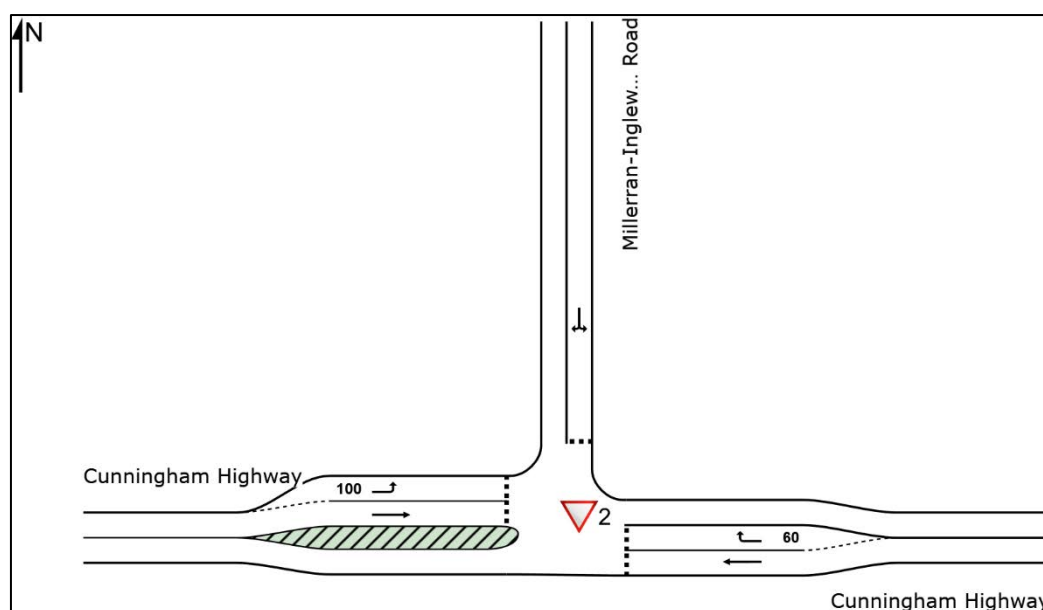
Leg	Movement	2022 Design (with the Proposal)				2032 Design (with the Proposal)			
		AM		PM		AM		PM	
		Degree of Sat (v/c)	95% Back of Queue (m)	Degree of Sat (v/c)	95% Back of Queue (m)	Degree of Sat (v/c)	95% Back of Queue (m)	Degree of Sat (v/c)	95% Back of Queue (m)
Millmerran–Inglewood Road (South)	L	0.03	0	0.06	0	0.04	0	0.07	0
	T	0.03	0	0.06	0	0.04	0	0.07	0
	R	0.03	0	0.06	0	0.04	0	0.07	0
Grays Road (East)	L	0.00	0	0.00	0	0.00	0	0.00	0
	R	0.00	0	0.00	0	0.00	0	0.00	0
Millmerran–Inglewood Road (North)	L	0.03	0	0.05	0	0.04	0	0.06	0
	T	0.03	0	0.05	0	0.04	0	0.06	0
	R	0.03	0	0.05	0	0.04	0	0.06	0
Site Access Road (West)	L	0.01	0	0.02	0	0.01	0	0.02	0
	R	0.01	0	0.02	0	0.01	0	0.02	0

*Note: Practical Maximum Degree of Saturation (DOS) for a priority intersection is 0.80.*

The results provided in Figure 5-1 indicate that the proposed Millmerran–Inglewood Road site access intersection as assessed would operate well within satisfactory operating parameters beyond the 10-year design horizon with the Proposal from a capacity viewpoint.

## 5.2 Intersection Performance of the Cunningham Highway / Millmerran–Inglewood Road Intersection

The modelled existing configuration of the Cunningham Highway / Millmerran–Inglewood Road intersection as assessed using SIDRA, is shown as Figure 5-2.



*Figure 5-2 – Modelled Existing Configuration of the Cunningham Highway / Millmerran–Inglewood Road Intersection*

Results from the analyses of the Cunningham Highway / Millmerran–Inglewood Road intersection for the base and design scenarios with the Proposal in 2022 (first operational year) and in 2032 (10-year design horizon) are summarised in Table 5-2 and Table 5-3.

**Table 5-2 – 2022 Operational Characteristics of the Cunningham Highway / Millmerran–Inglewood Road Intersection**

Leg	Movement	2022 Base (without the Proposal)				2022 Design (with the Proposal)			
		AM		PM		AM		PM	
		Degree of Sat (v/c)	95% Back of Queue (m)	Degree of Sat (v/c)	95% Back of Queue (m)	Degree of Sat (v/c)	95% Back of Queue (m)	Degree of Sat (v/c)	95% Back of Queue (m)
Cunningham Highway (East)	T	0.03	0	0.16	0	0.03	0	0.16	0
	R	0.00	0	0.01	0	0.01	0	0.02	1
Millmerran–Inglewood Road (North)	L	0.07	3	0.13	3	0.09	4	0.25	10
	R	0.07	3	0.13	3	0.09	4	0.25	10
Cunningham Highway (West)	L	0.02	0	0.05	0	0.03	0	0.07	0
	T	0.02	0	0.09	0	0.02	0	0.09	0

Note: Practical Maximum DOS for a priority intersection is 0.80.

**Table 5-3 – 2032 Operational Characteristics of the Cunningham Highway / Millmerran–Inglewood Road Intersection**

Leg	Movement	2032 Base (without the Proposal)				2032 Design (with the Proposal)			
		AM		PM		AM		PM	
		Degree of Sat (v/c)	95% Back of Queue (m)	Degree of Sat (v/c)	95% Back of Queue (m)	Degree of Sat (v/c)	95% Back of Queue (m)	Degree of Sat (v/c)	95% Back of Queue (m)
Cunningham Highway (East)	T	0.04	0	0.19	0	0.04	0	0.19	0
	R	0.00	0	0.01	0	0.01	0	0.02	1
Millmerran–Inglewood Road (North)	L	0.09	3	0.18	5	0.11	4	0.36	17
	R	0.09	3	0.18	5	0.11	4	0.36	17
Cunningham Highway (West)	L	0.02	0	0.06	0	0.04	0	0.09	0
	T	0.03	0	0.10	0	0.03	0	0.10	0

Note: Practical Maximum DOS for a priority intersection is 0.80.

The results provided in Table 5-2 and Table 5-3 indicate that the existing Cunningham Highway / Millmerran–Inglewood Road intersection as assessed would operate well within satisfactory operating parameters beyond the 10-year design horizon with the Proposal from a capacity viewpoint.



## 6 Safety Assessment

Whilst the previous section considers the operation of the key intersections from a capacity viewpoint, safety of these intersections is also required to be assessed.

In consideration of safety, it is important to consider the appropriate geometries and locations of these intersections. This includes consideration of the following features:

- Sight distances;
- Turn lane warrants;
- Crash data, and
- Any other relevant safety features.

There are no other relevant safety features other than sight distances, crash data and the need to consider higher order turn lane treatments (which have been assessed in the following sections).

### 6.1 Sight Distances

Sight distances available for the Millmerran–Inglewood Road site access intersection, have been assessed.

The routinely sought safe intersection sight distances (SISD) and approach sight distances (ASD) as per the requirements identified in **Austroads’ “Guide to Road Design Part 4A: Unsignalised and Signalised Intersection, 2021”**; and whether the sight distances available for the Millmerran–Inglewood Road site access intersection **comply with the Austroads’ requirements** are summarised in Table 6–1.

The required SISD (285m) related to the site access is illustrated on Figure 6–1. Based on a review of available aerial imagery and contour lines on Queensland Globe (refer to Figure 6–1), it is apparent that Millmerran–Inglewood Road is straight and flat proximate to the site access, therefore the sight distances available at the Millmerran–Inglewood Road site access intersection **comply with the Austroads’ requirements**.

This would be verified at the detailed design stage.

Table 6–1 – Review of the Sight Distances

Intersection	Direction on Major Road	Design Speed of Major Road*	Sought SISD	Sought ASD	Available Sight Distance complies with Austroads’ Requirements?	
					SISD	ASD
Millmerran–Inglewood Road site access	To / from the north	110km/h	285m	193m	Yes	Yes
	To / from the south	110km/h	285m	193m	Yes	Yes

\*the analysis has adopted a design speed allowance of 10km/h above the posted speed limit.



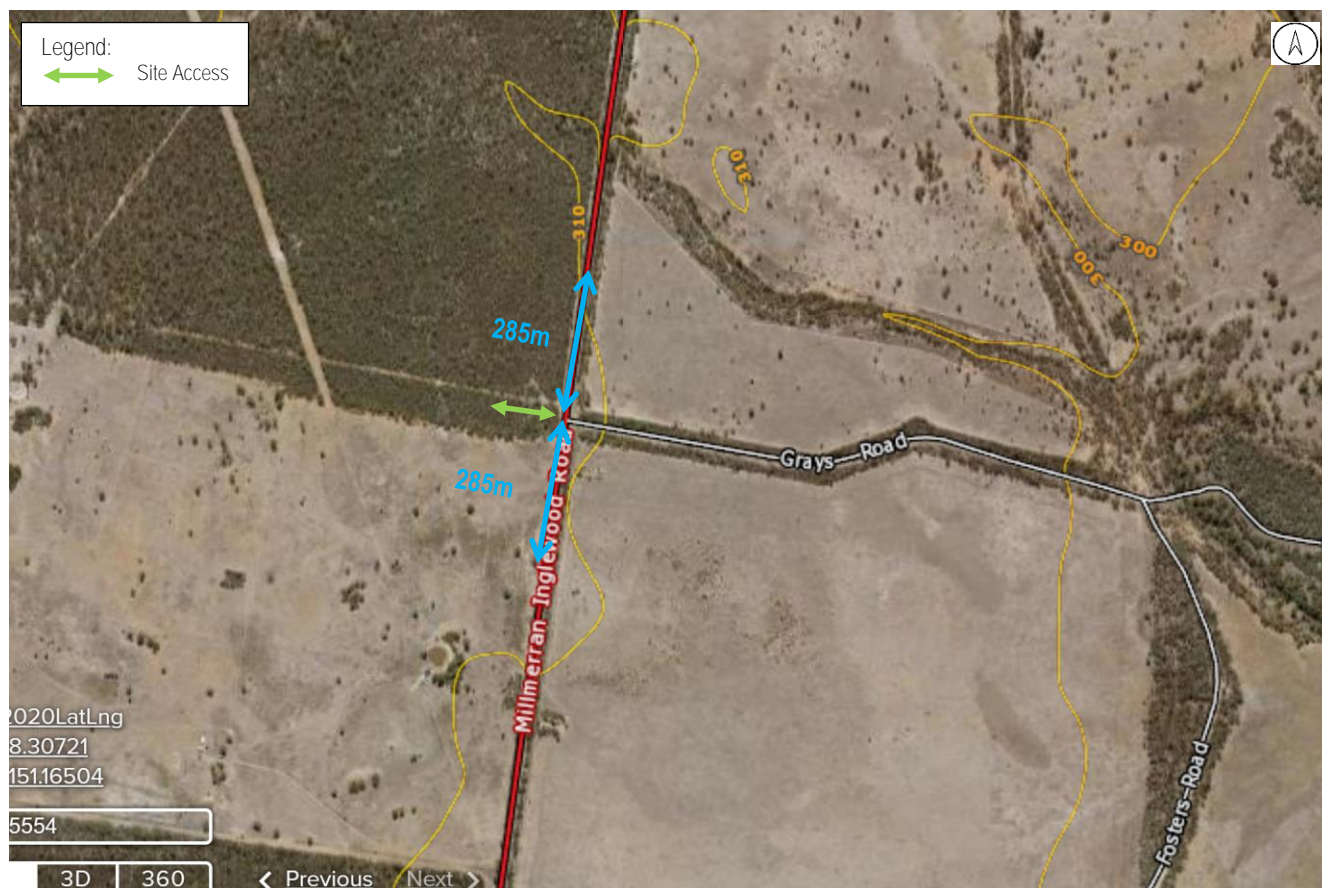


Figure 6-1 – Contour Map and Sight Distances

Source: <https://qldglobe.information.qld.gov.au/> [annotations and sight distances added by TTPlus]

## 6.2 Turn Lane Treatments

Considering the ultimate likely design traffic scenarios (2032 AM and PM design scenarios) ensures the warrants for the possible need to consider higher order turn lane treatments at the above key intersections are properly tested for all anticipated traffic conditions with the Proposal.

The identified turn lane treatments that would be sought for the above key intersections to ensure appropriately safe operation are determined by plotting the base and design traffic volumes on the graphs included as *Figure 4A-1 Warrants – Major Road Turn Treatments – Normal Design Domain* contained within DTMR's "Supplement to Austroads Guide to Road Design Part 4A: *Unsignalised and Signalised Intersections*" (Ref.1) duplicated as Figure 6-2.

<sup>1</sup> "Supplement to Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections, Road Planning and Design Manual – Edition 2: Volume 3", DTMR, August 2014 (previous version of Road Planning and Design Manual).

Supplement to Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections

Figure 4A-1 - Warrants - major road turn treatments - Normal Design Domain

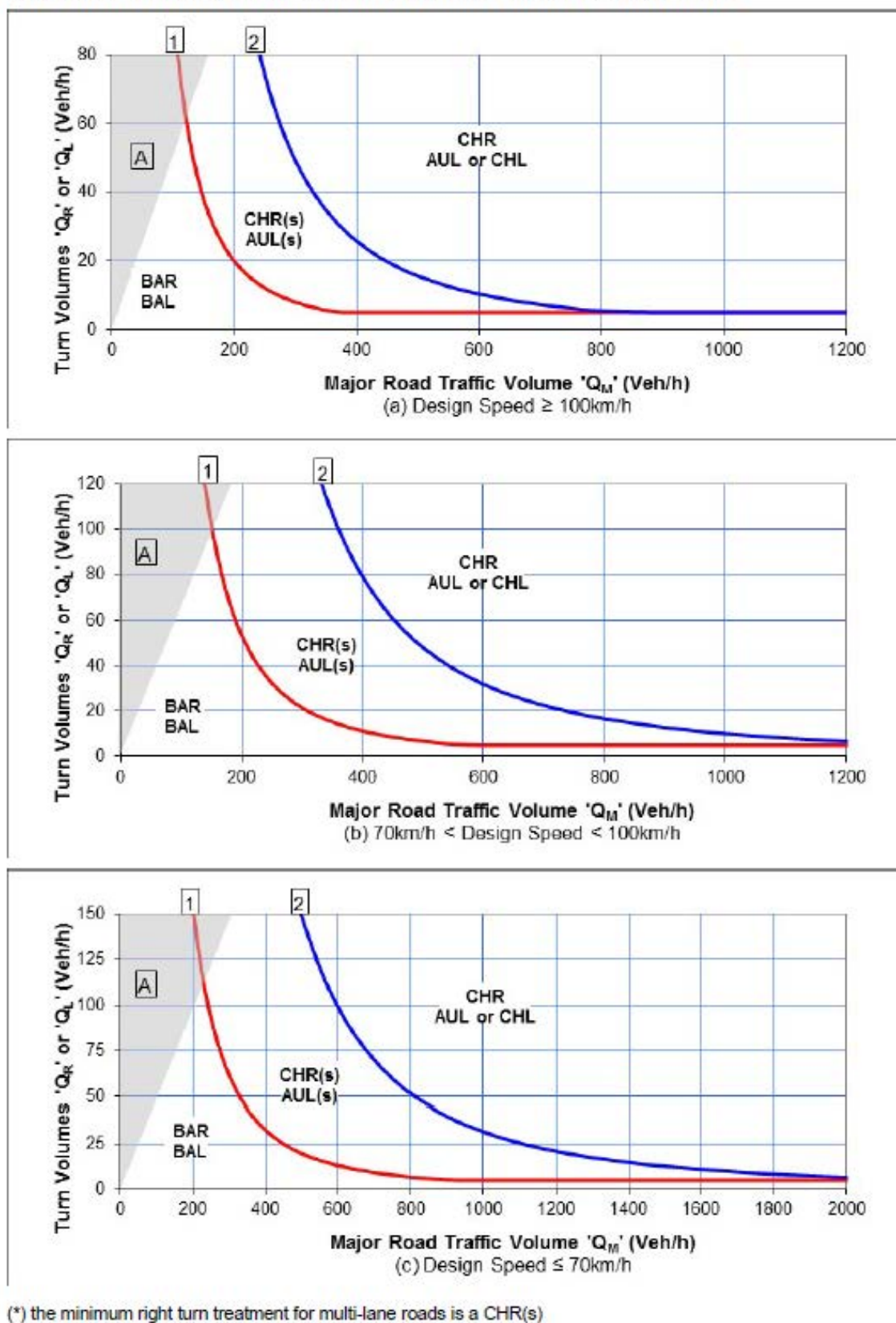


Figure 6-2 – Warrants for Turn Lane Treatments  
(Source: Ref. 1)

The x-axis ( $Q_M$ ) and y-axis ( $Q_L$  and  $Q_R$ ) on these graphs relate to the following:

- $Q_R$  = Right turn traffic volume (vph);
- $Q_L$  = Left turn traffic volume (vph), and
- $Q_M$  = Major road traffic volume which is calculated in accordance with Figure 4A-2 Calculation of the Major Road Traffic Volume Parameter ' $Q_M$ ' (Ref.1), duplicated as Figure 6-3.

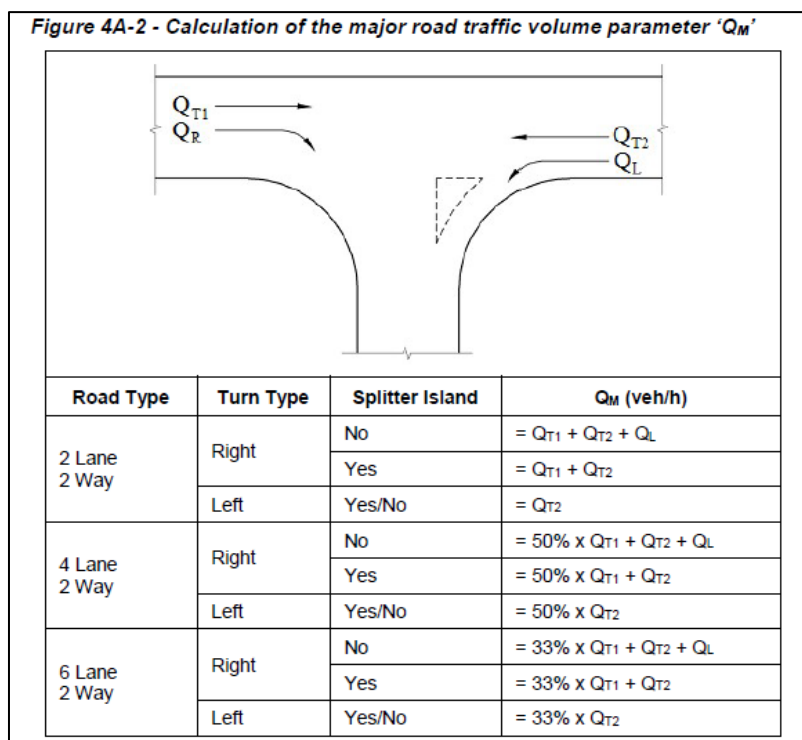


Figure 6-3 – Calculation of Major Road Traffic Volumes  
(Source: Ref.1)

### 6.2.1 Turn Lane Assessment of the Millmerran–Inglewood Road Site Access Intersection

By applying the calculations indicated from within Figure 6-3, the following relevant traffic volume parameters for the left turn, right turn and through movements for the 2032 AM and PM design scenarios were established. The traffic volume parameters for each assessment scenario are summarised in Table 6-2.

Table 6-2 – Design Traffic Volume Parameters – Millmerran–Inglewood Road Site Access Intersection

Scenario	Traffic Movement	Traffic Volume (vph)	
		2032 Design (with the Proposal)	
		AM	PM
Left Turn Scenario	$Q_L$	14	10
	$Q_{ML}$	39	99
Right Turn Scenario	$Q_R$	2	2
	$Q_{MR}$	116	214

In order to illustrate the identified turn lane treatment ideally sought to be provided at the site access intersection for each of the above scenarios, the traffic volume parameters determined in Table 6-2 have been plotted on Figure 4A-1(a) (Ref.1) (refer to Figure 6-2). The design speed of Millmerran–Inglewood Road is 110km/h, adopting the design allowance of 10km/h above the posted speed limit.

The coordinates of the assessed cases are as indicated approximately on Figure 6–4.

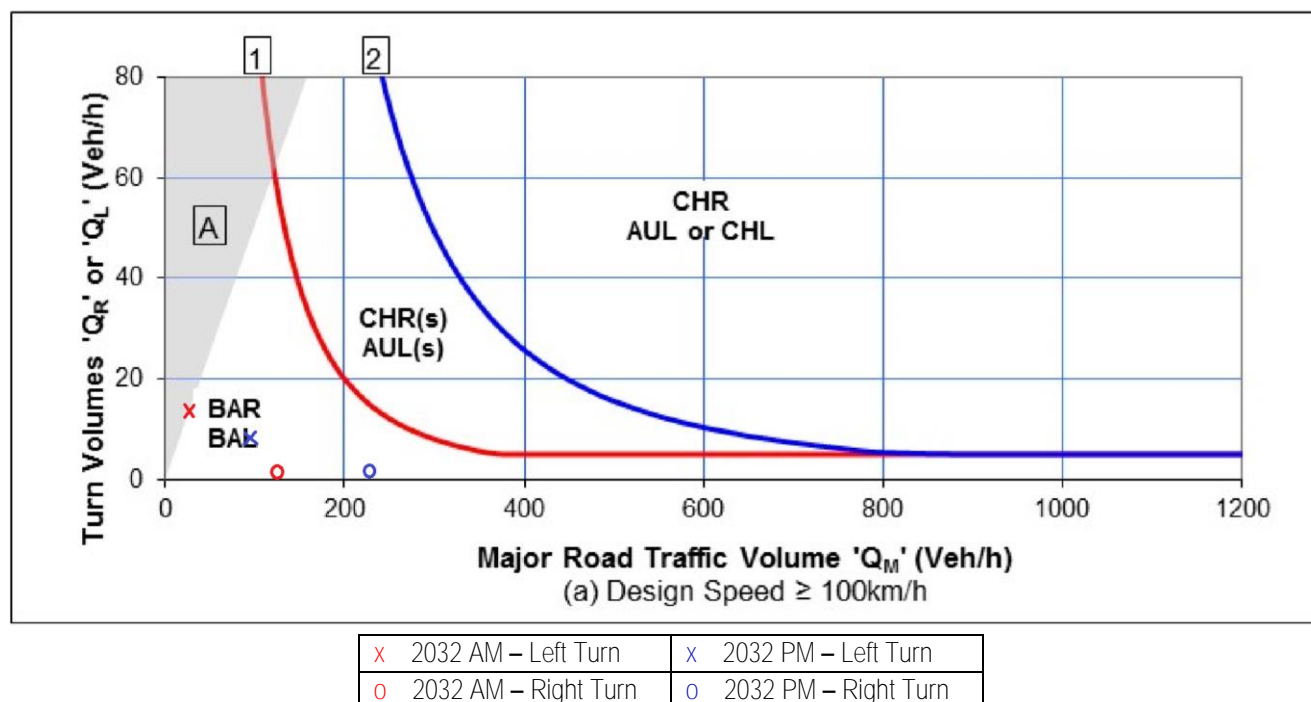


Figure 6–4 – Warrants for Turn Lane Treatments – Millmerran–Inglewood Road Site Access Intersection

Based on the results illustrated on Figure 6–4, a basic left turn (BAL) and basic right turn (BAR) treatment would typically be required to be provided at the Millmerran–Inglewood Road site access intersection.

It is recommended to provide BAL and BAR treatments at the site access intersection. In addition, it is also recommended that the first 25m or so of the site access road to be sealed.

## 6.2.2 Turn Lane Assessment of the Cunningham Highway / Millmerran–Inglewood Road Intersection

By applying the calculations indicated from within Figure 6–3, the following relevant traffic volume parameters for the left turn, right turn and through movements for 2032 AM and PM design scenarios were established. The traffic volume parameters for each assessment scenario are summarised in Table 6–3.

As discussed in Section 2.2, the posted speed limits of the Cunningham Highway eastbound and westbound near Millmerran–Inglewood Road are 80km/h and 100km/h respectively. In this turn lane assessment, it is conservatively assumed that the design speed of the Cunningham Highway is 110km/h, adopting the design allowance of 10km/h above the “highest” posted speed limit.

Table 6–3 – Design Traffic Volume Parameters – Cunningham Highway / Millmerran–Inglewood Road Intersection

Scenario	Traffic Movement	Traffic Volume (vph)	
		2032 Design (with the Proposal)	
		AM	PM
Left Turn Scenario	$Q_L$	46	100
	$Q_{ML}$	48	166
Right Turn Scenario	$Q_R$	7	9
	$Q_{MR}$	157	557

The coordinates of the assessed cases are as indicated approximately on Figure 6–5.

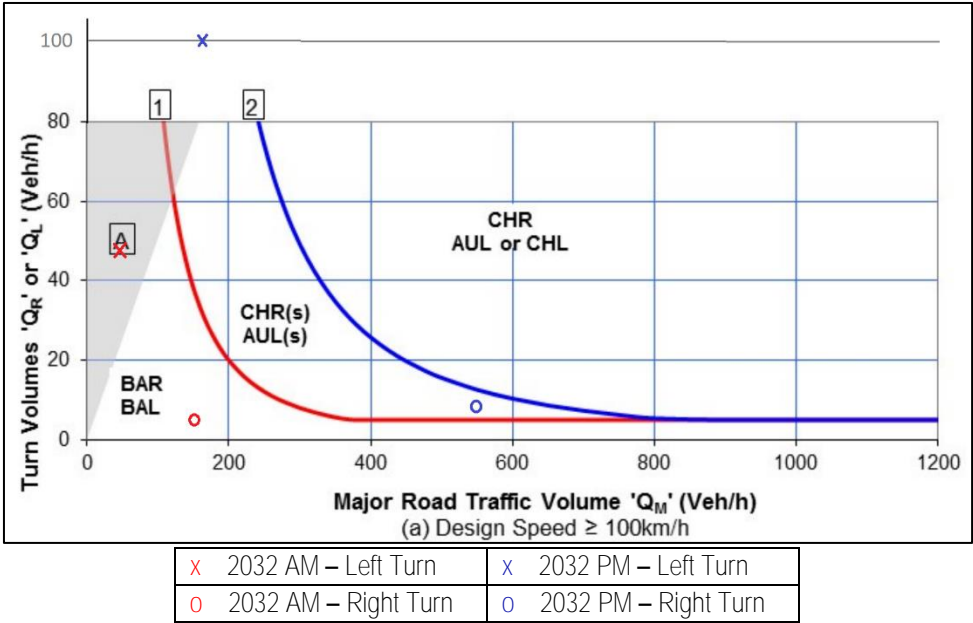


Figure 6–5 – Warrants for Turn Lane Treatments – Cunningham Highway / Millmerran–Inglewood Road Intersection

Based on a review of the aerial imagery of Google Maps, it appears that the existing turn lane treatments at the Cunningham Highway / Millmerran–Inglewood Road intersection are auxiliary left turn (short lane) (AUL(S)) and channelised right turn (short lane) (CHR(S)) treatments – this would be verified at a later stage.

Based on the results illustrated on Figure 6–5, it is apparent that a higher order turn lane treatment is not required to be provided at the Cunningham Highway / Millmerran–Inglewood Road intersection. Therefore, the existing geometry of the Cunningham Highway / Millmerran–Inglewood Road intersection is appropriate.

### 6.3 Crash Statistics

The Queensland Government database (<https://www.data.qld.gov.au/dataset/crash-data-from-queensland-roads>) provides recorded road crash data that can be used to understand what, if any, crash history exists at the key intersections along the transport route.

The routinely adopted crash frequency and time window metric when issues may be considered to be significant is 3 casualty crashes in the last 5 years.

From review of the crash data from 2015 to the end of 2019 (ie. the most recent 5 years of data), there have been no reported crashes near the proposed Millmerran–Inglewood Road site access location and there has been one reported crash (minor injury crash) at the Cunningham Highway / Millmerran–Inglewood Road intersection. Accordingly, it is considered that there are no systematic safety issues at these key intersections that would reasonably require further consideration.

### 6.4 Conclusions in relation to Safety

Based on the results of the SIDRA analysis, the turn lane treatment assessment and review of the historic crash data, the additional traffic associated with the Proposal would only generate marginal impacts at key intersections proximate to the subject site, **even including the concept of a “peak hour factor”** and other conservative analysis assumptions. No additional infrastructure improvement works associated with the Proposal are necessary to ensure the safe and efficient operation of the road network, beyond appropriate intersection design including the turn lane treatments recommended to be provided at the proposed site access intersection on Millmerran–Inglewood Road intersection.



## 7 Pavement Contribution Assessment

---

### 7.1 Pavement Contribution Assessment on State-controlled Roads

This development application proposes that the quarry will produce up to 500,000 tpa, commencing in 2022. The demand for material follows economic cycles, so it is often difficult to provide definitive volume output estimates – Johnstone has advised that the average annual production would be likely to be from 150,000 tpa to 300,000 tpa.

The appropriate contribution for pavement impacts associated with the Proposal on SCRs has been determined using **DTMR's "Guide to Traffic Impact Assessment"** (GTIA) (Ref.2) and the adopted haulage profile.

With the noted likely variation in production, it is considered to be appropriate to enumerate appropriate contributions for scenarios of multiple production possibilities – in this way a reasonable contribution can be determined more aligned to actual production. Naturally, this approach would necessarily and appropriately yield a lesser contribution for years when production is smaller.

#### 7.1.1 Assessment Parameters

The following assessment parameters have been adopted in this pavement contribution assessment:

- Annual production rate: assessed for scenarios ranging from 100,000 tpa to 500,000 tpa;
- First assessment year: 2022;
- AADT data: 2019 data sourced from DTMR;
- AADT growth rate: 2.0% p.a. (compound), which is consistent with the traffic growth rate adopted in the traffic impact assessment of this report, and
- Marginal Cost: 2020 data sourced from DTMR.

#### 7.1.2 Project Operational Parameters

The likely operational parameters of the Proposal have been previously discussed in Section 4.3 of this report.

#### 7.1.3 Pavement Contributions on State-controlled Roads

The calculations of the pavement contributions for the pavement impacts on the SCRs associated with the Proposal, undertaken **based on DTMR's GTIA**, have been included as Appendix E. An electronic copy of the Excel file can be provided (if required) upon request.

Based on the annual production rates varying from 100,000 tpa to 500,000 tpa, the calculated pavement contributions are listed in Table 7-1.

---

<sup>2</sup> "Guide to Traffic Impact Assessment", DTMR, 2017.

*Table 7-1 – Pavement Contributions associated with Different Annual Production Rates*

Annual Production Rate (tpa)	Pavement Contribution (cents / tonne)
100,000	19.67
150,000	23.70
200,000	30.46
250,000	30.71
300,000	30.71
350,000	39.00
400,000	62.51
450,000	71.31
500,000	71.90

TTPlus recommends that Johnstone records and reports the annual production rates of each year to DTMR and pays the pavement contribution (cents / tonne) based on the recorded annual production rate in accordance with the pavement contributions listed in Table 7-1. Linear interpolation would be reasonable, as required.

## 8 Summary of Findings

---

TTPlus has been commissioned by Johnstone Concrete and Quarries (Johnstone) to prepare a traffic and pavement impact assessment report as part of a development application for Grays Road Quarry located at Millmerran–Inglewood Road, Canning Creek (Subject Site).

This development application proposes that the quarry will produce up to 500,000 tpa, commencing in 2022 (the Proposal). Therefore, adopting the traditional ten-year design horizon planning approach, the design horizon year for the Proposal is 2032. The demand for material follows economic cycles, so it is often difficult to provide definitive volume output estimates, however Johnstone has advised that the average annual production would be likely to be from 150,000 tpa to 300,000 tpa. For the purpose of this traffic impact assessment, the traffic impacts associated with the applied production rate of 500,000 tpa have been assessed.

The site layout plan for the Proposal is included as Appendix A.

### Site Access

It is proposed to construct an access road south of the Subject Site. The alignment of the proposed site access road is illustrated as Figure 2–2, and it is located within the road reserve. It is recommended to provide BAL and BAR treatments at the Millmerran–Inglewood Road site access intersection. It is also recommended that the first 25m or so of the site access road to be sealed.

### Transport Routes

Figure 3–1, contained in Section 3 of this report, illustrates the proposed transport routes related to the Proposal.

### Traffic Impact Assessment and Safety Assessment

The results of the SIDRA analyses included in Section 5 of this report illustrate that the proposed Millmerran–Inglewood Road site access intersection and the existing Cunningham Highway / Millmerran–Inglewood Road intersection as assessed, would operate well within satisfactory operating parameters with the Proposal from a capacity viewpoint.

The results of the safety assessment (including a turn lane treatment assessment) included in Section 6 of this report indicate that there are no specific safety concerns along the transport routes and that higher order turn lane treatments are not required to be provided at the Cunningham Highway / Millmerran–Inglewood Road intersection. No additional infrastructure improvement works associated with the Proposal are necessary to ensure the safe and efficient operation of the road network, beyond appropriate intersection design including the turn lane treatment works recommended to be provided at the proposed Millmerran–Inglewood Road site access intersection.

### Pavement Contributions on State–Controlled Roads

TTPlus recommends that Johnstone records and reports the annual production rate of each year to DTMR and pays the pavement contributions (cents / tonne) based on the recorded annual production rate in accordance with the pavement contributions listed in Table 7–1 (Linear interpolation would be reasonable, as required).



*Table 7-1 – Pavement Contributions associated with Different Annual Production Rates (duplicated)*

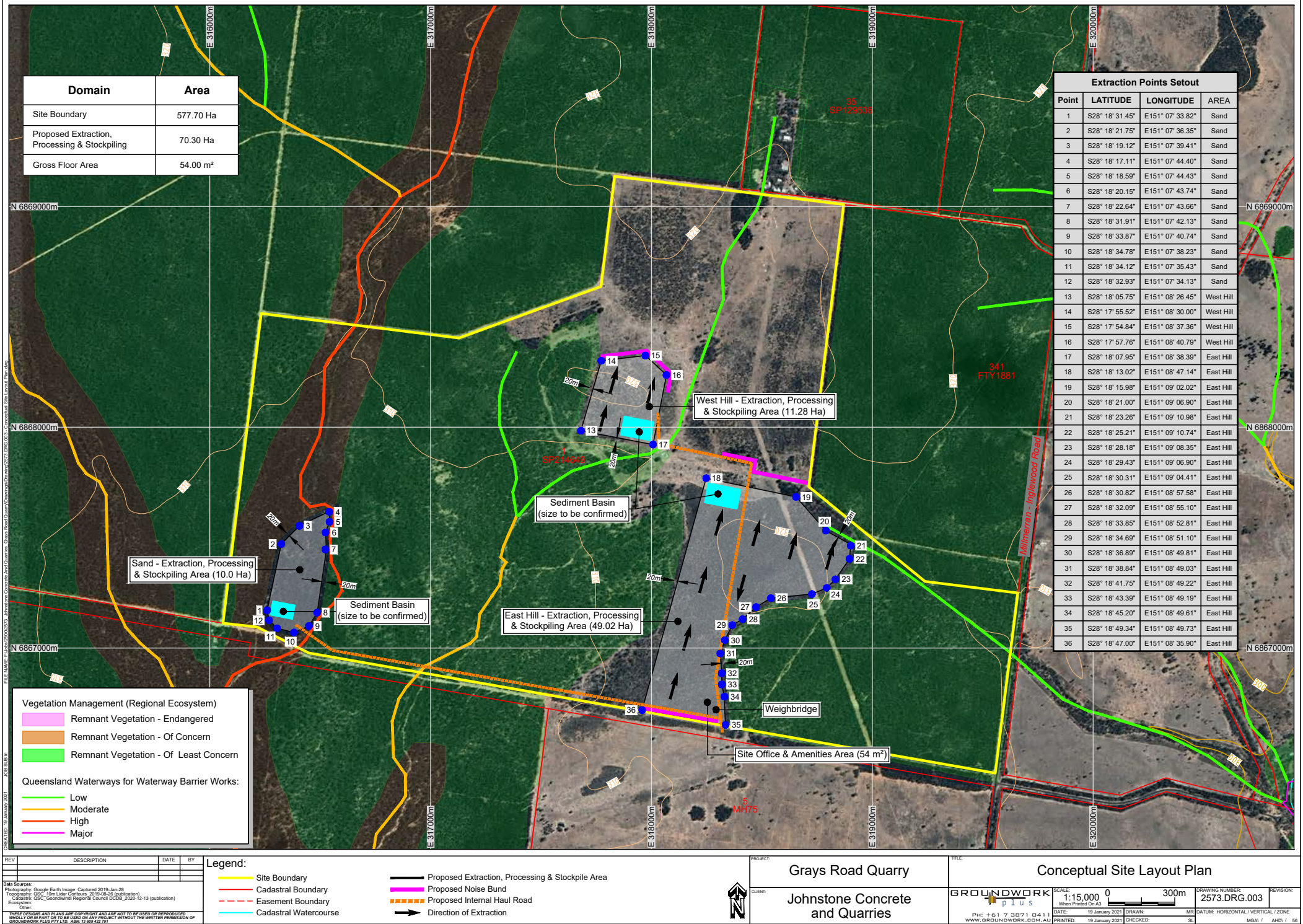
Annual Production Rate (tpa)	Pavement Contribution (cents / tonne)
100,000	19.67
150,000	23.70
200,000	30.46
250,000	30.71
300,000	30.71
350,000	39.00
400,000	62.51
450,000	71.31
500,000	71.90

### Conclusion

Based on the assessment and recommendations within the report, the Proposal can be approved from a traffic engineering perspective.

# Appendix A

## Site Layout Plan



Domain	Area
Site Boundary	577.70 Ha
Proposed Extraction, Processing & Stockpiling	70.30 Ha
Gross Floor Area	54.00 m²

Extraction Points Setout			
Point	LATITUDE	LONGITUDE	AREA
1	S28° 18' 31.45"	E151° 07' 33.82"	Sand
2	S28° 18' 21.75"	E151° 07' 36.35"	Sand
3	S28° 18' 19.12"	E151° 07' 39.41"	Sand
4	S28° 18' 17.11"	E151° 07' 44.40"	Sand
5	S28° 18' 18.59"	E151° 07' 44.43"	Sand
6	S28° 18' 20.15"	E151° 07' 43.74"	Sand
7	S28° 18' 22.64"	E151° 07' 43.66"	Sand
8	S28° 18' 31.91"	E151° 07' 42.13"	Sand
9	S28° 18' 33.87"	E151° 07' 40.74"	Sand
10	S28° 18' 34.78"	E151° 07' 38.23"	Sand
11	S28° 18' 34.12"	E151° 07' 35.43"	Sand
12	S28° 18' 32.93"	E151° 07' 34.13"	Sand
13	S28° 18' 05.75"	E151° 08' 26.45"	West Hill
14	S28° 17' 55.52"	E151° 08' 30.00"	West Hill
15	S28° 17' 54.84"	E151° 08' 37.36"	West Hill
16	S28° 17' 57.76"	E151° 08' 40.79"	West Hill
17	S28° 18' 07.95"	E151° 08' 38.39"	East Hill
18	S28° 18' 13.02"	E151° 08' 47.14"	East Hill
19	S28° 18' 15.98"	E151° 09' 02.02"	East Hill
20	S28° 18' 21.00"	E151° 09' 06.90"	East Hill
21	S28° 18' 23.26"	E151° 09' 10.98"	East Hill
22	S28° 18' 25.21"	E151° 09' 10.74"	East Hill
23	S28° 18' 28.18"	E151° 09' 08.35"	East Hill
24	S28° 18' 29.43"	E151° 09' 06.90"	East Hill
25	S28° 18' 30.31"	E151° 09' 04.41"	East Hill
26	S28° 18' 30.82"	E151° 08' 57.58"	East Hill
27	S28° 18' 32.09"	E151° 08' 55.10"	East Hill
28	S28° 18' 33.85"	E151° 08' 52.81"	East Hill
29	S28° 18' 34.69"	E151° 08' 51.10"	East Hill
30	S28° 18' 36.89"	E151° 08' 49.81"	East Hill
31	S28° 18' 38.84"	E151° 08' 49.03"	East Hill
32	S28° 18' 41.75"	E151° 08' 49.22"	East Hill
33	S28° 18' 43.39"	E151° 08' 49.19"	East Hill
34	S28° 18' 45.20"	E151° 08' 49.61"	East Hill
35	S28° 18' 49.34"	E151° 08' 49.73"	East Hill
36	S28° 18' 47.00"	E151° 08' 35.90"	East Hill

- Vegetation Management (Regional Ecosystem)
- Remnant Vegetation - Endangered
  - Remnant Vegetation - Of Concern
  - Remnant Vegetation - Of Least Concern

- Queensland Waterways for Waterway Barrier Works:
- Low
  - Moderate
  - High
  - Major

Legend:

- Site Boundary
- Cadastral Boundary
- Easement Boundary
- Cadastral Watercourse
- Proposed Extraction, Processing & Stockpile Area
- Proposed Noise Bund
- Proposed Internal Haul Road
- Direction of Extraction

Grays Road Quarry

Johnstone Concrete and Quarries

Conceptual Site Layout Plan

GROUNDWORK 1:15,000 0 300m 2573.DRG.003

DATE: 19 January 2021 DRAWN: MR DATUM: HORIZONTAL / VERTICAL / ZONE PRINTED: 19 January 2021 CHECKED: SL

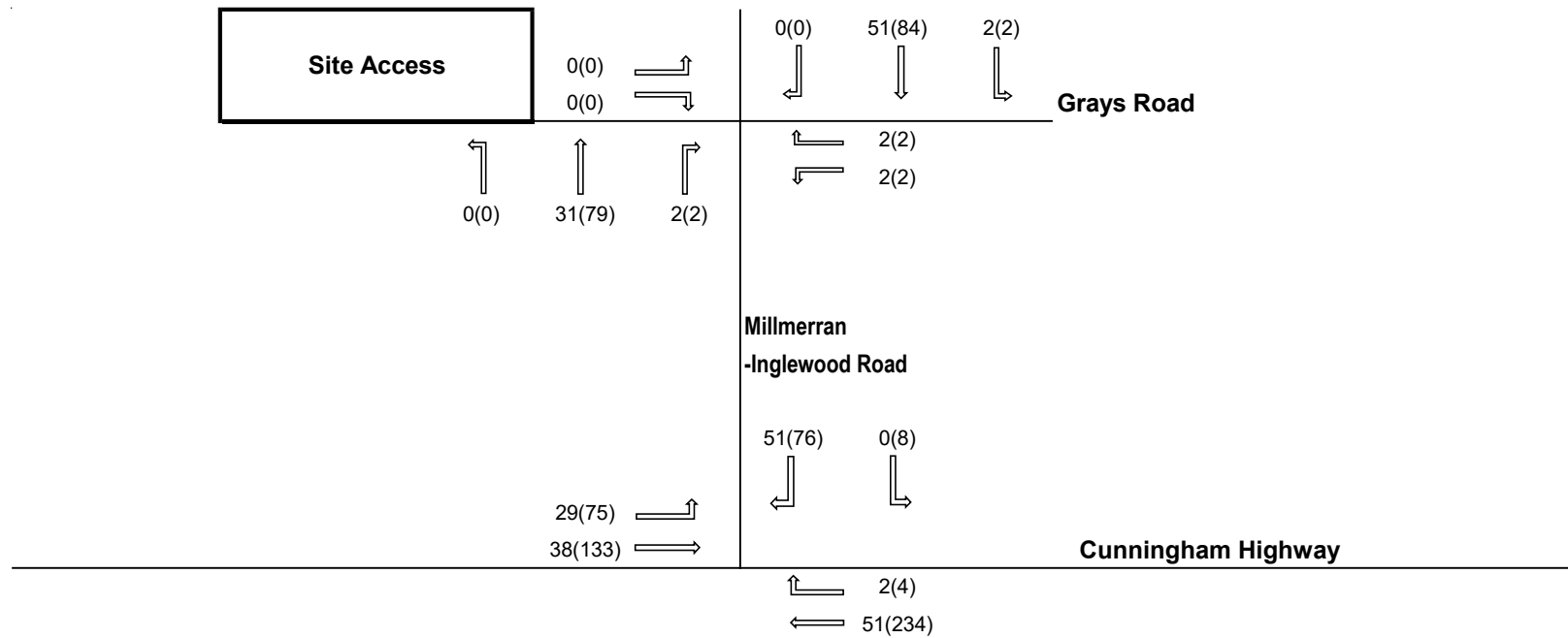
# Appendix B


## Traffic Volume Diagrams



Note:

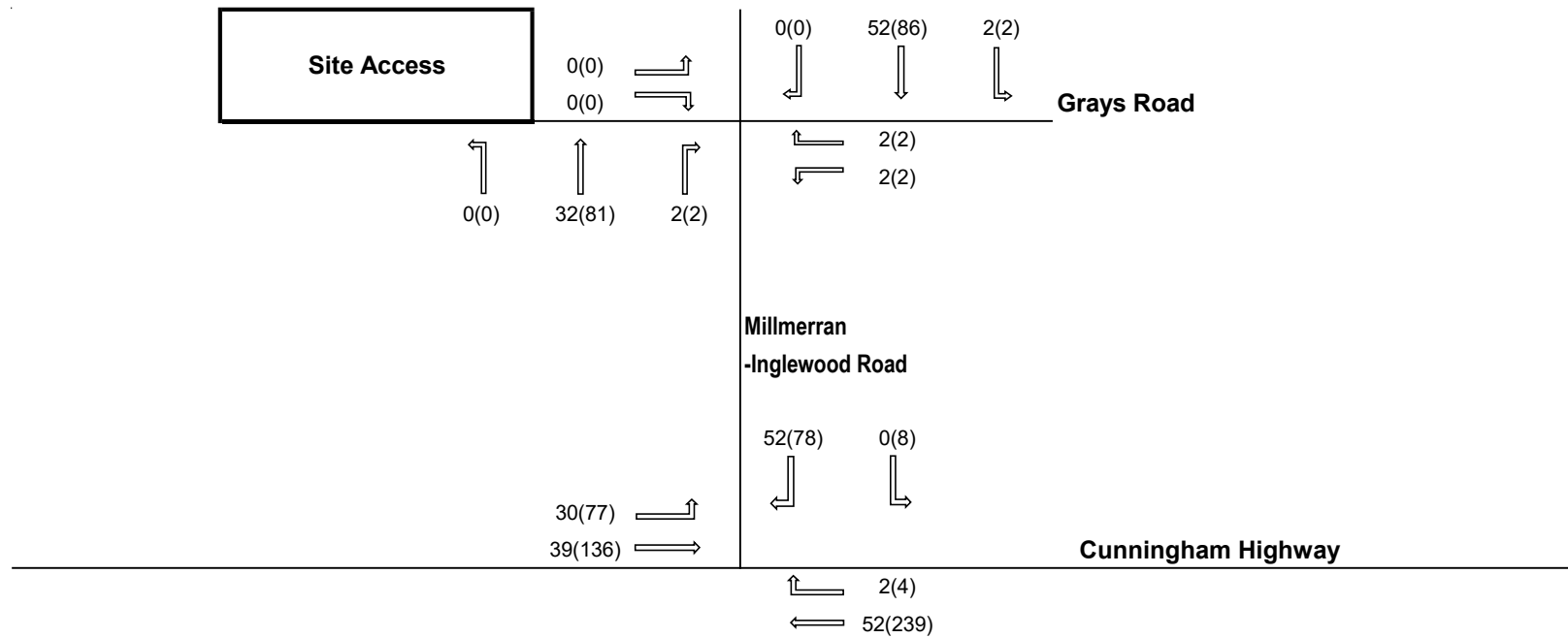
1. all units are vehicles per hour
2. 20 (30) = Weekday AM peak hour traffic volume (Weekday PM peak hour traffic volume)
3. It is assumed that the turning volumes of Grays Road to be 2vph.




Grays Road Quarry	2021 Observed Traffic Volumes		June 2021
			TTPlus Project No: 10518
	Figure B1	<b>TRAFFIC TRANSPORT</b>  <b>plus</b>	

Note:

1. all units are vehicles per hour
2. 20 (30) = Weekday AM peak hour traffic volume (Weekday PM peak hour traffic volume)
3. It is assumed that the turning volumes of Grays Road to be 2vph.

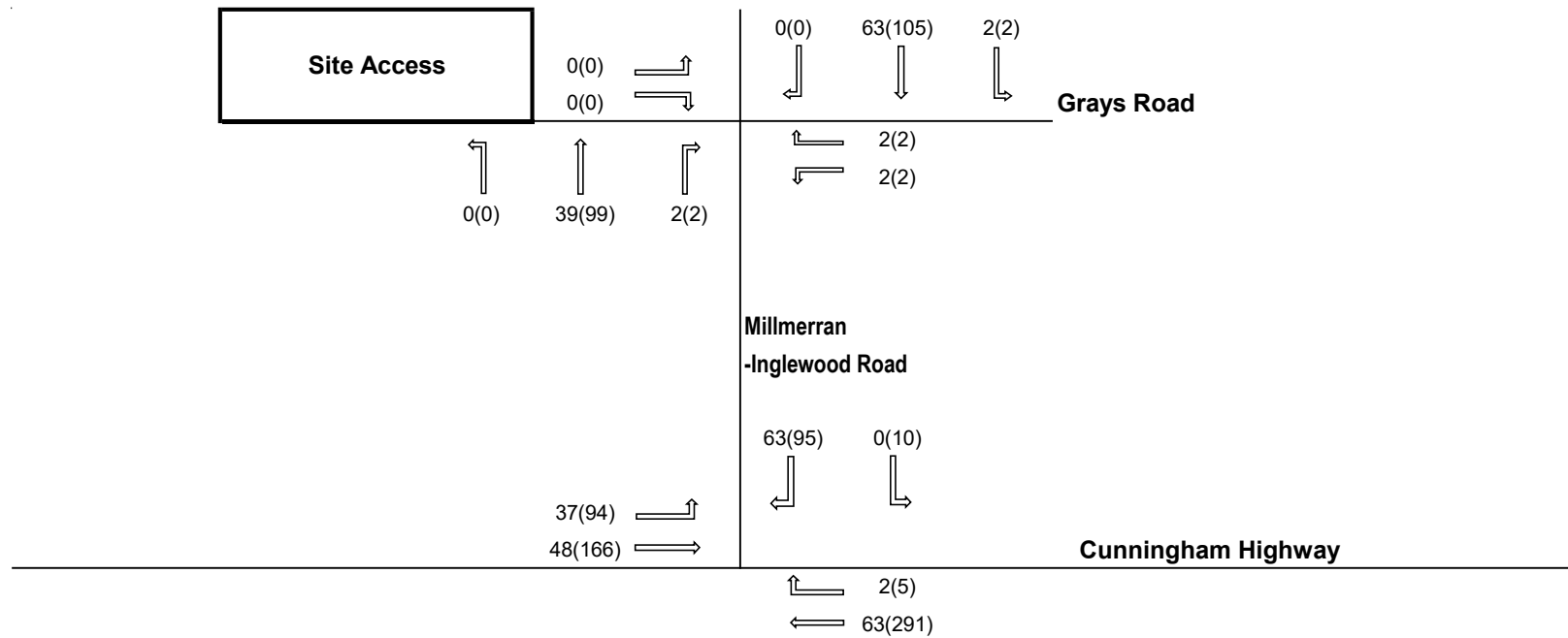


Grays Road Quarry	2022 Base Traffic Volumes		June 2021
			TTPlus Project No: 10518
	Figure B2	<b>TRAFFIC TRANSPORT</b>  <b>plus</b>	



Note:

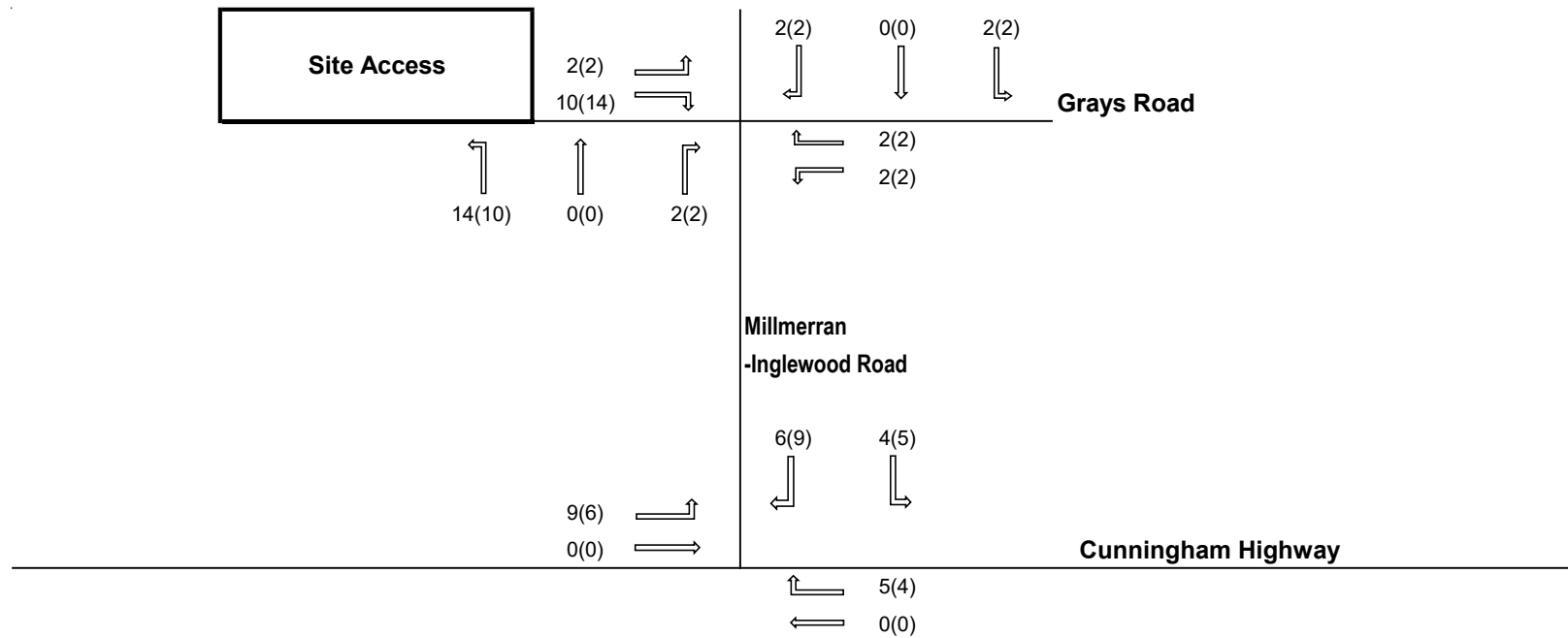
1. all units are vehicles per hour
2. 20 (30) = Weekday AM peak hour traffic volume (Weekday PM peak hour traffic volume)
3. It is assumed that the turning volumes of Grays Road to be 2vph.




Grays Road Quarry	2032 Base Traffic Volumes		June 2021
	Figure B3		TTPlus Project No: 10518
	TRAFFIC TRANSPORT plus		

Note:

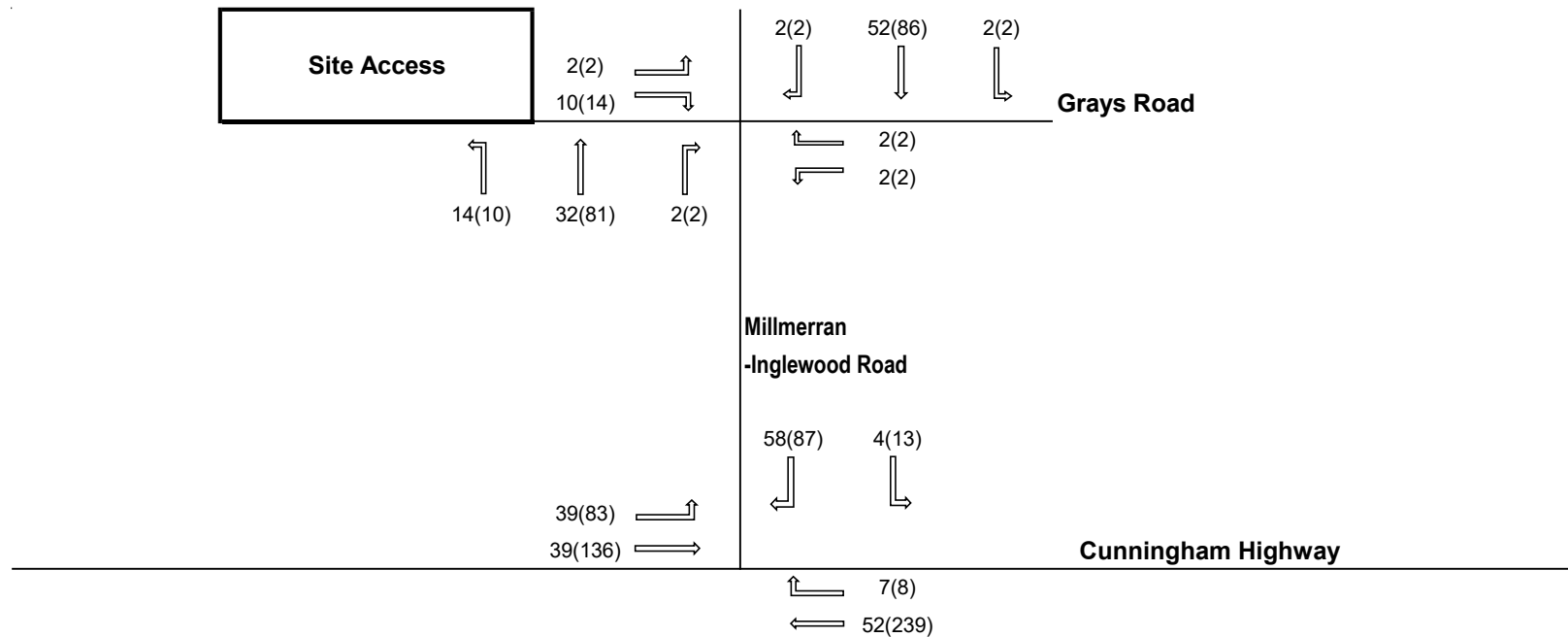
1. all units are vehicles per hour
2. 20 (30) = Weekday AM peak hour traffic volume (Weekday PM peak hour traffic volume)
3. It is assumed that the turning volumes of Grays Road to be 2vph.




Grays Road Quarry	Development Traffic Volumes		June 2021
			TTPlus Project No: 10518
	Figure B4	<b>TRAFFIC TRANSPORT</b>  <b>plus</b>	

Note:

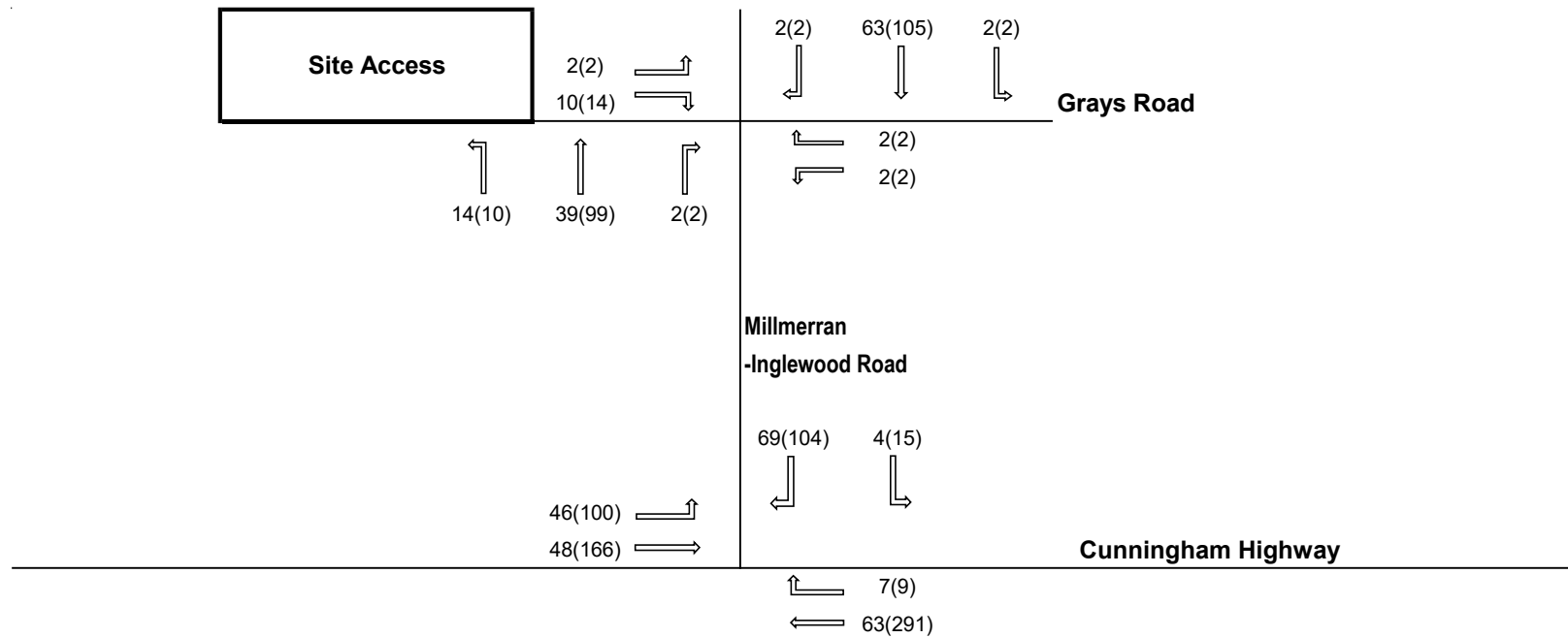
1. all units are vehicles per hour
2. 20 (30) = Weekday AM peak hour traffic volume (Weekday PM peak hour traffic volume)
3. It is assumed that the turning volumes of Grays Road to be 2vph.




Grays Road Quarry	2022 Design Traffic Volumes		June 2021
			TTPlus Project No: 10518
	Figure B5	<b>TRAFFIC TRANSPORT</b>  <b>plus</b>	

Note:

1. all units are vehicles per hour
2. 20 (30) = Weekday AM peak hour traffic volume (Weekday PM peak hour traffic volume)
3. It is assumed that the turning volumes of Grays Road to be 2vph.



Grays Road Quarry	2032 Design Traffic Volumes		June 2021
			TTPlus Project No: 10518
	Figure B6	<b>TRAFFIC TRANSPORT</b>  <b>plus</b>	

# Appendix C

## Results of SIDRA Analyses

# MOVEMENT SUMMARY

▼ Site: 101 [2022 Design AM Peak Hour (Site Folder: Millmerran–Inglewood Road site access)]

Millmerran–Inglewood Road Site Access  
Site Category: Proposed Design 1  
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
						v/c	sec							km/h
South: Millmerran–Inglewood Road														
1	L2	14	80.0	15	80.0	0.031	6.5	LOS A	0.0	0.1	0.02	0.19	0.02	53.9
2	T1	32	5.0	34	5.0	0.031	0.0	LOS A	0.0	0.1	0.02	0.19	0.02	59.2
3	R2	2	5.0	2	5.0	0.031	5.7	LOS A	0.0	0.1	0.02	0.19	0.02	56.7
Approach		48	26.9	51	26.9	0.031	2.1	NA	0.0	0.1	0.02	0.19	0.02	57.4
East: Grays Road														
4	L2	2	5.0	2	5.0	0.003	5.7	LOS A	0.0	0.1	0.15	0.55	0.15	53.0
6	R2	2	5.0	2	5.0	0.003	5.9	LOS A	0.0	0.1	0.15	0.55	0.15	52.5
Approach		4	5.0	4	5.0	0.003	5.8	LOS A	0.0	0.1	0.15	0.55	0.15	52.7
North: Millmerran–Inglewood Road														
7	L2	2	5.0	2	5.0	0.031	5.7	LOS A	0.0	0.1	0.01	0.04	0.01	57.7
8	T1	52	5.0	55	5.0	0.031	0.0	LOS A	0.0	0.1	0.01	0.04	0.01	59.6
9	R2	2	5.0	2	5.0	0.031	5.7	LOS A	0.0	0.1	0.01	0.04	0.01	57.1
Approach		56	5.0	59	5.0	0.031	0.4	NA	0.0	0.1	0.01	0.04	0.01	59.4
West: Site Access Road														
10	L2	2	0.0	2	0.0	0.012	5.6	LOS A	0.0	0.3	0.15	0.56	0.15	53.2
12	R2	10	0.0	11	0.0	0.012	5.9	LOS A	0.0	0.3	0.15	0.56	0.15	52.7
Approach		12	0.0	13	0.0	0.012	5.9	LOS A	0.0	0.3	0.15	0.56	0.15	52.8
All Vehicles		120	13.3	126	13.3	0.031	1.8	NA	0.0	0.3	0.03	0.17	0.03	57.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



## MOVEMENT SUMMARY

▼ Site: 101 [2022 Design PM Peak Hour (Site Folder: Millmerran–Inglewood Road site access)]

Millmerran–Inglewood Road Site Access  
Site Category: Proposed Design 1  
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
South: Millmerran–Inglewood Road														
1	L2	10	80.0	11	80.0	0.055	6.5	LOS A	0.0	0.1	0.01	0.07	0.01	54.3
2	T1	81	5.0	85	5.0	0.055	0.0	LOS A	0.0	0.1	0.01	0.07	0.01	59.7
3	R2	2	5.0	2	5.0	0.055	5.8	LOS A	0.0	0.1	0.01	0.07	0.01	57.2
Approach		93	13.1	98	13.1	0.055	0.8	NA	0.0	0.1	0.01	0.07	0.01	59.0
East: Grays Road														
4	L2	2	5.0	2	5.0	0.004	5.9	LOS A	0.0	0.1	0.20	0.55	0.20	52.8
6	R2	2	5.0	2	5.0	0.004	6.4	LOS A	0.0	0.1	0.20	0.55	0.20	52.3
Approach		4	5.0	4	5.0	0.004	6.1	LOS A	0.0	0.1	0.20	0.55	0.20	52.6
North: Millmerran–Inglewood Road														
7	L2	2	5.0	2	5.0	0.050	5.8	LOS A	0.0	0.1	0.01	0.03	0.01	57.8
8	T1	86	5.0	91	5.0	0.050	0.0	LOS A	0.0	0.1	0.01	0.03	0.01	59.7
9	R2	2	5.0	2	5.0	0.050	5.8	LOS A	0.0	0.1	0.01	0.03	0.01	57.2
Approach		90	5.0	95	5.0	0.050	0.3	NA	0.0	0.1	0.01	0.03	0.01	59.6
West: Site Access Road														
10	L2	2	0.0	2	0.0	0.017	5.8	LOS A	0.1	0.4	0.25	0.58	0.25	53.0
12	R2	14	0.0	15	0.0	0.017	6.3	LOS A	0.1	0.4	0.25	0.58	0.25	52.4
Approach		16	0.0	17	0.0	0.017	6.3	LOS A	0.1	0.4	0.25	0.58	0.25	52.5
All Vehicles		203	8.3	214	8.3	0.055	1.1	NA	0.1	0.4	0.04	0.10	0.04	58.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

## MOVEMENT SUMMARY

▼ Site: 101 [2032 Design AM Peak Hour (Site Folder: Millmerran–Inglewood Road site access)]

Millmerran–Inglewood Road Site Access  
Site Category: Proposed Design 1  
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
						v/c	sec							km/h
South: Millmerran–Inglewood Road														
1	L2	14	80.0	15	80.0	0.035	6.5	LOS A	0.0	0.1	0.02	0.16	0.02	54.0
2	T1	39	5.0	41	5.0	0.035	0.0	LOS A	0.0	0.1	0.02	0.16	0.02	59.3
3	R2	2	5.0	2	5.0	0.035	5.7	LOS A	0.0	0.1	0.02	0.16	0.02	56.8
Approach		55	24.1	58	24.1	0.035	1.9	NA	0.0	0.1	0.02	0.16	0.02	57.8
East: Grays Road														
4	L2	2	5.0	2	5.0	0.004	5.8	LOS A	0.0	0.1	0.17	0.54	0.17	52.9
6	R2	2	5.0	2	5.0	0.004	6.0	LOS A	0.0	0.1	0.17	0.54	0.17	52.4
Approach		4	5.0	4	5.0	0.004	5.9	LOS A	0.0	0.1	0.17	0.54	0.17	52.7
North: Millmerran–Inglewood Road														
7	L2	2	5.0	2	5.0	0.038	5.7	LOS A	0.0	0.1	0.01	0.04	0.01	57.8
8	T1	63	5.0	66	5.0	0.038	0.0	LOS A	0.0	0.1	0.01	0.04	0.01	59.6
9	R2	2	5.0	2	5.0	0.038	5.7	LOS A	0.0	0.1	0.01	0.04	0.01	57.1
Approach		67	5.0	71	5.0	0.038	0.3	NA	0.0	0.1	0.01	0.04	0.01	59.5
West: Site Access Road														
10	L2	2	0.0	2	0.0	0.012	5.7	LOS A	0.0	0.3	0.17	0.56	0.17	53.2
12	R2	10	0.0	11	0.0	0.012	6.0	LOS A	0.0	0.3	0.17	0.56	0.17	52.7
Approach		12	0.0	13	0.0	0.012	5.9	LOS A	0.0	0.3	0.17	0.56	0.17	52.7
All Vehicles		138	12.2	145	12.2	0.038	1.6	NA	0.0	0.3	0.03	0.15	0.03	57.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

## MOVEMENT SUMMARY

▼ Site: 101 [2032 Design PM Peak Hour (Site Folder: Millmerran–Inglewood Road site access)]

Millmerran–Inglewood Road Site Access  
Site Category: Proposed Design 1  
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
						v/c	sec							km/h
South: Millmerran–Inglewood Road														
1	L2	10	80.0	11	80.0	0.065	6.5	LOS A	0.0	0.1	0.01	0.06	0.01	54.3
2	T1	99	5.0	104	5.0	0.065	0.0	LOS A	0.0	0.1	0.01	0.06	0.01	59.7
3	R2	2	5.0	2	5.0	0.065	5.9	LOS A	0.0	0.1	0.01	0.06	0.01	57.2
Approach		111	11.8	117	11.8	0.065	0.7	NA	0.0	0.1	0.01	0.06	0.01	59.2
East: Grays Road														
4	L2	2	5.0	2	5.0	0.004	5.9	LOS A	0.0	0.1	0.23	0.55	0.23	52.7
6	R2	2	5.0	2	5.0	0.004	6.6	LOS A	0.0	0.1	0.23	0.55	0.23	52.2
Approach		4	5.0	4	5.0	0.004	6.2	LOS A	0.0	0.1	0.23	0.55	0.23	52.5
North: Millmerran–Inglewood Road														
7	L2	2	5.0	2	5.0	0.061	5.8	LOS A	0.0	0.1	0.01	0.02	0.01	57.9
8	T1	105	5.0	111	5.0	0.061	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	59.7
9	R2	2	5.0	2	5.0	0.061	5.9	LOS A	0.0	0.1	0.01	0.02	0.01	57.2
Approach		109	5.0	115	5.0	0.061	0.2	NA	0.0	0.1	0.01	0.02	0.01	59.7
West: Site Access Road														
10	L2	2	0.0	2	0.0	0.018	5.8	LOS A	0.1	0.4	0.28	0.58	0.28	52.9
12	R2	14	0.0	15	0.0	0.018	6.5	LOS A	0.1	0.4	0.28	0.58	0.28	52.4
Approach		16	0.0	17	0.0	0.018	6.4	LOS A	0.1	0.4	0.28	0.58	0.28	52.4
All Vehicles		240	7.8	253	7.8	0.065	1.0	NA	0.1	0.4	0.03	0.09	0.03	58.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

## MOVEMENT SUMMARY

▼ Site: 2 [2022 Base AM Peak Hour (Site Folder: Millerran-Inglewood Road / Cunningham Highway Intersection)]

Millerran-Inglewood Road / Cunningham Highway Intersection  
Site Category: Existing Design  
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
East: Cunningham Highway														
5	T1	52	29.0	55	29.0	0.033	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	53.8
6	R2	2	0.0	2	0.0	0.002	6.1	LOS A	0.0	0.0	0.23	0.55	0.23	52.5
Approach		54	27.9	57	27.9	0.033	4.5	LOS A	0.0	0.0	0.01	0.53	0.01	53.7
North: Millerran-Inglewood Road														
7	L2	1	0.0	1	0.0	0.073	5.7	LOS A	0.2	2.5	0.25	0.58	0.25	52.9
9	R2	52	53.0	55	53.0	0.073	7.1	LOS A	0.2	2.5	0.25	0.58	0.25	50.5
Approach		53	52.0	56	52.0	0.073	7.1	LOS A	0.2	2.5	0.25	0.58	0.25	50.5
West: Cunningham Highway														
10	L2	30	21.0	32	21.0	0.020	5.8	LOS A	0.0	0.0	0.00	0.57	0.00	52.7
11	T1	39	21.0	41	21.0	0.024	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	54.1
Approach		69	21.0	73	21.0	0.024	5.0	LOS A	0.0	0.0	0.00	0.55	0.00	53.5
All Vehicles		176	32.5	185	32.5	0.073	5.5	NA	0.2	2.5	0.08	0.55	0.08	52.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

## MOVEMENT SUMMARY

### ▽ Site: 2 [2022 Base PM Peak Hour (Site Folder: Millerran-Inglewood Road / Cunningham Highway Intersection)]

Millerran-Inglewood Road / Cunningham Highway Intersection  
 Site Category: Existing Design  
 Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
						v/c	sec							km/h
East: Cunningham Highway														
5	T1	239	33.0	252	33.0	0.157	4.5	LOS A	0.0	0.0	0.00	0.53	0.00	53.7
6	R2	4	0.0	4	0.0	0.005	7.0	LOS A	0.0	0.1	0.37	0.59	0.37	51.9
Approach		243	32.5	256	32.5	0.157	4.6	LOS A	0.0	0.1	0.01	0.53	0.01	53.6
North: Millerran-Inglewood Road														
7	L2	8	0.0	8	0.0	0.131	6.0	LOS A	0.5	3.2	0.45	0.72	0.45	51.4
9	R2	78	0.0	82	0.0	0.131	8.7	LOS A	0.5	3.2	0.45	0.72	0.45	51.2
Approach		86	0.0	91	0.0	0.131	8.4	LOS A	0.5	3.2	0.45	0.72	0.45	51.2
West: Cunningham Highway														
10	L2	77	20.0	81	20.0	0.050	5.8	LOS A	0.0	0.0	0.00	0.57	0.00	52.8
11	T1	136	24.0	143	24.0	0.085	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	54.0
Approach		213	22.6	224	22.6	0.085	4.9	LOS A	0.0	0.0	0.00	0.55	0.00	53.5
All Vehicles		542	23.4	571	23.4	0.157	5.3	NA	0.5	3.2	0.07	0.57	0.07	53.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

## MOVEMENT SUMMARY

▽ Site: 2 [2022 Design AM Peak Hour (Site Folder: Millerran-Inglewood Road / Cunningham Highway Intersection)]

Millerran-Inglewood Road / Cunningham Highway Intersection  
Site Category: Existing Design  
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
East: Cunningham Highway														
5	T1	52	29.0	55	29.0	0.033	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	53.8
6	R2	7	50.0	7	50.0	0.010	7.4	LOS A	0.0	0.3	0.30	0.59	0.30	50.0
Approach		59	31.5	62	31.5	0.033	4.8	LOS A	0.0	0.3	0.04	0.54	0.04	53.3
North: Millerran-Inglewood Road														
7	L2	4	50.0	4	50.0	0.091	6.3	LOS A	0.3	3.5	0.26	0.58	0.26	50.7
9	R2	58	70.0	61	70.0	0.091	7.6	LOS A	0.3	3.5	0.26	0.58	0.26	49.7
Approach		62	68.7	65	68.7	0.091	7.5	LOS A	0.3	3.5	0.26	0.58	0.26	49.7
West: Cunningham Highway														
10	L2	39	70.0	41	70.0	0.033	6.4	LOS A	0.0	0.0	0.00	0.57	0.00	50.8
11	T1	39	21.0	41	21.0	0.024	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	54.1
Approach		78	45.5	82	45.5	0.033	5.4	LOS A	0.0	0.0	0.00	0.55	0.00	52.4
All Vehicles		199	48.6	209	48.6	0.091	5.8	NA	0.3	3.5	0.09	0.56	0.09	51.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



## MOVEMENT SUMMARY

▼ Site: 2 [2022 Design PM Peak Hour (Site Folder: Millerran-Inglewood Road / Cunningham Highway Intersection)]

Millerran-Inglewood Road / Cunningham Highway Intersection  
Site Category: Existing Design  
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
East: Cunningham Highway														
5	T1	239	33.0	252	33.0	0.157	4.5	LOS A	0.0	0.0	0.00	0.53	0.00	53.7
6	R2	8	50.0	8	50.0	0.016	9.5	LOS A	0.1	0.5	0.46	0.67	0.46	48.6
Approach		247	33.6	260	33.6	0.157	4.7	LOS A	0.1	0.5	0.01	0.54	0.01	53.5
North: Millerran-Inglewood Road														
7	L2	13	50.0	14	50.0	0.248	7.2	LOS A	0.9	10.3	0.54	0.78	0.58	47.2
9	R2	87	70.0	92	70.0	0.248	13.7	LOS B	0.9	10.3	0.54	0.78	0.58	46.3
Approach		100	67.4	105	67.4	0.248	12.8	LOS B	0.9	10.3	0.54	0.78	0.58	46.4
West: Cunningham Highway														
10	L2	83	70.0	87	70.0	0.071	6.4	LOS A	0.0	0.0	0.00	0.57	0.00	50.8
11	T1	136	24.0	143	24.0	0.085	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	54.0
Approach		219	41.4	231	41.4	0.085	5.2	LOS A	0.0	0.0	0.00	0.54	0.00	52.7
All Vehicles		566	42.6	596	42.6	0.248	6.3	NA	0.9	10.3	0.10	0.58	0.11	51.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

## MOVEMENT SUMMARY

▽ Site: 2 [2032 Base AM Peak Hour (Site Folder: Millerran-Inglewood Road / Cunningham Highway Intersection)]

Millerran-Inglewood Road / Cunningham Highway Intersection  
Site Category: Existing Design  
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV %	[ Total veh/h	HV %				[ Veh. veh	Dist ] m				
East: Cunningham Highway														
5	T1	63	29.0	66	29.0	0.040	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	53.8
6	R2	2	0.0	2	0.0	0.002	6.2	LOS A	0.0	0.1	0.26	0.56	0.26	52.4
Approach		65	28.1	68	28.1	0.040	4.5	LOS A	0.0	0.1	0.01	0.53	0.01	53.8
North: Millerran-Inglewood Road														
7	L2	1	0.0	1	0.0	0.091	5.7	LOS A	0.3	3.2	0.28	0.59	0.28	52.7
9	R2	63	53.0	66	53.0	0.091	7.4	LOS A	0.3	3.2	0.28	0.59	0.28	50.3
Approach		64	52.2	67	52.2	0.091	7.3	LOS A	0.3	3.2	0.28	0.59	0.28	50.3
West: Cunningham Highway														
10	L2	37	21.0	39	21.0	0.024	5.8	LOS A	0.0	0.0	0.00	0.57	0.00	52.7
11	T1	48	21.0	51	21.0	0.029	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	54.1
Approach		85	21.0	89	21.0	0.029	5.0	LOS A	0.0	0.0	0.00	0.55	0.00	53.5
All Vehicles		214	32.5	225	32.5	0.091	5.5	NA	0.3	3.2	0.09	0.56	0.09	52.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

## MOVEMENT SUMMARY

▼ Site: 2 [2032 Base PM Peak Hour (Site Folder: Millerran-Inglewood Road / Cunningham Highway Intersection)]

Millerran-Inglewood Road / Cunningham Highway Intersection  
Site Category: Existing Design  
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
East: Cunningham Highway														
5	T1	291	33.0	306	33.0	0.191	4.5	LOS A	0.0	0.0	0.00	0.53	0.00	53.7
6	R2	5	0.0	5	0.0	0.007	7.5	LOS A	0.0	0.2	0.41	0.62	0.41	51.6
Approach		296	32.4	312	32.4	0.191	4.6	LOS A	0.0	0.2	0.01	0.53	0.01	53.6
North: Millerran-Inglewood Road														
7	L2	10	0.0	11	0.0	0.183	6.2	LOS A	0.6	4.5	0.51	0.78	0.51	50.7
9	R2	95	0.0	100	0.0	0.183	9.8	LOS A	0.6	4.5	0.51	0.78	0.51	50.5
Approach		105	0.0	111	0.0	0.183	9.5	LOS A	0.6	4.5	0.51	0.78	0.51	50.5
West: Cunningham Highway														
10	L2	94	20.0	99	20.0	0.061	5.8	LOS A	0.0	0.0	0.00	0.57	0.00	52.8
11	T1	166	24.0	175	24.0	0.104	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	54.0
Approach		260	22.6	274	22.6	0.104	4.9	LOS A	0.0	0.0	0.00	0.55	0.00	53.5
All Vehicles		661	23.4	696	23.4	0.191	5.5	NA	0.6	4.5	0.08	0.58	0.08	53.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

## MOVEMENT SUMMARY

▽ Site: 2 [2032 Design AM Peak Hour (Site Folder: Millerran-Inglewood Road / Cunningham Highway Intersection)]

Millerran-Inglewood Road / Cunningham Highway Intersection  
Site Category: Existing Design  
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
East: Cunningham Highway														
5	T1	63	29.0	66	29.0	0.040	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	53.8
6	R2	7	50.0	7	50.0	0.011	7.7	LOS A	0.0	0.3	0.33	0.60	0.33	49.8
Approach		70	31.1	74	31.1	0.040	4.8	LOS A	0.0	0.3	0.03	0.54	0.03	53.4
North: Millerran-Inglewood Road														
7	L2	4	50.0	4	50.0	0.112	6.4	LOS A	0.4	4.4	0.30	0.60	0.30	50.5
9	R2	69	70.0	73	70.0	0.112	7.9	LOS A	0.4	4.4	0.30	0.60	0.30	49.5
Approach		73	68.9	77	68.9	0.112	7.8	LOS A	0.4	4.4	0.30	0.60	0.30	49.5
West: Cunningham Highway														
10	L2	46	70.0	48	70.0	0.039	6.4	LOS A	0.0	0.0	0.00	0.57	0.00	50.8
11	T1	48	21.0	51	21.0	0.029	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	54.1
Approach		94	45.0	99	45.0	0.039	5.3	LOS A	0.0	0.0	0.00	0.55	0.00	52.4
All Vehicles		237	48.2	249	48.2	0.112	5.9	NA	0.4	4.4	0.10	0.56	0.10	51.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

## MOVEMENT SUMMARY

▽ Site: 2 [2032 Design PM Peak Hour (Site Folder: Millerran-Inglewood Road / Cunningham Highway Intersection)]

Millerran-Inglewood Road / Cunningham Highway Intersection  
Site Category: Existing Design  
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %				[ Veh. veh	Dist ] m				
East: Cunningham Highway														
5	T1	291	33.0	306	33.0	0.191	4.5	LOS A	0.0	0.0	0.00	0.53	0.00	53.7
6	R2	9	50.0	9	50.0	0.020	10.6	LOS B	0.1	0.7	0.50	0.71	0.50	47.9
Approach		300	33.5	316	33.5	0.191	4.7	LOS A	0.1	0.7	0.02	0.54	0.02	53.5
North: Millerran-Inglewood Road														
7	L2	15	50.0	16	50.0	0.358	8.6	LOS A	1.5	16.8	0.65	0.88	0.83	45.0
9	R2	104	70.0	109	70.0	0.358	17.8	LOS C	1.5	16.8	0.65	0.88	0.83	44.2
Approach		119	67.5	125	67.5	0.358	16.7	LOS C	1.5	16.8	0.65	0.88	0.83	44.3
West: Cunningham Highway														
10	L2	100	70.0	105	70.0	0.085	6.4	LOS A	0.0	0.0	0.00	0.57	0.00	50.8
11	T1	166	24.0	175	24.0	0.104	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	54.0
Approach		266	41.3	280	41.3	0.104	5.2	LOS A	0.0	0.0	0.00	0.54	0.00	52.7
All Vehicles		685	42.4	721	42.4	0.358	7.0	NA	1.5	16.8	0.12	0.60	0.15	51.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# Appendix D

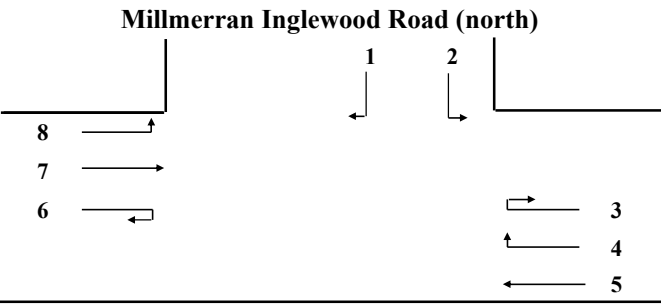
## Results of Traffic Surveys



AUSTRAFFIC INTERSECTION COUNT

Site No.: 1 Weather: Fine  
Location: Cunningham Highway/Millmerran Inglewood Road  
Day/Date: Thursday, 25 March 2021  
AM Peak: Hour ending - 9:15 AM  
PM Peak: Hour ending - 5:00 PM

Cunningham Highway (west)



TIME (1/4 hr end)	Movement 1			Movement 2			Movement 3			Movement 4			Movement 5			Movement 6			Movement 7			Movement 8		
	Light Vehicles	Heavy Vehicles	Total	Light Vehicles	Heavy Vehicles	Total	Light Vehicles	Heavy Vehicles	Total	Light Vehicles	Heavy Vehicles	Total	Light Vehicles	Heavy Vehicles	Total	Light Vehicles	Heavy Vehicles	Total	Light Vehicles	Heavy Vehicles	Total	Light Vehicles	Heavy Vehicles	Total
6:45 AM	5	3	8	0	0	0	0	0	0	0	0	0	5	3	8	0	0	0	7	0	7	2	3	5
7:00 AM	7	6	13	1	0	1	0	0	0	0	1	1	10	5	15	0	0	0	8	0	8	5	1	6
7:15 AM	4	5	9	0	0	0	0	0	0	1	0	1	4	2	6	0	0	0	6	1	7	5	3	8
7:30 AM	5	5	10	0	0	0	0	0	0	0	0	0	4	4	8	0	0	0	4	2	6	6	2	8
7:45 AM	3	6	9	0	0	0	0	0	0	0	0	0	4	3	7	0	0	0	2	0	2	6	5	11
8:00 AM	8	2	10	0	0	0	0	0	0	0	0	0	8	2	10	0	0	0	4	1	5	5	1	6
8:15 AM	3	3	6	1	0	1	0	0	0	1	1	2	13	1	14	0	0	0	7	1	8	4	0	4
8:30 AM	6	9	15	0	0	0	0	0	0	0	0	0	13	5	18	0	0	0	6	1	7	6	2	8
8:45 AM	6	6	12	0	0	0	0	0	0	0	0	0	10	5	15	0	0	0	8	0	8	6	0	6
9:00 AM	11	5	16	0	0	0	0	0	0	0	0	0	3	2	5	0	0	0	11	1	12	5	1	6
9:15 AM	1	7	8	0	0	0	0	0	0	2	0	2	10	3	13	0	0	0	5	6	11	6	3	9
9:30 AM	3	2	5	1	0	1	0	0	0	0	0	0	4	1	5	0	0	0	7	2	9	3	7	10
3 hr Total	62	59	121	3	0	3	0	0	0	4	2	6	88	36	124	0	0	0	75	15	90	59	28	87
AM Peak	24	27	51	0	0	0	0	0	0	2	0	2	36	15	51	0	0	0	30	8	38	23	6	29

TIME (1/4 hr end)	Movement 1			Movement 2			Movement 3			Movement 4			Movement 5			Movement 6			Movement 7			Movement 8		
	Light Vehicles	Heavy Vehicles	Total	Light Vehicles	Heavy Vehicles	Total	Light Vehicles	Heavy Vehicles	Total	Light Vehicles	Heavy Vehicles	Total	Light Vehicles	Heavy Vehicles	Total	Light Vehicles	Heavy Vehicles	Total	Light Vehicles	Heavy Vehicles	Total	Light Vehicles	Heavy Vehicles	Total
2:45 PM	4	1	5	0	1	1	0	0	0	0	0	0	3	2	5	0	0	0	8	0	8	6	0	6
3:00 PM	5	0	5	1	0	1	0	0	0	0	0	0	13	0	13	0	0	0	10	6	16	5	2	7
3:15 PM	7	1	8	0	0	0	0	0	0	0	1	1	11	7	18	0	0	0	14	4	18	5	3	8
3:30 PM	5	0	5	3	0	3	0	0	0	0	0	0	7	6	13	0	0	0	8	2	10	3	3	6
3:45 PM	6	2	8	0	1	1	0	0	0	0	0	0	11	0	11	0	0	0	6	3	9	7	0	7
4:00 PM	4	2	6	0	0	0	0	0	0	0	0	0	13	2	15	0	0	0	4	5	9	1	2	3
4:15 PM	5	0	5	0	0	0	0	0	0	0	0	0	17	6	23	0	0	0	5	4	9	4	2	6
4:30 PM	1	0	1	0	0	0	0	0	0	0	0	0	16	8	24	0	0	0	9	2	11	2	0	2
4:45 PM	9	0	9	2	0	2	0	0	0	1	0	1	12	8	20	0	0	0	8	0	8	2	1	3
5:00 PM	5	0	5	0	0	0	0	0	0	1	0	1	15	8	23	0	0	0	6	3	9	8	1	9
5:15 PM	5	0	5	0	0	0	0	0	0	0	0	0	10	7	17	0	0	0	6	1	7	4	1	5
5:30 PM	6	1	7	0	0	0	0	0	0	0	0	0	14	10	24	0	0	0	2	2	4	5	0	5
5:45 PM	4	0	4	0	0	0	0	0	0	1	0	1	6	3	9	0	0	0	4	1	5	2	3	5
6:00 PM	3	0	3	0	0	0	0	0	0	0	0	0	13	6	19	0	0	0	6	4	10	3	0	3
3.5 hr Total	69	7	76	6	2	8	0	0	0	3	1	4	161	73	234	0	0	0	96	37	133	57	18	75
PM Peak	20	0	20	2	0	2	0	0	0	2	0	2	60	30	90	0	0	0	28	9	37	16	4	20

# Appendix E

## Results of Pavement Contribution Assessment

## Guide to Traffic Impact Assessment 2017 - Pavement Impact Assessment

For production rate of 100000 tpa

The methodology of the pavement impact assessment is based on Department of Transport and Main Roads' Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment December 2018.

### Step 1: Project Parameters and Impact Potential Assessment Area

Production Rate (tpa):	100,000										
First Operational Year:	2,022										
Assessment Year (No of Years):	10										
Days of operation per year:	300										
	Development Generated Tonnages (Year by Year)										
	1	2	3	4	5	6	7	8	9	10	
	2,022	2,023	2,024	2,025	2,026	2,027	2,028	2,029	2,030	2,031	
	% of "Base" Annual Tonnage	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	Total
	Annual Tonnage	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	1,000,000

Class	Type	Payload	Unloaded SAR4	Loaded SAR4	Unloaded SAR5	Loaded SAR5	HV %	Weighted Average Payload	No Trip per day (In / Out)	Weighted Average Unloaded SAR4	Weighted Average loaded SAR4
3	Two axle truck	6.5	0.54	2.98	0.43	3.29	0%	0.0	0.0	0.000	0.000
4	Three axle truck	13.0	0.5	3.57	0.41	4.14	2%	0.3	0.1	0.010	0.071
5	Four axle truck	15.0	0.46	4.09	0.37	4.89	0%	0.0	0.0	0.000	0.000
6	Three axle articulated	11.5	0.6	4.43	0.46	4.88	0%	0.0	0.0	0.000	0.000
7	Four axle articulated	18.0	0.56	5.02	0.44	5.73	0%	0.0	0.0	0.000	0.000
8	Five axle articulated	24.5	0.52	5.61	0.41	6.58	0%	0.0	0.0	0.000	0.000
9	Six axle articulated (semi trailer)	26.5	0.51	4.93	0.41	5.61	8%	2.1	0.6	0.041	0.394
10	B-double	40.0	0.53	6.3	0.42	7.09	10%	4.0	0.7	0.053	0.630
11	Double road train (Road train 1)	51.5	0.55	8.34	0.43	9.53	30%	15.5	2.2	0.165	2.502
12*	Triple road train	62.0	0.57	11.39	0.43	11.98	20%	12.4	1.4	0.114	2.278
'10' **	Truck and Dog	40.0	0.53	6.3	0.42	7.09	30%	12.0	2.2	0.159	1.890
Total	-	-	-	-	-	-	100%	46.2	7.2	0.54	7.77

\*The standard payload of a triple road train is 76.5t. The payload of the triple road train used by the Proposal is 62.0t, the reduced unloaded and loaded SARs are calculated based on the information included in Appendix A of Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment December 2018.

\*\* According to Austroads Vehicle Classification System (duplicated as last page of this assessment), Truck and Dog is classified as Class 10.

Contribution (cents / tonne):

19.67

Contribution (\$ / tonne)

0.197

## Step 2: Road Asset Data from DTMR

For production rate of 100000 tpa

[illegible]

### **Step 3: Calculate Background SAR4s**

For production rate of 100000 tpa

Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment states:

The raw road asset data from TMR provides a two-way AADT with a heavy vehicle percentage for each identified road segment. Unfortunately, it is not feasible to calculate background SAR5s and SAR12s as the raw data does not capture loaded and unloaded heavy vehicle movements. As such, the scoping assessment is based on SAR4s (ESAs). This is a reasonable approach noting that 82% of the TMR network is sealed roads with granular pavement (SAR4 / ESA).

[illegible]

### Step 4: Calculate Development SAR4s

For production rate of 100000 tpa

Sect. No.	Type	Unloaded (Towards the Site)				Loaded (Away from the Site)			
		Daily Volumes	SAR4 per veh	SAR4 per day	SAR4 per year	Daily Volumes	SAR4 per veh	SAR4 per day	SAR4 per year
3	Two axle truck	0.0	0.54	0	0	0.0	2.98	0	0
4	Three axle truck (tadem truck)	0.1	0.5	0	22	0.1	3.57	1	154
5	Four axle truck	0.0	0.46	0	0	0.0	4.09	0	0
6	Three axle articulated	0.0	0.6	0	0	0.0	4.43	0	0
7	Four axle articulated	0.0	0.56	0	0	0.0	5.02	0	0
8	Five axle articulated	0.0	0.52	0	0	0.0	5.61	0	0
9	Six axle articulated (semi trailer)	0.6	0.51	0	88	0.6	4.93	3	853
10	B-double	0.7	0.53	0	115	0.7	6.3	5	1363
11	Double road train (Road train 1)	2.2	0.55	1	357	2.2	8.34	18	5412
12	Triple road train	1.4	0.57	1	247	1.4	11.39	16	4928
'10'	Truck and Dog	2.2	0.53	1	344	2.2	6.3	14	4088
<b>Total</b>	-	-	-	4	1172	-	-	56	16798



### **Step 5: Assign Development SAR4s onto the SCR Network**

For production rate of 100000 tpa

[illegible]

### **Step 6: Identify Road Links with >5% Development SAR4 Impacts**

For production rate of 100000 tpa

[illegible]

### Step 7: Calculate Contribution to Offset Development Impacts (for Road Sections that Development SAR % > 5%)

For production rate of 100000 tpa

#### Towards the Quarry

Sect. No	Road No	Road Name	Road Section	Carriageway Code	Ch	Ch	Length	Marginal Cost (cents/SAR-km)	Dev. Trip %	No of Year (>5% increase in SAR)	Pavement Type	Load Damage Exponent	Fleet data (Year 1 to Year 10)				Development Contribution per year (Year 1 to Year 10) (\$)
													Average Production Rate for years > 5% increase in SAR	Average trips per year	Loaded SAR per Trip	SAR per year	
1	337	rran-Inglewood	to north	1	0.0	3.5	3.47	5.27	20%	0	GN/CS	4/12	0	0	7.77	0	0
2	337	rran-Inglewood	to north	1	3.5	39.5	35.99	5.29	20%	0	GN	4	0	0	7.77	0	0
3	337	rran-Inglewood	to north	1	39.5	55.6	16.12	8.26	20%	0	GN	4	0	0	7.77	0	0
4	337	rran-Inglewood	to south	1	55.6	68.7	13.10	10.92	80%	0	GN	4	0	0	7.77	0	0
5	17C	highway (Warwo	to south-wes	1	105.7	107.7	1.93	3.89	40%	0	GN	5	0	0	7.77	0	0
6	17C	highway (Warwo	to south-eas	1	48.7	105.7	56.99	2.99	40%	0	GN	6	0	0	7.77	0	0
7	17C	highway (Warwo	to south-eas	1	3.5	48.7	45.26	3.22	40%	0	GN	7	0	0	7.77	0	0
8	17C	highway (Warwo	to south-eas	1	0.0	3.5	3.47	5.77	40%	0	GN	8	0	0	7.77	0	0

#### Away from the Quarry

Sect. No	Road No	Road Name	Road Section	Carriageway Code	Ch	Ch	Length	Marginal Cost (cents/SAR-km)	Dev. Trip %	No of Year (>5% increase in SAR)	Pavement Type	Load Damage Exponent	Fleet data (Year 1 to Year 10)				Development Contribution per year (Year 1 to Year 10) (\$)
													Average Production Rate for years > 5% increase in SAR	Average trips per year	Loaded SAR per Trip	SAR per year	
1	337	Millmerran-Ing	to north	1	0.0	3.5	3.47	5.27	20%	0	GN/CS	4/12	0	0	7.77	0	0
2	337	Millmerran-Ing	to north	1	3.5	39.5	35.99	5.29	20%	0	GN	4	0	0	7.77	0	0
3	337	Millmerran-Ing	to north	1	39.5	55.6	16.12	8.26	20%	1	GN	4	100000	433	7.77	3360	447
4	337	Millmerran-Ing	to south	1	55.6	68.7	13.1	10.92	80%	10	GN	4	100000	1730	7.77	13439	19224
5	17C	Cunningham	to south-wes	1	105.7	107.7	1.93	3.89	40%	0	GN	4	0	0	7.77	0	0
6	17C	Cunningham	to south-eas	1	48.7	105.7	56.99	2.99	40%	0	GN	4	0	0	7.77	0	0
7	17C	Cunningham	to south-eas	1	3.5	48.7	45.26	3.22	40%	0	GN	4	0	0	7.77	0	0
8	17C	Cunningham	to south-eas	1	0.0	3.5	3.47	5.77	40%	0	GN/AC	4/5	0	0	7.77	0	0

Average Production Rate (Year 1 to Year 10) (tpa):

100000.0

Contribution (cents / tonne)

19.67

Contribution (\$ / tonne)

0.197

Contribution per year (\$)

19671

## Guide to Traffic Impact Assessment 2017 - Pavement Impact Assessment

For production rate of 150000 tpa

The methodology of the pavement impact assessment is based on Department of Transport and Main Roads' Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment December 2018.

### Step 1: Project Parameters and Impact Potential Assessment Area

Production Rate (tpa): First Operational Year: Assessment Year (No of Years): Days of operation per year:	150,000										
	2,022										
	10										
	300										
	Development Generated Tonnages (Year by Year)										
	1	2	3	4	5	6	7	8	9	10	
	2,022	2,023	2,024	2,025	2,026	2,027	2,028	2,029	2,030	2,031	
% of "Base" Annual Tonnage	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	Total
Annual Tonnage	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	1,500,000

Class	Type	Payload	Unloaded SAR4	Loaded SAR4	Unloaded SAR5	Loaded SAR5	HV %	Weighted Average Payload	No Trip per day (In / Out)	Weighted Average Unloaded SAR4	Weighted Average loaded SAR4
3	Two axle truck	6.5	0.54	2.98	0.43	3.29	0%	0.0	0.0	0.000	0.000
4	Three axle truck	13.0	0.5	3.57	0.41	4.14	2%	0.3	0.2	0.010	0.071
5	Four axle truck	15.0	0.46	4.09	0.37	4.89	0%	0.0	0.0	0.000	0.000
6	Three axle articulated	11.5	0.6	4.43	0.46	4.88	0%	0.0	0.0	0.000	0.000
7	Four axle articulated	18.0	0.56	5.02	0.44	5.73	0%	0.0	0.0	0.000	0.000
8	Five axle articulated	24.5	0.52	5.61	0.41	6.58	0%	0.0	0.0	0.000	0.000
9	Six axle articulated (semi trailer)	26.5	0.51	4.93	0.41	5.61	8%	2.1	0.9	0.041	0.394
10	B-double	40.0	0.53	6.3	0.42	7.09	10%	4.0	1.1	0.053	0.630
11	Double road train (Road train 1)	51.5	0.55	8.34	0.43	9.53	30%	15.5	3.2	0.165	2.502
12*	Triple road train	62.0	0.57	11.39	0.43	11.98	20%	12.4	2.2	0.114	2.278
'10' **	Truck and Dog	40.0	0.53	6.3	0.42	7.09	30%	12.0	3.2	0.159	1.890
Total	-	-	-	-	-	-	100%	46.2	10.8	0.54	7.77

\*The standard payload of a triple road train is 76.5t. The payload of the triple road train used by the Proposal is 62.0t, the reduced unloaded and loaded SARs are calculated based on the information included in Appendix A of Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment December 2018.

\*\* According to Austroads Vehicle Classification System (duplicated as last page of this assessment), Truck and Dog is classified as Class 10.

Contribution (cents / tonne):

23.70

Contribution (\$ / tonne)

0.237

## **Step 2: Road Asset Data from DTMR**

For production rate of 150000 tpa

[illegible]

### **Step 3: Calculate Background SAR4s**

For production rate of 150000 tpa

Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment states:

The raw road asset data from TMR provides a two-way AADT with a heavy vehicle percentage for each identified road segment. Unfortunately, it is not feasible to calculate background SAR5s and SAR12s as the raw data does not capture loaded and unloaded heavy vehicle movements. As such, the scoping assessment is based on SAR4s (ESAs). This is a reasonable approach noting that 82% of the TMR network is sealed roads with granular pavement (SAR4 / ESA).

[illegible]



### Step 4: Calculate Development SAR4s

For production rate of 150000 tpa

Sect. No.	Type	Unloaded (Towards the Site)				Loaded (Away from the Site)			
		Daily Volumes	SAR4 per veh	SAR4 per day	SAR4 per year	Daily Volumes	SAR4 per veh	SAR4 per day	SAR4 per year
3	Two axle truck	0.0	0.54	0	0	0.0	2.98	0	0
4	Three axle truck (tadem truck)	0.2	0.5	0	32	0.2	3.57	1	232
5	Four axle truck	0.0	0.46	0	0	0.0	4.09	0	0
6	Three axle articulated	0.0	0.6	0	0	0.0	4.43	0	0
7	Four axle articulated	0.0	0.56	0	0	0.0	5.02	0	0
8	Five axle articulated	0.0	0.52	0	0	0.0	5.61	0	0
9	Six axle articulated (semi trailer)	0.9	0.51	0	132	0.9	4.93	4	1280
10	B-double	1.1	0.53	1	172	1.1	6.3	7	2044
11	Double road train (Road train 1)	3.2	0.55	2	535	3.2	8.34	27	8118
12	Triple road train	2.2	0.57	1	370	2.2	11.39	25	7391
'10'	Truck and Dog	3.2	0.53	2	516	3.2	6.3	20	6132
Total	-	-	-	6	1758	-	-	84	25197

### **Step 5: Assign Development SAR4s onto the SCR Network**

For production rate of 150000 tpa

[illegible]

### **Step 6: Identify Road Links with >5% Development SAR4 Impacts**

For production rate of 150000 tpa

[illegible]

### Step 7: Calculate Contribution to Offset Development Impacts (for Road Sections that Development SAR % > 5%)

For production rate of 150000 tpa

#### Towards the Quarry

Sect. No	Road No	Road Name	Road Section	Carriageway Code	Ch	Ch	Length	Marginal Cost (cents/SAR-km)	Dev. Trip %	No of Year (>5% increase in SAR)	Pavement Type	Load Damage Exponent	Fleet data (Year 1 to Year 10)				Development Contribution per year (Year 1 to Year 10) (\$)
													Average Production Rate for years > 5% increase in SAR	Average trips per year	Loaded SAR per Trip	SAR per year	
1	337	rran-Inglewood	to north	1	0.0	3.5	3.47	5.27	20%	0	GN/CS	4/12	0	0	7.77	0	0
2	337	rran-Inglewood	to north	1	3.5	39.5	35.99	5.29	20%	0	GN	4	0	0	7.77	0	0
3	337	rran-Inglewood	to north	1	39.5	55.6	16.12	8.26	20%	0	GN	4	0	0	7.77	0	0
4	337	rran-Inglewood	to south	1	55.6	68.7	13.10	10.92	80%	0	GN	4	0	0	7.77	0	0
5	17C	highway (Warwo	to south-wes	1	105.7	107.7	1.93	3.89	40%	0	GN	5	0	0	7.77	0	0
6	17C	highway (Warwo	to south-eas	1	48.7	105.7	56.99	2.99	40%	0	GN	6	0	0	7.77	0	0
7	17C	highway (Warwo	to south-eas	1	3.5	48.7	45.26	3.22	40%	0	GN	7	0	0	7.77	0	0
8	17C	highway (Warwo	to south-eas	1	0.0	3.5	3.47	5.77	40%	0	GN	8	0	0	7.77	0	0

#### Away from the Quarry

Sect. No	Road No	Road Name	Road Section	Carriageway Code	Ch	Ch	Length	Marginal Cost (cents/SAR-km)	Dev. Trip %	No of Year (>5% increase in SAR)	Pavement Type	Load Damage Exponent	Fleet data (Year 1 to Year 10)				Development Contribution per year (Year 1 to Year 10) (\$)
													Average Production Rate for years > 5% increase in SAR	Average trips per year	Loaded SAR per Trip	SAR per year	
1	337	Millmerran-Ing	to north	1	0.0	3.5	3.47	5.27	20%	0	GN/CS	4/12	0	0	7.77	0	0
2	337	Millmerran-Ing	to north	1	3.5	39.5	35.99	5.29	20%	0	GN	4	0	0	7.77	0	0
3	337	Millmerran-Ing	to north	1	39.5	55.6	16.12	8.26	20%	10	GN	4	150000	649	7.77	5039	6710
4	337	Millmerran-Ing	to south	1	55.6	68.7	13.1	10.92	80%	10	GN	4	150000	2596	7.77	20158	28836
5	17C	Cunningham	to south-wes	1	105.7	107.7	1.93	3.89	40%	0	GN	4	0	0	7.77	0	0
6	17C	Cunningham	to south-eas	1	48.7	105.7	56.99	2.99	40%	0	GN	4	0	0	7.77	0	0
7	17C	Cunningham	to south-eas	1	3.5	48.7	45.26	3.22	40%	0	GN	4	0	0	7.77	0	0
8	17C	Cunningham	to south-eas	1	0.0	3.5	3.47	5.77	40%	0	GN/AC	4/5	0	0	7.77	0	0

Average Production Rate (Year 1 to Year 10) (tpa):

150000.0

Contribution (cents / tonne)

23.70

Contribution (\$ / tonne)

0.237

Contribution per year (\$)

35546

## Guide to Traffic Impact Assessment 2017 - Pavement Impact Assessment

For production rate of 200000 tpa

The methodology of the pavement impact assessment is based on Department of Transport and Main Roads' Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment December 2018.

### Step 1: Project Parameters and Impact Potential Assessment Area

Production Rate (tpa):	200,000										
First Operational Year:	2,022										
Assessment Year (No of Years):	10										
Days of operation per year:	300										
	Development Generated Tonnages (Year by Year)										
	1	2	3	4	5	6	7	8	9	10	
	2,022	2,023	2,024	2,025	2,026	2,027	2,028	2,029	2,030	2,031	
% of "Base" Annual Tonnage	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	Total
Annual Tonnage	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	2,000,000

Class	Type	Payload	Unloaded SAR4	Loaded SAR4	Unloaded SAR5	Loaded SAR5	HV %	Weighted Average Payload	No Trip per day (In / Out)	Weighted Average Unloaded SAR4	Weighted Average loaded SAR4
3	Two axle truck	6.5	0.54	2.98	0.43	3.29	0%	0.0	0.0	0.000	0.000
4	Three axle truck	13.0	0.5	3.57	0.41	4.14	2%	0.3	0.3	0.010	0.071
5	Four axle truck	15.0	0.46	4.09	0.37	4.89	0%	0.0	0.0	0.000	0.000
6	Three axle articulated	11.5	0.6	4.43	0.46	4.88	0%	0.0	0.0	0.000	0.000
7	Four axle articulated	18.0	0.56	5.02	0.44	5.73	0%	0.0	0.0	0.000	0.000
8	Five axle articulated	24.5	0.52	5.61	0.41	6.58	0%	0.0	0.0	0.000	0.000
9	Six axle articulated (semi trailer)	26.5	0.51	4.93	0.41	5.61	8%	2.1	1.2	0.041	0.394
10	B-double	40.0	0.53	6.3	0.42	7.09	10%	4.0	1.4	0.053	0.630
11	Double road train (Road train 1)	51.5	0.55	8.34	0.43	9.53	30%	15.5	4.3	0.165	2.502
12*	Triple road train	62.0	0.57	11.39	0.43	11.98	20%	12.4	2.9	0.114	2.278
'10' **	Truck and Dog	40.0	0.53	6.3	0.42	7.09	30%	12.0	4.3	0.159	1.890
Total	-	-	-	-	-	-	100%	46.2	14.4	0.54	7.77

\*The standard payload of a triple road train is 76.5t. The payload of the triple road train used by the Proposal is 62.0t, the reduced unloaded and loaded SARs are calculated based on the information included in Appendix A of Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment December 2018.

\*\* According to Austroads Vehicle Classification System (duplicated as last page of this assessment), Truck and Dog is classified as Class 10.

Contribution (cents / tonne):

30.46

Contribution (\$ / tonne)

0.305

## **Step 2: Road Asset Data from DTMR**

For production rate of 200000 tpa

[illegible]



### **Step 3: Calculate Background SAR4s**

For production rate of 200000 tpa

Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment states:

The raw road asset data from TMR provides a two-way AADT with a heavy vehicle percentage for each identified road segment. Unfortunately, it is not feasible to calculate background SAR5s and SAR12s as the raw data does not capture loaded and unloaded heavy vehicle movements. As such, the scoping assessment is based on SAR4s (ESAs). This is a reasonable approach noting that 82% of the TMR network is sealed roads with granular pavement (SAR4 / ESA).

[illegible]

### **Step 4: Calculate Development SAR4s**

For production rate of 200000 tpa

Sect. No.	Type	Unloaded (Towards the Site)				Loaded (Away from the Site)			
		Daily Volumes	SAR4 per veh	SAR4 per day	SAR4 per year	Daily Volumes	SAR4 per veh	SAR4 per day	SAR4 per year
3	Two axle truck	0.0	0.54	0	0	0.0	2.98	0	0
4	Three axle truck (tadem truck)	0.3	0.5	0	43	0.3	3.57	1	309
5	Four axle truck	0.0	0.46	0	0	0.0	4.09	0	0
6	Three axle articulated	0.0	0.6	0	0	0.0	4.43	0	0
7	Four axle articulated	0.0	0.56	0	0	0.0	5.02	0	0
8	Five axle articulated	0.0	0.52	0	0	0.0	5.61	0	0
9	Six axle articulated (semi trailer)	1.2	0.51	1	177	1.2	4.93	6	1706
10	B-double	1.4	0.53	1	229	1.4	6.3	9	2726
11	Double road train (Road train 1)	4.3	0.55	2	714	4.3	8.34	36	10824
12	Triple road train	2.9	0.57	2	493	2.9	11.39	33	9855
'10'	Truck and Dog	4.3	0.53	2	688	4.3	6.3	27	8177
Total	-	-	-	8	2344	-	-	112	33596

### **Step 5: Assign Development SAR4s onto the SCR Network**

For production rate of 200000 tpa

[illegible]

### **Step 6: Identify Road Links with >5% Development SAR4 Impacts**

For production rate of 200000 tpa

[illegible]

### Step 7: Calculate Contribution to Offset Development Impacts (for Road Sections that Development SAR % > 5%)

For production rate of 200000 tpa

#### Towards the Quarry

Sect. No	Road No	Road Name	Road Section	Carriageway Code	Ch	Ch	Length	Marginal Cost (cents/SAR-km)	Dev. Trip %	No of Year (>5% increase in SAR)	Pavement Type	Load Damage Exponent	Fleet data (Year 1 to Year 10)				Development Contribution per year (Year 1 to Year 10) (\$)
													Average Production Rate for years > 5% increase in SAR	Average trips per year	Loaded SAR per Trip	SAR per year	
1	337	rran-Inglewood	to north	1	0.0	3.5	3.47	5.27	20%	0	GN/CS	4/12	0	0	7.77	0	0
2	337	rran-Inglewood	to north	1	3.5	39.5	35.99	5.29	20%	0	GN	4	0	0	7.77	0	0
3	337	rran-Inglewood	to north	1	39.5	55.6	16.12	8.26	20%	0	GN	4	0	0	7.77	0	0
4	337	rran-Inglewood	to south	1	55.6	68.7	13.10	10.92	80%	0	GN	4	0	0	7.77	0	0
5	17C	highway (Warwo	to south-wes	1	105.7	107.7	1.93	3.89	40%	0	GN	5	0	0	7.77	0	0
6	17C	highway (Warwo	to south-eas	1	48.7	105.7	56.99	2.99	40%	0	GN	6	0	0	7.77	0	0
7	17C	highway (Warwo	to south-eas	1	3.5	48.7	45.26	3.22	40%	0	GN	7	0	0	7.77	0	0
8	17C	highway (Warwo	to south-eas	1	0.0	3.5	3.47	5.77	40%	0	GN	8	0	0	7.77	0	0

#### Away from the Quarry

Sect. No	Road No	Road Name	Road Section	Carriageway Code	Ch	Ch	Length	Marginal Cost (cents/SAR-km)	Dev. Trip %	No of Year (>5% increase in SAR)	Pavement Type	Load Damage Exponent	Fleet data (Year 1 to Year 10)				Development Contribution per year (Year 1 to Year 10) (\$)
													Average Production Rate for years > 5% increase in SAR	Average trips per year	Loaded SAR per Trip	SAR per year	
1	337	Millmerran-Ing	to north	1	0.0	3.5	3.47	5.27	20%	6	GN/CS	4/12	200000	865	7.77	6719	737
2	337	Millmerran-Ing	to north	1	3.5	39.5	35.99	5.29	20%	10	GN	4	200000	865	7.77	6719	12793
3	337	Millmerran-Ing	to north	1	39.5	55.6	16.12	8.26	20%	10	GN	4	200000	865	7.77	6719	8947
4	337	Millmerran-Ing	to south	1	55.6	68.7	13.1	10.92	80%	10	GN	4	200000	3461	7.77	26877	38448
5	17C	Cunningham	to south-wes	1	105.7	107.7	1.93	3.89	40%	0	GN	4	0	0	7.77	0	0
6	17C	Cunningham	to south-eas	1	48.7	105.7	56.99	2.99	40%	0	GN	4	0	0	7.77	0	0
7	17C	Cunningham	to south-eas	1	3.5	48.7	45.26	3.22	40%	0	GN	4	0	0	7.77	0	0
8	17C	Cunningham	to south-eas	1	0.0	3.5	3.47	5.77	40%	0	GN/AC	4/5	0	0	7.77	0	0

Average Production Rate (Year 1 to Year 10) (tpa):

200000.0

Contribution (cents / tonne)

30.46

Contribution (\$ / tonne)

0.305

Contribution per year (\$)

60925

## Guide to Traffic Impact Assessment 2017 - Pavement Impact Assessment

For production rate of 250000 tpa

The methodology of the pavement impact assessment is based on Department of Transport and Main Roads' Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment December 2018.

### Step 1: Project Parameters and Impact Potential Assessment Area

Production Rate (tpa):	250,000										
First Operational Year:	2,022										
Assessment Year (No of Years):	10										
Days of operation per year:	300										
	Development Generated Tonnages (Year by Year)										
	1	2	3	4	5	6	7	8	9	10	
	2,022	2,023	2,024	2,025	2,026	2,027	2,028	2,029	2,030	2,031	
	% of "Base" Annual Tonnage	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	Total
	Annual Tonnage	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	2,500,000

Class	Type	Payload	Unloaded SAR4	Loaded SAR4	Unloaded SAR5	Loaded SAR5	HV %	Weighted Average Payload	No Trip per day (In / Out)	Weighted Average Unloaded SAR4	Weighted Average loaded SAR4
3	Two axle truck	6.5	0.54	2.98	0.43	3.29	0%	0.0	0.0	0.000	0.000
4	Three axle truck	13.0	0.5	3.57	0.41	4.14	2%	0.3	0.4	0.010	0.071
5	Four axle truck	15.0	0.46	4.09	0.37	4.89	0%	0.0	0.0	0.000	0.000
6	Three axle articulated	11.5	0.6	4.43	0.46	4.88	0%	0.0	0.0	0.000	0.000
7	Four axle articulated	18.0	0.56	5.02	0.44	5.73	0%	0.0	0.0	0.000	0.000
8	Five axle articulated	24.5	0.52	5.61	0.41	6.58	0%	0.0	0.0	0.000	0.000
9	Six axle articulated (semi trailer)	26.5	0.51	4.93	0.41	5.61	8%	2.1	1.4	0.041	0.394
10	B-double	40.0	0.53	6.3	0.42	7.09	10%	4.0	1.8	0.053	0.630
11	Double road train (Road train 1)	51.5	0.55	8.34	0.43	9.53	30%	15.5	5.4	0.165	2.502
12*	Triple road train	62.0	0.57	11.39	0.43	11.98	20%	12.4	3.6	0.114	2.278
'10' **	Truck and Dog	40.0	0.53	6.3	0.42	7.09	30%	12.0	5.4	0.159	1.890
Total	-	-	-	-	-	-	100%	46.2	18.0	0.54	7.77

\*The standard payload of a triple road train is 76.5t. The payload of the triple road train used by the Proposal is 62.0t, the reduced unloaded and loaded SARs are calculated based on the information included in Appendix A of Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment December 2018.

\*\* According to Austroads Vehicle Classification System (duplicated as last page of this assessment), Truck and Dog is classified as Class 10.

Contribution (cents / tonne):

30.71

Contribution (\$ / tonne)

0.307

## **Step 2: Road Asset Data from DTMR**

For production rate of 250000 tpa

[illegible]



### **Step 3: Calculate Background SAR4s**

For production rate of 250000 tpa

Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment states:

The raw road asset data from TMR provides a two-way AADT with a heavy vehicle percentage for each identified road segment. Unfortunately, it is not feasible to calculate background SAR5s and SAR12s as the raw data does not capture loaded and unloaded heavy vehicle movements. As such, the scoping assessment is based on SAR4s (ESAs). This is a reasonable approach noting that 82% of the TMR network is sealed roads with granular pavement (SAR4 / ESA).

[illegible]

### Step 4: Calculate Development SAR4s

For production rate of 250000 tpa

Sect. No.	Type	Unloaded (Towards the Site)				Loaded (Away from the Site)			
		Daily Volumes	SAR4 per veh	SAR4 per day	SAR4 per year	Daily Volumes	SAR4 per veh	SAR4 per day	SAR4 per year
3	Two axle truck	0.0	0.54	0	0	0.0	2.98	0	0
4	Three axle truck (tadem truck)	0.4	0.5	0	54	0.4	3.57	1	386
5	Four axle truck	0.0	0.46	0	0	0.0	4.09	0	0
6	Three axle articulated	0.0	0.6	0	0	0.0	4.43	0	0
7	Four axle articulated	0.0	0.56	0	0	0.0	5.02	0	0
8	Five axle articulated	0.0	0.52	0	0	0.0	5.61	0	0
9	Six axle articulated (semi trailer)	1.4	0.51	1	221	1.4	4.93	7	2133
10	B-double	1.8	0.53	1	287	1.8	6.3	11	3407
11	Double road train (Road train 1)	5.4	0.55	3	892	5.4	8.34	45	13530
12	Triple road train	3.6	0.57	2	616	3.6	11.39	41	12319
'10'	Truck and Dog	5.4	0.53	3	860	5.4	6.3	34	10221
Total	-	-	-	10	2930	-	-	140	41995

### **Step 5: Assign Development SAR4s onto the SCR Network**

For production rate of 250000 tpa

[illegible]

### **Step 6: Identify Road Links with >5% Development SAR4 Impacts**

For production rate of 250000 tpa

[illegible]

### Step 7: Calculate Contribution to Offset Development Impacts (for Road Sections that Development SAR % > 5%)

For production rate of 250000 tpa

#### Towards the Quarry

Sect. No	Road No	Road Name	Road Section	Carriageway Code	Ch	Ch	Length	Marginal Cost (cents/SAR-km)	Dev. Trip %	No of Year (>5% increase in SAR)	Pavement Type	Load Damage Exponent	Fleet data (Year 1 to Year 10)				Development Contribution per year (Year 1 to Year 10) (\$)
													Average Production Rate for years > 5% increase in SAR	Average trips per year	Loaded SAR per Trip	SAR per year	
1	337	rran-Inglewood	to north	1	0.0	3.5	3.47	5.27	20%	0	GN/CS	4/12	0	0	7.77	0	0
2	337	rran-Inglewood	to north	1	3.5	39.5	35.99	5.29	20%	0	GN	4	0	0	7.77	0	0
3	337	rran-Inglewood	to north	1	39.5	55.6	16.12	8.26	20%	0	GN	4	0	0	7.77	0	0
4	337	rran-Inglewood	to south	1	55.6	68.7	13.10	10.92	80%	0	GN	4	0	0	7.77	0	0
5	17C	highway (Warwo	to south-wes	1	105.7	107.7	1.93	3.89	40%	0	GN	5	0	0	7.77	0	0
6	17C	highway (Warwo	to south-eas	1	48.7	105.7	56.99	2.99	40%	0	GN	6	0	0	7.77	0	0
7	17C	highway (Warwo	to south-eas	1	3.5	48.7	45.26	3.22	40%	0	GN	7	0	0	7.77	0	0
8	17C	highway (Warwo	to south-eas	1	0.0	3.5	3.47	5.77	40%	0	GN	8	0	0	7.77	0	0

#### Away from the Quarry

Sect. No	Road No	Road Name	Road Section	Carriageway Code	Ch	Ch	Length	Marginal Cost (cents/SAR-km)	Dev. Trip %	No of Year (>5% increase in SAR)	Pavement Type	Load Damage Exponent	Fleet data (Year 1 to Year 10)				Development Contribution per year (Year 1 to Year 10) (\$)
													Average Production Rate for years > 5% increase in SAR	Average trips per year	Loaded SAR per Trip	SAR per year	
1	337	Millmerran-Ing	to north	1	0.0	3.5	3.47	5.27	20%	10	GN/CS	4/12	250000	1082	7.77	8399	1536
2	337	Millmerran-Ing	to north	1	3.5	39.5	35.99	5.29	20%	10	GN	4	250000	1082	7.77	8399	15991
3	337	Millmerran-Ing	to north	1	39.5	55.6	16.12	8.26	20%	10	GN	4	250000	1082	7.77	8399	11183
4	337	Millmerran-Ing	to south	1	55.6	68.7	13.1	10.92	80%	10	GN	4	250000	4326	7.77	33596	48060
5	17C	Cunningham	to south-wes	1	105.7	107.7	1.93	3.89	40%	0	GN	4	0	0	7.77	0	0
6	17C	Cunningham	to south-eas	1	48.7	105.7	56.99	2.99	40%	0	GN	4	0	0	7.77	0	0
7	17C	Cunningham	to south-eas	1	3.5	48.7	45.26	3.22	40%	0	GN	4	0	0	7.77	0	0
8	17C	Cunningham	to south-eas	1	0.0	3.5	3.47	5.77	40%	0	GN/AC	4/5	0	0	7.77	0	0

Average Production Rate (Year 1 to Year 10) (tpa):

250000.0

Contribution (cents / tonne)

30.71

Contribution (\$ / tonne)

0.307

Contribution per year (\$)

76770

## Guide to Traffic Impact Assessment 2017 - Pavement Impact Assessment

For production rate of 300000 tpa

The methodology of the pavement impact assessment is based on Department of Transport and Main Roads' Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment December 2018.

### Step 1: Project Parameters and Impact Potential Assessment Area

Production Rate (tpa):	300,000										
First Operational Year:	2,022										
Assessment Year (No of Years):	10										
Days of operation per year:	300										
	Development Generated Tonnages (Year by Year)										
	1	2	3	4	5	6	7	8	9	10	
	2,022	2,023	2,024	2,025	2,026	2,027	2,028	2,029	2,030	2,031	
	% of "Base" Annual Tonnage	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	Total
	Annual Tonnage	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	3,000,000

Class	Type	Payload	Unloaded SAR4	Loaded SAR4	Unloaded SAR5	Loaded SAR5	HV %	Weighted Average Payload	No Trip per day (In / Out)	Weighted Average Unloaded SAR4	Weighted Average loaded SAR4
3	Two axle truck	6.5	0.54	2.98	0.43	3.29	0%	0.0	0.0	0.000	0.000
4	Three axle truck	13.0	0.5	3.57	0.41	4.14	2%	0.3	0.4	0.010	0.071
5	Four axle truck	15.0	0.46	4.09	0.37	4.89	0%	0.0	0.0	0.000	0.000
6	Three axle articulated	11.5	0.6	4.43	0.46	4.88	0%	0.0	0.0	0.000	0.000
7	Four axle articulated	18.0	0.56	5.02	0.44	5.73	0%	0.0	0.0	0.000	0.000
8	Five axle articulated	24.5	0.52	5.61	0.41	6.58	0%	0.0	0.0	0.000	0.000
9	Six axle articulated (semi trailer)	26.5	0.51	4.93	0.41	5.61	8%	2.1	1.7	0.041	0.394
10	B-double	40.0	0.53	6.3	0.42	7.09	10%	4.0	2.2	0.053	0.630
11	Double road train (Road train 1)	51.5	0.55	8.34	0.43	9.53	30%	15.5	6.5	0.165	2.502
12*	Triple road train	62.0	0.57	11.39	0.43	11.98	20%	12.4	4.3	0.114	2.278
'10' **	Truck and Dog	40.0	0.53	6.3	0.42	7.09	30%	12.0	6.5	0.159	1.890
Total	-	-	-	-	-	-	100%	46.2	21.6	0.54	7.77

\*The standard payload of a triple road train is 76.5t. The payload of the triple road train used by the Proposal is 62.0t, the reduced unloaded and loaded SARs are calculated based on the information included in Appendix A of Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment December 2018.

\*\* According to Austroads Vehicle Classification System (duplicated as last page of this assessment), Truck and Dog is classified as Class 10.

Contribution (cents / tonne):

30.71

Contribution (\$ / tonne)

0.307

## **Step 2: Road Asset Data from DTMR**

For production rate of 300000 tpa

[illegible]



### **Step 3: Calculate Background SAR4s**

For production rate of 300000 tpa

Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment states:

The raw road asset data from TMR provides a two-way AADT with a heavy vehicle percentage for each identified road segment. Unfortunately, it is not feasible to calculate background SAR5s and SAR12s as the raw data does not capture loaded and unloaded heavy vehicle movements. As such, the scoping assessment is based on SAR4s (ESAs). This is a reasonable approach noting that 82% of the TMR network is sealed roads with granular pavement (SAR4 / ESA).

[illegible]

### Step 4: Calculate Development SAR4s

For production rate of 300000 tpa

Sect. No.	Type	Unloaded (Towards the Site)				Loaded (Away from the Site)			
		Daily Volumes	SAR4 per veh	SAR4 per day	SAR4 per year	Daily Volumes	SAR4 per veh	SAR4 per day	SAR4 per year
3	Two axle truck	0.0	0.54	0	0	0.0	2.98	0	0
4	Three axle truck (tadem truck)	0.4	0.5	0	65	0.4	3.57	2	463
5	Four axle truck	0.0	0.46	0	0	0.0	4.09	0	0
6	Three axle articulated	0.0	0.6	0	0	0.0	4.43	0	0
7	Four axle articulated	0.0	0.56	0	0	0.0	5.02	0	0
8	Five axle articulated	0.0	0.52	0	0	0.0	5.61	0	0
9	Six axle articulated (semi trailer)	1.7	0.51	1	265	1.7	4.93	9	2559
10	B-double	2.2	0.53	1	344	2.2	6.3	14	4088
11	Double road train (Road train 1)	6.5	0.55	4	1071	6.5	8.34	54	16236
12	Triple road train	4.3	0.57	2	740	4.3	11.39	49	14783
'10'	Truck and Dog	6.5	0.53	3	1032	6.5	6.3	41	12265
Total	-	-	-	12	3516	-	-	168	50395

### **Step 5: Assign Development SAR4s onto the SCR Network**

For production rate of 300000 tpa

[illegible]

### **Step 6: Identify Road Links with >5% Development SAR4 Impacts**

For production rate of 300000 tpa

[illegible]

### Step 7: Calculate Contribution to Offset Development Impacts (for Road Sections that Development SAR % > 5%)

For production rate of 300000 tpa

#### Towards the Quarry

Sect. No	Road No	Road Name	Road Section	Carriageway Code	Ch	Ch	Length	Marginal Cost (cents/SAR-km)	Dev. Trip %	No of Year (>5% increase in SAR)	Pavement Type	Load Damage Exponent	Fleet data (Year 1 to Year 10)				Development Contribution per year (Year 1 to Year 10) (\$)
													Average Production Rate for years > 5% increase in SAR	Average trips per year	Loaded SAR per Trip	SAR per year	
1	337	rran-Inglewood	to north	1	0.0	3.5	3.47	5.27	20%	0	GN/CS	4/12	0	0	7.77	0	0
2	337	rran-Inglewood	to north	1	3.5	39.5	35.99	5.29	20%	0	GN	4	0	0	7.77	0	0
3	337	rran-Inglewood	to north	1	39.5	55.6	16.12	8.26	20%	0	GN	4	0	0	7.77	0	0
4	337	rran-Inglewood	to south	1	55.6	68.7	13.10	10.92	80%	0	GN	4	0	0	7.77	0	0
5	17C	highway (Warwo	to south-wes	1	105.7	107.7	1.93	3.89	40%	0	GN	5	0	0	7.77	0	0
6	17C	highway (Warwo	to south-eas	1	48.7	105.7	56.99	2.99	40%	0	GN	6	0	0	7.77	0	0
7	17C	highway (Warwo	to south-eas	1	3.5	48.7	45.26	3.22	40%	0	GN	7	0	0	7.77	0	0
8	17C	highway (Warwo	to south-eas	1	0.0	3.5	3.47	5.77	40%	0	GN	8	0	0	7.77	0	0

#### Away from the Quarry

Sect. No	Road No	Road Name	Road Section	Carriageway Code	Ch	Ch	Length	Marginal Cost (cents/SAR-km)	Dev. Trip %	No of Year (>5% increase in SAR)	Pavement Type	Load Damage Exponent	Fleet data (Year 1 to Year 10)				Development Contribution per year (Year 1 to Year 10) (\$)
													Average Production Rate for years > 5% increase in SAR	Average trips per year	Loaded SAR per Trip	SAR per year	
1	337	Millmerran-Ing	to north	1	0.0	3.5	3.47	5.27	20%	10	GN/CS	4/12	300000	1298	7.77	10079	1843
2	337	Millmerran-Ing	to north	1	3.5	39.5	35.99	5.29	20%	10	GN	4	300000	1298	7.77	10079	19189
3	337	Millmerran-Ing	to north	1	39.5	55.6	16.12	8.26	20%	10	GN	4	300000	1298	7.77	10079	13420
4	337	Millmerran-Ing	to south	1	55.6	68.7	13.1	10.92	80%	10	GN	4	300000	5191	7.77	40316	57672
5	17C	Cunningham	to south-wes	1	105.7	107.7	1.93	3.89	40%	0	GN	4	0	0	7.77	0	0
6	17C	Cunningham	to south-eas	1	48.7	105.7	56.99	2.99	40%	0	GN	4	0	0	7.77	0	0
7	17C	Cunningham	to south-eas	1	3.5	48.7	45.26	3.22	40%	0	GN	4	0	0	7.77	0	0
8	17C	Cunningham	to south-eas	1	0.0	3.5	3.47	5.77	40%	0	GN/AC	4/5	0	0	7.77	0	0

Average Production Rate (Year 1 to Year 10) (tpa):

300000.0

Contribution (cents / tonne)

30.71

Contribution (\$ / tonne)

0.307

Contribution per year (\$)

92125

## Guide to Traffic Impact Assessment 2017 - Pavement Impact Assessment

For production rate of 350000 tpa

The methodology of the pavement impact assessment is based on Department of Transport and Main Roads' Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment December 2018.

### Step 1: Project Parameters and Impact Potential Assessment Area

Production Rate (tpa):	350,000										
First Operational Year:	2,022										
Assessment Year (No of Years):	10										
Days of operation per year:	300										
	Development Generated Tonnages (Year by Year)										
	1	2	3	4	5	6	7	8	9	10	
	2,022	2,023	2,024	2,025	2,026	2,027	2,028	2,029	2,030	2,031	
% of "Base" Annual Tonnage	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	Total
Annual Tonnage	350,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000	3,500,000

Class	Type	Payload	Unloaded SAR4	Loaded SAR4	Unloaded SAR5	Loaded SAR5	HV %	Weighted Average Payload	No Trip per day (In / Out)	Weighted Average Unloaded SAR4	Weighted Average loaded SAR4
3	Two axle truck	6.5	0.54	2.98	0.43	3.29	0%	0.0	0.0	0.000	0.000
4	Three axle truck	13.0	0.5	3.57	0.41	4.14	2%	0.3	0.5	0.010	0.071
5	Four axle truck	15.0	0.46	4.09	0.37	4.89	0%	0.0	0.0	0.000	0.000
6	Three axle articulated	11.5	0.6	4.43	0.46	4.88	0%	0.0	0.0	0.000	0.000
7	Four axle articulated	18.0	0.56	5.02	0.44	5.73	0%	0.0	0.0	0.000	0.000
8	Five axle articulated	24.5	0.52	5.61	0.41	6.58	0%	0.0	0.0	0.000	0.000
9	Six axle articulated (semi trailer)	26.5	0.51	4.93	0.41	5.61	8%	2.1	2.0	0.041	0.394
10	B-double	40.0	0.53	6.3	0.42	7.09	10%	4.0	2.5	0.053	0.630
11	Double road train (Road train 1)	51.5	0.55	8.34	0.43	9.53	30%	15.5	7.6	0.165	2.502
12*	Triple road train	62.0	0.57	11.39	0.43	11.98	20%	12.4	5.0	0.114	2.278
'10' **	Truck and Dog	40.0	0.53	6.3	0.42	7.09	30%	12.0	7.6	0.159	1.890
Total	-	-	-	-	-	-	100%	46.2	25.2	0.54	7.77

\*The standard payload of a triple road train is 76.5t. The payload of the triple road train used by the Proposal is 62.0t, the reduced unloaded and loaded SARs are calculated based on the information included in Appendix A of Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment December 2018.

\*\* According to Austroads Vehicle Classification System (duplicated as last page of this assessment), Truck and Dog is classified as Class 10.

Contribution (cents / tonne):

39.00

Contribution (\$ / tonne)

0.390

## **Step 2: Road Asset Data from DTMR**

For production rate of 350000 tpa

[illegible]



### **Step 3: Calculate Background SAR4s**

For production rate of 350000 tpa

Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment states:

The raw road asset data from TMR provides a two-way AADT with a heavy vehicle percentage for each identified road segment. Unfortunately, it is not feasible to calculate background SAR5s and SAR12s as the raw data does not capture loaded and unloaded heavy vehicle movements. As such, the scoping assessment is based on SAR4s (ESAs). This is a reasonable approach noting that 82% of the TMR network is sealed roads with granular pavement (SAR4 / ESA).

[illegible]

### Step 4: Calculate Development SAR4s

For production rate of 350000 tpa

Sect. No.	Type	Unloaded (Towards the Site)				Loaded (Away from the Site)			
		Daily Volumes	SAR4 per veh	SAR4 per day	SAR4 per year	Daily Volumes	SAR4 per veh	SAR4 per day	SAR4 per year
3	Two axle truck	0.0	0.54	0	0	0.0	2.98	0	0
4	Three axle truck (tadem truck)	0.5	0.5	0	76	0.5	3.57	2	541
5	Four axle truck	0.0	0.46	0	0	0.0	4.09	0	0
6	Three axle articulated	0.0	0.6	0	0	0.0	4.43	0	0
7	Four axle articulated	0.0	0.56	0	0	0.0	5.02	0	0
8	Five axle articulated	0.0	0.52	0	0	0.0	5.61	0	0
9	Six axle articulated (semi trailer)	2.0	0.51	1	309	2.0	4.93	10	2986
10	B-double	2.5	0.53	1	401	2.5	6.3	16	4770
11	Double road train (Road train 1)	7.6	0.55	4	1249	7.6	8.34	63	18942
12	Triple road train	5.0	0.57	3	863	5.0	11.39	57	17246
'10'	Truck and Dog	7.6	0.53	4	1204	7.6	6.3	48	14309
<b>Total</b>	-	-	-	14	4102	-	-	196	58794

### **Step 5: Assign Development SAR4s onto the SCR Network**

For production rate of 350000 tpa

[illegible]

### **Step 6: Identify Road Links with >5% Development SAR4 Impacts**

For production rate of 350000 tpa

[illegible]

### Step 7: Calculate Contribution to Offset Development Impacts (for Road Sections that Development SAR % > 5%)

For production rate of 350000 tpa

#### Towards the Quarry

Sect. No	Road No	Road Name	Road Section	Carriageway Code	Ch	Ch	Length	Marginal Cost (cents/SAR-km)	Dev. Trip %	No of Year (>5% increase in SAR)	Pavement Type	Load Damage Exponent	Fleet data (Year 1 to Year 10)				Development Contribution per year (Year 1 to Year 10) (\$)
													Average Production Rate for years > 5% increase in SAR	Average trips per year	Loaded SAR per Trip	SAR per year	
1	337	rran-Inglewood	to north	1	0.0	3.5	3.47	5.27	20%	0	GN/CS	4/12	0	0	7.77	0	0
2	337	rran-Inglewood	to north	1	3.5	39.5	35.99	5.29	20%	0	GN	4	0	0	7.77	0	0
3	337	rran-Inglewood	to north	1	39.5	55.6	16.12	8.26	20%	0	GN	4	0	0	7.77	0	0
4	337	rran-Inglewood	to south	1	55.6	68.7	13.10	10.92	80%	1	GN	4	350000	6057	7.77	47035	6728
5	17C	highway (Warwo	to south-wes	1	105.7	107.7	1.93	3.89	40%	0	GN	5	0	0	7.77	0	0
6	17C	highway (Warwo	to south-eas	1	48.7	105.7	56.99	2.99	40%	0	GN	6	0	0	7.77	0	0
7	17C	highway (Warwo	to south-eas	1	3.5	48.7	45.26	3.22	40%	0	GN	7	0	0	7.77	0	0
8	17C	highway (Warwo	to south-eas	1	0.0	3.5	3.47	5.77	40%	0	GN	8	0	0	7.77	0	0

#### Away from the Quarry

Sect. No	Road No	Road Name	Road Section	Carriageway Code	Ch	Ch	Length	Marginal Cost (cents/SAR-km)	Dev. Trip %	No of Year (>5% increase in SAR)	Pavement Type	Load Damage Exponent	Fleet data (Year 1 to Year 10)				Development Contribution per year (Year 1 to Year 10) (\$)
													Average Production Rate for years > 5% increase in SAR	Average trips per year	Loaded SAR per Trip	SAR per year	
1	337	Millmerran-Ing	to north	1	0.0	3.5	3.47	5.27	20%	10	GN/CS	4/12	350000	1514	7.77	11759	2150
2	337	Millmerran-Ing	to north	1	3.5	39.5	35.99	5.29	20%	10	GN	4	350000	1514	7.77	11759	22387
3	337	Millmerran-Ing	to north	1	39.5	55.6	16.12	8.26	20%	10	GN	4	350000	1514	7.77	11759	15657
4	337	Millmerran-Ing	to south	1	55.6	68.7	13.1	10.92	80%	10	GN	4	350000	6057	7.77	47035	67284
5	17C	Cunningham	to south-wes	1	105.7	107.7	1.93	3.89	40%	0	GN	4	0	0	7.77	0	0
6	17C	Cunningham	to south-eas	1	48.7	105.7	56.99	2.99	40%	3	GN	4	350000	3028	7.77	23517	12022
7	17C	Cunningham	to south-eas	1	3.5	48.7	45.26	3.22	40%	3	GN	4	350000	3028	7.77	23517	10282
8	17C	Cunningham	to south-eas	1	0.0	3.5	3.47	5.77	40%	0	GN/AC	4/5	0	0	7.77	0	0

Average Production Rate (Year 1 to Year 10) (tpa):

350000.0

Contribution (cents / tonne)

39.00

Contribution (\$ / tonne)

0.390

Contribution per year (\$)

136511

## Guide to Traffic Impact Assessment 2017 - Pavement Impact Assessment

For production rate of 400000 tpa

The methodology of the pavement impact assessment is based on Department of Transport and Main Roads' Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment December 2018.

### Step 1: Project Parameters and Impact Potential Assessment Area

Production Rate (tpa):	400,000										
First Operational Year:	2,022										
Assessment Year (No of Years):	10										
Days of operation per year:	300										
	Development Generated Tonnages (Year by Year)										
	1	2	3	4	5	6	7	8	9	10	
	2,022	2,023	2,024	2,025	2,026	2,027	2,028	2,029	2,030	2,031	
	% of "Base" Annual Tonnage	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	Total
	Annual Tonnage	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	4,000,000

Class	Type	Payload	Unloaded SAR4	Loaded SAR4	Unloaded SAR5	Loaded SAR5	HV %	Weighted Average Payload	No Trip per day (In / Out)	Weighted Average Unloaded SAR4	Weighted Average loaded SAR4
3	Two axle truck	6.5	0.54	2.98	0.43	3.29	0%	0.0	0.0	0.000	0.000
4	Three axle truck	13.0	0.5	3.57	0.41	4.14	2%	0.3	0.6	0.010	0.071
5	Four axle truck	15.0	0.46	4.09	0.37	4.89	0%	0.0	0.0	0.000	0.000
6	Three axle articulated	11.5	0.6	4.43	0.46	4.88	0%	0.0	0.0	0.000	0.000
7	Four axle articulated	18.0	0.56	5.02	0.44	5.73	0%	0.0	0.0	0.000	0.000
8	Five axle articulated	24.5	0.52	5.61	0.41	6.58	0%	0.0	0.0	0.000	0.000
9	Six axle articulated (semi trailer)	26.5	0.51	4.93	0.41	5.61	8%	2.1	2.3	0.041	0.394
10	B-double	40.0	0.53	6.3	0.42	7.09	10%	4.0	2.9	0.053	0.630
11	Double road train (Road train 1)	51.5	0.55	8.34	0.43	9.53	30%	15.5	8.7	0.165	2.502
12*	Triple road train	62.0	0.57	11.39	0.43	11.98	20%	12.4	5.8	0.114	2.278
'10' **	Truck and Dog	40.0	0.53	6.3	0.42	7.09	30%	12.0	8.7	0.159	1.890
Total	-	-	-	-	-	-	100%	46.2	28.8	0.54	7.77

\*The standard payload of a triple road train is 76.5t. The payload of the triple road train used by the Proposal is 62.0t, the reduced unloaded and loaded SARs are calculated based on the information included in Appendix A of Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment December 2018.

\*\* According to Austroads Vehicle Classification System (duplicated as last page of this assessment), Truck and Dog is classified as Class 10.

Contribution (cents / tonne):

62.51

Contribution (\$ / tonne)

0.625

### **Step 2: Road Asset Data from DTMR**

For production rate of 400000 tpa

[illegible]

### **Step 3: Calculate Background SAR4s**

For production rate of 400000 tpa

Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment states:

The raw road asset data from TMR provides a two-way AADT with a heavy vehicle percentage for each identified road segment. Unfortunately, it is not feasible to calculate background SAR5s and SAR12s as the raw data does not capture loaded and unloaded heavy vehicle movements. As such, the scoping assessment is based on SAR4s (ESAs). This is a reasonable approach noting that 82% of the TMR network is sealed roads with granular pavement (SAR4 / ESA).

[illegible]



### Step 4: Calculate Development SAR4s

For production rate of 400000 tpa

Sect. No.	Type	Unloaded (Towards the Site)				Loaded (Away from the Site)			
		Daily Volumes	SAR4 per veh	SAR4 per day	SAR4 per year	Daily Volumes	SAR4 per veh	SAR4 per day	SAR4 per year
3	Two axle truck	0.0	0.54	0	0	0.0	2.98	0	0
4	Three axle truck (tadem truck)	0.6	0.5	0	87	0.6	3.57	2	618
5	Four axle truck	0.0	0.46	0	0	0.0	4.09	0	0
6	Three axle articulated	0.0	0.6	0	0	0.0	4.43	0	0
7	Four axle articulated	0.0	0.56	0	0	0.0	5.02	0	0
8	Five axle articulated	0.0	0.52	0	0	0.0	5.61	0	0
9	Six axle articulated (semi trailer)	2.3	0.51	1	353	2.3	4.93	11	3413
10	B-double	2.9	0.53	2	459	2.9	6.3	18	5451
11	Double road train (Road train 1)	8.7	0.55	5	1428	8.7	8.34	72	21648
12	Triple road train	5.8	0.57	3	986	5.8	11.39	66	19710
'10'	Truck and Dog	8.7	0.53	5	1376	8.7	6.3	55	16353
<b>Total</b>	-	-	-	16	4688	-	-	224	67193

### **Step 5: Assign Development SAR4s onto the SCR Network**

For production rate of 400000 tpa

[illegible]

### **Step 6: Identify Road Links with >5% Development SAR4 Impacts**

For production rate of 400000 tpa

[illegible]

### Step 7: Calculate Contribution to Offset Development Impacts (for Road Sections that Development SAR % > 5%)

For production rate of 400000 tpa

#### Towards the Quarry

Sect. No	Road No	Road Name	Road Section	Carriageway Code	Ch	Ch	Length	Marginal Cost (cents/SAR-km)	Dev. Trip %	No of Year (>5% increase in SAR)	Pavement Type	Load Damage Exponent	Fleet data (Year 1 to Year 10)				Development Contribution per year (Year 1 to Year 10) (\$)
													Average Production Rate for years > 5% increase in SAR	Average trips per year	Loaded SAR per Trip	SAR per year	
1	337	rran-Inglewood	to north	1	0.0	3.5	3.47	5.27	20%	0	GN/CS	4/12	0	0	7.77	0	0
2	337	rran-Inglewood	to north	1	3.5	39.5	35.99	5.29	20%	0	GN	4	0	0	7.77	0	0
3	337	rran-Inglewood	to north	1	39.5	55.6	16.12	8.26	20%	0	GN	4	0	0	7.77	0	0
4	337	rran-Inglewood	to south	1	55.6	68.7	13.10	10.92	80%	6	GN	4	400000	6922	7.77	53754	46138
5	17C	highway (Warwo	to south-wes	1	105.7	107.7	1.93	3.89	40%	0	GN	5	0	0	7.77	0	0
6	17C	highway (Warwo	to south-eas	1	48.7	105.7	56.99	2.99	40%	0	GN	6	0	0	7.77	0	0
7	17C	highway (Warwo	to south-eas	1	3.5	48.7	45.26	3.22	40%	0	GN	7	0	0	7.77	0	0
8	17C	highway (Warwo	to south-eas	1	0.0	3.5	3.47	5.77	40%	0	GN	8	0	0	7.77	0	0

#### Away from the Quarry

Sect. No	Road No	Road Name	Road Section	Carriageway Code	Ch	Ch	Length	Marginal Cost (cents/SAR-km)	Dev. Trip %	No of Year (>5% increase in SAR)	Pavement Type	Load Damage Exponent	Fleet data (Year 1 to Year 10)				Development Contribution per year (Year 1 to Year 10) (\$)
													Average Production Rate for years > 5% increase in SAR	Average trips per year	Loaded SAR per Trip	SAR per year	
1	337	Millmerran-Ing	to north	1	0.0	3.5	3.47	5.27	20%	10	GN/CS	4/12	400000	1730	7.77	13439	2457
2	337	Millmerran-Ing	to north	1	3.5	39.5	35.99	5.29	20%	10	GN	4	400000	1730	7.77	13439	25585
3	337	Millmerran-Ing	to north	1	39.5	55.6	16.12	8.26	20%	10	GN	4	400000	1730	7.77	13439	17894
4	337	Millmerran-Ing	to south	1	55.6	68.7	13.1	10.92	80%	10	GN	4	400000	6922	7.77	53754	76896
5	17C	Cunningham	to south-wes	1	105.7	107.7	1.93	3.89	40%	0	GN	4	0	0	7.77	0	0
6	17C	Cunningham	to south-eas	1	48.7	105.7	56.99	2.99	40%	10	GN	4	400000	3461	7.77	26877	45799
7	17C	Cunningham	to south-eas	1	3.5	48.7	45.26	3.22	40%	9	GN	4	400000	3461	7.77	26877	35253
8	17C	Cunningham	to south-eas	1	0.0	3.5	3.47	5.77	40%	0	GN/AC	4/5	0	0	7.77	0	0

Average Production Rate (Year 1 to Year 10) (tpa):

400000.0

Contribution (cents / tonne)

62.51

Contribution (\$ / tonne)

0.625

Contribution per year (\$)

250022

## Guide to Traffic Impact Assessment 2017 - Pavement Impact Assessment

For production rate of 450000 tpa

The methodology of the pavement impact assessment is based on Department of Transport and Main Roads' Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment December 2018.

### Step 1: Project Parameters and Impact Potential Assessment Area

Production Rate (tpa):	450,000										
First Operational Year:	2,022										
Assessment Year (No of Years):	10										
Days of operation per year:	300										
	Development Generated Tonnages (Year by Year)										
	1	2	3	4	5	6	7	8	9	10	
	2,022	2,023	2,024	2,025	2,026	2,027	2,028	2,029	2,030	2,031	
% of "Base" Annual Tonnage	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	Total
Annual Tonnage	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	4,500,000

Class	Type	Payload	Unloaded SAR4	Loaded SAR4	Unloaded SAR5	Loaded SAR5	HV %	Weighted Average Payload	No Trip per day (In / Out)	Weighted Average Unloaded SAR4	Weighted Average loaded SAR4
3	Two axle truck	6.5	0.54	2.98	0.43	3.29	0%	0.0	0.0	0.000	0.000
4	Three axle truck	13.0	0.5	3.57	0.41	4.14	2%	0.3	0.6	0.010	0.071
5	Four axle truck	15.0	0.46	4.09	0.37	4.89	0%	0.0	0.0	0.000	0.000
6	Three axle articulated	11.5	0.6	4.43	0.46	4.88	0%	0.0	0.0	0.000	0.000
7	Four axle articulated	18.0	0.56	5.02	0.44	5.73	0%	0.0	0.0	0.000	0.000
8	Five axle articulated	24.5	0.52	5.61	0.41	6.58	0%	0.0	0.0	0.000	0.000
9	Six axle articulated (semi trailer)	26.5	0.51	4.93	0.41	5.61	8%	2.1	2.6	0.041	0.394
10	B-double	40.0	0.53	6.3	0.42	7.09	10%	4.0	3.2	0.053	0.630
11	Double road train (Road train 1)	51.5	0.55	8.34	0.43	9.53	30%	15.5	9.7	0.165	2.502
12*	Triple road train	62.0	0.57	11.39	0.43	11.98	20%	12.4	6.5	0.114	2.278
'10' **	Truck and Dog	40.0	0.53	6.3	0.42	7.09	30%	12.0	9.7	0.159	1.890
Total	-	-	-	-	-	-	100%	46.2	32.4	0.54	7.77

\*The standard payload of a triple road train is 76.5t. The payload of the triple road train used by the Proposal is 62.0t, the reduced unloaded and loaded SARs are calculated based on the information included in Appendix A of Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment December 2018.

\*\* According to Austroads Vehicle Classification System (duplicated as last page of this assessment), Truck and Dog is classified as Class 10.

Contribution (cents / tonne):

71.31

Contribution (\$ / tonne)

0.713

### **Step 2: Road Asset Data from DTMR**

For production rate of 450000 tpa

[illegible]

### **Step 3: Calculate Background SAR4s**

For production rate of 450000 tpa

Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment states:

The raw road asset data from TMR provides a two-way AADT with a heavy vehicle percentage for each identified road segment. Unfortunately, it is not feasible to calculate background SAR5s and SAR12s as the raw data does not capture loaded and unloaded heavy vehicle movements. As such, the scoping assessment is based on SAR4s (ESAs). This is a reasonable approach noting that 82% of the TMR network is sealed roads with granular pavement (SAR4 / ESA).

[illegible]

### **Step 4: Calculate Development SAR4s**

For production rate of 450000 tpa

Sect. No.	Type	Unloaded (Towards the Site)				Loaded (Away from the Site)			
		Daily Volumes	SAR4 per veh	SAR4 per day	SAR4 per year	Daily Volumes	SAR4 per veh	SAR4 per day	SAR4 per year
3	Two axle truck	0.0	0.54	0	0	0.0	2.98	0	0
4	Three axle truck (tadem truck)	0.6	0.5	0	97	0.6	3.57	2	695
5	Four axle truck	0.0	0.46	0	0	0.0	4.09	0	0
6	Three axle articulated	0.0	0.6	0	0	0.0	4.43	0	0
7	Four axle articulated	0.0	0.56	0	0	0.0	5.02	0	0
8	Five axle articulated	0.0	0.52	0	0	0.0	5.61	0	0
9	Six axle articulated (semi trailer)	2.6	0.51	1	397	2.6	4.93	13	3839
10	B-double	3.2	0.53	2	516	3.2	6.3	20	6132
11	Double road train (Road train 1)	9.7	0.55	5	1606	9.7	8.34	81	24354
12	Triple road train	6.5	0.57	4	1110	6.5	11.39	74	22174
'10'	Truck and Dog	9.7	0.53	5	1548	9.7	6.3	61	18397
Total	-	-	-	18	5274	-	-	252	75592



### **Step 5: Assign Development SAR4s onto the SCR Network**

For production rate of 450000 tpa

[illegible]

### **Step 6: Identify Road Links with >5% Development SAR4 Impacts**

For production rate of 450000 tpa

[illegible]

### Step 7: Calculate Contribution to Offset Development Impacts (for Road Sections that Development SAR % > 5%)

For production rate of 450000 tpa

#### Towards the Quarry

Sect. No	Road No	Road Name	Road Section	Carriageway Code	Ch	Ch	Length	Marginal Cost (cents/SAR-km)	Dev. Trip %	No of Year (>5% increase in SAR)	Pavement Type	Load Damage Exponent	Fleet data (Year 1 to Year 10)				Development Contribution per year (Year 1 to Year 10) (\$)
													Average Production Rate for years > 5% increase in SAR	Average trips per year	Loaded SAR per Trip	SAR per year	
1	337	rran-Inglewood	to north	1	0.0	3.5	3.47	5.27	20%	0	GN/CS	4/12	0	0	7.77	0	0
2	337	rran-Inglewood	to north	1	3.5	39.5	35.99	5.29	20%	0	GN	4	0	0	7.77	0	0
3	337	rran-Inglewood	to north	1	39.5	55.6	16.12	8.26	20%	0	GN	4	0	0	7.77	0	0
4	337	rran-Inglewood	to south	1	55.6	68.7	13.10	10.92	80%	10	GN	4	450000	7787	7.77	60473	86508
5	17C	highway (Warwo	to south-wes	1	105.7	107.7	1.93	3.89	40%	0	GN	5	0	0	7.77	0	0
6	17C	highway (Warwo	to south-eas	1	48.7	105.7	56.99	2.99	40%	0	GN	6	0	0	7.77	0	0
7	17C	highway (Warwo	to south-eas	1	3.5	48.7	45.26	3.22	40%	0	GN	7	0	0	7.77	0	0
8	17C	highway (Warwo	to south-eas	1	0.0	3.5	3.47	5.77	40%	0	GN	8	0	0	7.77	0	0

#### Away from the Quarry

Sect. No	Road No	Road Name	Road Section	Carriageway Code	Ch	Ch	Length	Marginal Cost (cents/SAR-km)	Dev. Trip %	No of Year (>5% increase in SAR)	Pavement Type	Load Damage Exponent	Fleet data (Year 1 to Year 10)				Development Contribution per year (Year 1 to Year 10) (\$)
													Average Production Rate for years > 5% increase in SAR	Average trips per year	Loaded SAR per Trip	SAR per year	
1	337	Millmerran-Ing	to north	1	0.0	3.5	3.47	5.27	20%	10	GN/CS	4/12	450000	1947	7.77	15118	2765
2	337	Millmerran-Ing	to north	1	3.5	39.5	35.99	5.29	20%	10	GN	4	450000	1947	7.77	15118	28783
3	337	Millmerran-Ing	to north	1	39.5	55.6	16.12	8.26	20%	10	GN	4	450000	1947	7.77	15118	20130
4	337	Millmerran-Ing	to south	1	55.6	68.7	13.1	10.92	80%	10	GN	4	450000	7787	7.77	60473	86508
5	17C	Cunningham	to south-wes	1	105.7	107.7	1.93	3.89	40%	0	GN	4	0	0	7.77	0	0
6	17C	Cunningham	to south-eas	1	48.7	105.7	56.99	2.99	40%	10	GN	4	450000	3894	7.77	30237	51523
7	17C	Cunningham	to south-eas	1	3.5	48.7	45.26	3.22	40%	10	GN	4	450000	3894	7.77	30237	44066
8	17C	Cunningham	to south-eas	1	0.0	3.5	3.47	5.77	40%	1	GN/AC	4/5	450000	3894	7.77	30237	605

Average Production Rate (Year 1 to Year 10) (tpa):

450000.0

Contribution (cents / tonne)

71.31

Contribution (\$ / tonne)

0.713

Contribution per year (\$)

320890

## Guide to Traffic Impact Assessment 2017 - Pavement Impact Assessment

For production rate of 500000 tpa

The methodology of the pavement impact assessment is based on Department of Transport and Main Roads' Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment December 2018.

### Step 1: Project Parameters and Impact Potential Assessment Area

Production Rate (tpa):	500,000										
First Operational Year:	2,022										
Assessment Year (No of Years):	10										
Days of operation per year:	300										
	Development Generated Tonnages (Year by Year)										
	1	2	3	4	5	6	7	8	9	10	
	2,022	2,023	2,024	2,025	2,026	2,027	2,028	2,029	2,030	2,031	
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	Total
	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	5,000,000

Class	Type	Payload	Unloaded SAR4	Loaded SAR4	Unloaded SAR5	Loaded SAR5	HV %	Weighted Average Payload	No Trip per day (In / Out)	Weighted Average Unloaded SAR4	Weighted Average loaded SAR4
3	Two axle truck	6.5	0.54	2.98	0.43	3.29	0%	0.0	0.0	0.000	0.000
4	Three axle truck	13.0	0.5	3.57	0.41	4.14	2%	0.3	0.7	0.010	0.071
5	Four axle truck	15.0	0.46	4.09	0.37	4.89	0%	0.0	0.0	0.000	0.000
6	Three axle articulated	11.5	0.6	4.43	0.46	4.88	0%	0.0	0.0	0.000	0.000
7	Four axle articulated	18.0	0.56	5.02	0.44	5.73	0%	0.0	0.0	0.000	0.000
8	Five axle articulated	24.5	0.52	5.61	0.41	6.58	0%	0.0	0.0	0.000	0.000
9	Six axle articulated (semi trailer)	26.5	0.51	4.93	0.41	5.61	8%	2.1	2.9	0.041	0.394
10	B-double	40.0	0.53	6.3	0.42	7.09	10%	4.0	3.6	0.053	0.630
11	Double road train (Road train 1)	51.5	0.55	8.34	0.43	9.53	30%	15.5	10.8	0.165	2.502
12*	Triple road train	62.0	0.57	11.39	0.43	11.98	20%	12.4	7.2	0.114	2.278
'10' **	Truck and Dog	40.0	0.53	6.3	0.42	7.09	30%	12.0	10.8	0.159	1.890
Total	-	-	-	-	-	-	100%	46.2	36.1	0.54	7.77

\*The standard payload of a triple road train is 76.5t. The payload of the triple road train used by the Proposal is 62.0t, the reduced unloaded and loaded SARs are calculated based on the information included in Appendix A of Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment December 2018.

\*\* According to Austroads Vehicle Classification System (duplicated as last page of this assessment), Truck and Dog is classified as Class 10.

Contribution (cents / tonne):

71.90

Contribution (\$ / tonne)

0.719

## **Step 2: Road Asset Data from DTMR**

For production rate of 500000 tpa

[illegible]

### **Step 3: Calculate Background SAR4s**

For production rate of 500000 tpa

Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment states:

The raw road asset data from TMR provides a two-way AADT with a heavy vehicle percentage for each identified road segment. Unfortunately, it is not feasible to calculate background SAR5s and SAR12s as the raw data does not capture loaded and unloaded heavy vehicle movements. As such, the scoping assessment is based on SAR4s (ESAs). This is a reasonable approach noting that 82% of the TMR network is sealed roads with granular pavement (SAR4 / ESA).

[illegible]

### **Step 4: Calculate Development SAR4s**

For production rate of 500000 tpa

Sect. No.	Type	Unloaded (Towards the Site)				Loaded (Away from the Site)			
		Daily Volumes	SAR4 per veh	SAR4 per day	SAR4 per year	Daily Volumes	SAR4 per veh	SAR4 per day	SAR4 per year
3	Two axle truck	0.0	0.54	0	0	0.0	2.98	0	0
4	Three axle truck (tadem truck)	0.7	0.5	0	108	0.7	3.57	3	772
5	Four axle truck	0.0	0.46	0	0	0.0	4.09	0	0
6	Three axle articulated	0.0	0.6	0	0	0.0	4.43	0	0
7	Four axle articulated	0.0	0.56	0	0	0.0	5.02	0	0
8	Five axle articulated	0.0	0.52	0	0	0.0	5.61	0	0
9	Six axle articulated (semi trailer)	2.9	0.51	1	441	2.9	4.93	14	4266
10	B-double	3.6	0.53	2	573	3.6	6.3	23	6814
11	Double road train (Road train 1)	10.8	0.55	6	1785	10.8	8.34	90	27060
12	Triple road train	7.2	0.57	4	1233	7.2	11.39	82	24638
'10'	Truck and Dog	10.8	0.53	6	1720	10.8	6.3	68	20441
Total	-	-	-	20	5860	-	-	280	83991

### **Step 5: Assign Development SAR4s onto the SCR Network**

For production rate of 500000 tpa

[illegible]



### **Step 6: Identify Road Links with >5% Development SAR4 Impacts**

For production rate of 500000 tpa

[illegible]

### Step 7: Calculate Contribution to Offset Development Impacts (for Road Sections that Development SAR % > 5%)

For production rate of 500000 tpa

#### Towards the Quarry

Sect. No	Road No	Road Name	Road Section	Carriageway Code	Ch	Ch	Length	Marginal Cost (cents/SAR-km)	Dev. Trip %	No of Year (>5% increase in SAR)	Pavement Type	Load Damage Exponent	Fleet data (Year 1 to Year 10)				Development Contribution per year (Year 1 to Year 10) (\$)
													Average Production Rate for years > 5% increase in SAR	Average trips per year	Loaded SAR per Trip	SAR per year	
1	337	rran-Inglewood	to north	1	0.0	3.5	3.47	5.27	20%	0	GN/CS	4/12	0	0	7.77	0	0
2	337	rran-Inglewood	to north	1	3.5	39.5	35.99	5.29	20%	0	GN	4	0	0	7.77	0	0
3	337	rran-Inglewood	to north	1	39.5	55.6	16.12	8.26	20%	0	GN	4	0	0	7.77	0	0
4	337	rran-Inglewood	to south	1	55.6	68.7	13.10	10.92	80%	10	GN	4	500000	8652	7.77	67193	96121
5	17C	highway (Warwo	to south-wes	1	105.7	107.7	1.93	3.89	40%	0	GN	5	0	0	7.77	0	0
6	17C	highway (Warwo	to south-eas	1	48.7	105.7	56.99	2.99	40%	0	GN	6	0	0	7.77	0	0
7	17C	highway (Warwo	to south-eas	1	3.5	48.7	45.26	3.22	40%	0	GN	7	0	0	7.77	0	0
8	17C	highway (Warwo	to south-eas	1	0.0	3.5	3.47	5.77	40%	0	GN	8	0	0	7.77	0	0

#### Away from the Quarry

Sect. No	Road No	Road Name	Road Section	Carriageway Code	Ch	Ch	Length	Marginal Cost (cents/SAR-km)	Dev. Trip %	No of Year (>5% increase in SAR)	Pavement Type	Load Damage Exponent	Fleet data (Year 1 to Year 10)				Development Contribution per year (Year 1 to Year 10) (\$)
													Average Production Rate for years > 5% increase in SAR	Average trips per year	Loaded SAR per Trip	SAR per year	
1	337	Millmerran-Ing	to north	1	0.0	3.5	3.47	5.27	20%	10	GN/CS	4/12	500000	2163	7.77	16798	3072
2	337	Millmerran-Ing	to north	1	3.5	39.5	35.99	5.29	20%	10	GN	4	500000	2163	7.77	16798	31982
3	337	Millmerran-Ing	to north	1	39.5	55.6	16.12	8.26	20%	10	GN	4	500000	2163	7.77	16798	22367
4	337	Millmerran-Ing	to south	1	55.6	68.7	13.1	10.92	80%	10	GN	4	500000	8652	7.77	67193	96121
5	17C	Cunningham	to south-wes	1	105.7	107.7	1.93	3.89	40%	1	GN	4	500000	4326	7.77	33596	252
6	17C	Cunningham	to south-eas	1	48.7	105.7	56.99	2.99	40%	10	GN	4	500000	4326	7.77	33596	57248
7	17C	Cunningham	to south-eas	1	3.5	48.7	45.26	3.22	40%	10	GN	4	500000	4326	7.77	33596	48962
8	17C	Cunningham	to south-eas	1	0.0	3.5	3.47	5.77	40%	5	GN/AC	4/5	500000	4326	7.77	33596	3363

Average Production Rate (Year 1 to Year 10) (tpa):

500000.0

Contribution (cents / tonne)

71.90











Contribution (\$ / tonne)

0.719

Contribution per year (\$)



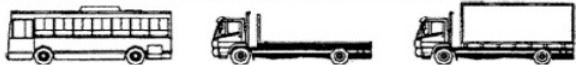









359488

## SAR by Austroads HV class

is based on Department of Transport	Typical description	Dominant vehicle in each class
Medium (5.5m to 14.5m)		
3	Two axle truck	
4	Three axle truck	
5	Four axle truck	
Long (11.5m to 19.0m)		
6	Three axle articulated	
7	Four axle articulated	
8	Five axle articulated	
9	Six axle articulated (semi-trailer)	
Medium combination (17.5m to 36.5m)		
10	B Double	
11	Double road train	
Large combination (over 33.0m)		
12	Triple road train	

Austroads vehicle class	3	4	5	6	7	8	9	10	11	12
Legal Loading (t)	15	22.5	27.5	24	31.5	39	42.5	62.5	79	115.5
Base Load per SAR4	13.6	19.2	23	21.8	27.4	33	37.7	56.2	70	102.3
Unloaded Axle Group Load (t)	8.5	9.5	12.5	12.5	13.5	14.5	16	22.5	27.5	39
Unloaded SAR4	0.54	0.5	0.46	0.6	0.56	0.52	0.51	0.53	0.55	0.58
Unloaded SAR5	0.43	0.41	0.37	0.46	0.44	0.41	0.41	0.42	0.43	0.44
Unloaded SAR12	0.11	0.11	0.09	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Loaded Axle Group Load (t)	15	22.5	27.5	24	31.5	39	42.5	62.5	79	115.5
Loaded SAR4	2.98	3.57	4.09	4.43	5.02	5.61	4.93	6.3	8.34	11.75
Loaded SAR5	3.29	4.14	4.89	4.88	5.73	6.58	5.61	7.09	9.53	13.45
Loaded SAR12	6.6	12.08	17.07	9.65	15.13	20.61	14.63	17.17	25.71	36.79
Payload (t)	6.5	13	15	11.5	18	24.5	26.5	40	51.5	76.5

## AUSTROADS Vehicle Classification System

Level 1	Level 2		Level 3	AUSTROADS Classification		
Length (indicative)	Axles and Axle Groups		Vehicle Type			
Type	Axles	Groups	Typical Description	Class	Parameters	Typical Configuration
Short up to 5.5m	LIGHT VEHICLES					
		1 or 2	Short Sedan, Wagon, 4WD, Utility, Light Van, Bicycle, Motorcycle, etc	1	$d(1) \leq 3.2\text{m}$ and axles = 2	
Medium 5.5m to 14.5m	3, 4 or 5	3	Short - Towing Trailer, Caravan, Boat, etc	2	groups = 3 $d(1) \geq 2.1\text{m}$ , $d(1) \leq 3.2\text{m}$ , $d(2) \geq 2.1\text{m}$ and axles = 3, 4 or 5	
	HEAVY VEHICLES					
	2	2	Two Axle Truck or Bus	3	$d(1) > 3.2\text{m}$ and axles = 2	
	3	2	Three Axle Truck or Bus	4	axles = 3 and groups = 2	
	> 3	2	Four Axle Truck	5	axles > 3 and groups = 2	
Long 11.5m to 19.0m	3	3	Three Axle Articulated Three axle articulated vehicle, or Rigid vehicle and trailer	6	$d(1) > 3.2\text{m}$ , axles = 3 and groups = 3	
	4	> 2	Four Axle Articulated Four axle articulated vehicle, or Rigid vehicle and trailer	7	$d(2) < 2.1\text{m}$ or $d(1) < 2.1\text{m}$ or $d(1) > 3.2\text{m}$ axles = 4 and groups > 2	
	5	> 2	Five Axle Articulated Five axle articulated vehicle, or Rigid vehicle and trailer	8	$d(2) < 2.1\text{m}$ or $d(1) < 2.1\text{m}$ or $d(1) > 3.2\text{m}$ axles = 5 and groups > 2	
	$\geq 6$	> 2	Six Axle Articulated Six axle articulated vehicle, or Rigid vehicle and trailer	9	axles = 6 and groups > 2 or axles > 6 and groups = 3	
Medium Combination 17.5m to 36.5m	> 6	4	B Double B Double, or Heavy truck and trailer	10	groups = 4 and axles > 6	
	> 6	5 or 6	Double Road Train Double road train, or Medium articulated vehicle and one dog trailer (M.A.D.)	11	groups = 5 or 6 and axles > 6	
Large Combination Over 33.0m	> 6	> 6	Triple Road Train Triple road train, or Heavy truck and three trailers	12	groups > 6 and axles > 6	

**Definitions:**  
 Group: Axle group, where adjacent axles are less than 2.1m apart  
 Groups: Number of axle groups  
 Axles: Number of axles (maximum axle spacing of 10.0m)

$d(1)$ : Distance between first and second axle  
 $d(2)$ : Distance between second and third axle

# Development Assessment Rules—Representations about a referral agency response

The following provisions are those set out in sections 28 and 30 of the Development Assessment Rules<sup>1</sup> regarding **representations about a referral agency response**

## Part 6: Changes to the application and referral agency responses

---

### 28 Concurrence agency changes its response or gives a late response

- 28.1. Despite part 2, a concurrence agency may, after its referral agency assessment period and any further period agreed ends, change its referral agency response or give a late referral agency response before the application is decided, subject to section 28.2 and 28.3.
- 28.2. A concurrence agency may change its referral agency response at any time before the application is decided if—
- (a) the change is in response to a change which the assessment manager is satisfied is a change under section 26.1; or
  - (b) the Minister has given the concurrence agency a direction under section 99 of the Act; or
  - (c) the applicant has given written agreement to the change to the referral agency response.<sup>2</sup>
- 28.3. A concurrence agency may give a late referral agency response before the application is decided, if the applicant has given written agreement to the late referral agency response.
- 28.4. If a concurrence agency proposes to change its referral agency response under section 28.2(a), the concurrence agency must—
- (a) give notice of its intention to change its referral agency response to the assessment manager and a copy to the applicant within 5 days of receiving notice of the change under section 25.1; and
  - (b) the concurrence agency has 10 days from the day of giving notice under paragraph (a), or a further period agreed between the applicant and the concurrence agency, to give an amended referral agency response to the assessment manager and a copy to the applicant.

---

<sup>1</sup> Pursuant to Section 68 of the *Planning Act 2016*

<sup>2</sup> In the instance an applicant has made representations to the concurrence agency under section 30, and the concurrence agency agrees to make the change included in the representations, section 28.2(c) is taken to have been satisfied.

## **Part 7: Miscellaneous**

### **30 Representations about a referral agency response**

30.1. An applicant may make representations to a concurrence agency at any time before the application is decided, about changing a matter in the referral agency response.<sup>3</sup>

---

<sup>3</sup> An applicant may elect, under section 32, to stop the assessment manager's decision period in which to take this action. If a concurrence agency wishes to amend their response in relation to representations made under this section, they must do so in accordance with section 28.



**Attachment 3 – Notice about decision - Statement of reasons**



## Notice about decision - Statement of reasons

The following information is provided in accordance with section 63 (5) of the *Planning Act 2016* and must be published on the assessment managers website

The development application for Extractive Industry (Up to 500,000 tonnes per year) and ERA 16(2)(b) Extracting in a year more than 100,000 tonnes but less than 1,000,000 tonnes and ERA 16(3)(b) Screening in a year more than 100,000 tonnes but less than 1,000,000 tonnes

21/481

Millmerran-Inglewood Road, Inglewood

Lot 1 on SP216469

On 7 March 2022, the above development application was:

- ☐ approved in full or  
☐ approved in part for \_\_\_\_\_ [detail the extent of the approval] or  
☒ approved in full with conditions or  
☐ approved in part for \_\_\_\_\_ [detail the extent of the approval],  
with conditions or  
☐ refused.

### 1. Reasons for the decision

The reasons for this decision are:

- *Having regard to the relevant criteria in the Goondiwindi Region Planning Scheme 2018, the proposed development satisfied all relevant criteria, and was approved subject to appropriate, relevant and reasonable conditions.*

### 2. Assessment benchmarks

The following are the benchmarks applying for this development:

Benchmarks applying for the development	Benchmark reference
<i>Strategic Framework</i>	<i>7 Elements</i>
<i>Rural Zone Code</i>	<i>PO1-PO5 and Code Purpose</i>
<i>Extractive Industry Code</i>	<i>PO1-PO9 and Code Purpose</i>
<i>Transport &amp; Infrastructure Code</i>	<i>PO1-PO15 and Code Purpose</i>
<i>Natural Resources Overlay Code</i>	<i>PO5-PO8</i>
<i>Biodiversity Areas Overlay Code</i>	<i>PO1-PO3</i>
<i>Bushfire Hazard Overlay Code</i>	<i>PO1-PO8</i>

### 3. Relevant matters for impact assessable development

The following matters were given regard to or assessment carried out against, in undertaking the assessment of this development application.



Other relevant matters to the assessment of the development under section 45(5)(b)	Benchmark reference	Assessment carried out against or assessment had regard to
<i>Use of adjoining properties</i>		<input checked="" type="checkbox"/> had regard to



## **Attachment 4 – *Planning Act 2016* Extracts**



# EXTRACT FROM *PLANNING ACT 2016* RELATING TO APPEAL RIGHTS

## **Chapter 6 Dispute Resolution, Part 1 Appeal Rights**

### **229 Appeals to tribunal or P&E Court**

(1) *Schedule 1 states—*

(a) *matters that may be appealed to—*

(i) *either a tribunal or the P&E Court; or*

(ii) *only a tribunal; or*

(iii) *only the P&E Court; and*

(b) *the person—*

(i) *who may appeal a matter (the appellant); and*

(ii) *who is a respondent in an appeal of the matter; and*

(iii) *who is a co-respondent in an appeal of the matter; and*

(iv) *who may elect to be a co-respondent in an appeal of the matter.*

(2) *An appellant may start an appeal within the appeal period.*

(3) *The appeal period is—*

(a) *for an appeal by a building advisory agency—10 business days after a decision notice for the decision is given to the agency; or*

(b) *for an appeal against a deemed refusal—at any time after the deemed refusal happens; or*

(c) *for an appeal against a decision of the Minister, under chapter 7, part 4, to register premises or to renew the registration of premises—20 business days after a notice is published under section 269(3)(a) or (4); or*

(d) *for an appeal against an infrastructure charges notice—20 business days after the infrastructure charges notice is given to the person; or*

(e) *for an appeal about a deemed approval of a development application for which a decision notice has not been given—30 business days after the applicant gives the*

*deemed approval notice to the assessment manager; or*

(f) *for any other appeal—20 business days after a notice of the decision for the matter, including an enforcement notice, is given to the person.*

*Note—*

*See the P&E Court Act for the court's power to extend the appeal period.*

(4) *Each respondent and co-respondent for an appeal may be heard in the appeal.*

(5) *If an appeal is only about a referral agency's response, the assessment manager may apply to the tribunal or P&E Court to withdraw from the appeal.*

(6) *To remove any doubt, it is declared that an appeal against an infrastructure charges notice must not be about—*

(a) *the adopted charge itself; or*

(b) *for a decision about an offset or refund—*

(i) *the establishment cost of trunk infrastructure identified in a LGIP; or*

(ii) *the cost of infrastructure decided using the method included in the local government's charges resolution.*

### **230 Notice of appeal**

(1) *An appellant starts an appeal by lodging, with the registrar of the tribunal or P&E Court, a notice of appeal that—*

(a) *is in the approved form; and*

(b) *succinctly states the grounds of the appeal.*

(2) *The notice of appeal must be accompanied by the required fee.*

(3) *The appellant or, for an appeal to a tribunal, the registrar must, within the service period, give a copy of the notice of appeal to—*

(a) *the respondent for the appeal; and*

(b) *each co-respondent for the appeal; and*

(c) *for an appeal about a development application under schedule 1, table 1, item 1—each*

*principal submitter for the development application; and*

*(d) for an appeal about a change application under schedule 1, table 1, item 2—each principal submitter for the change application; and*

*(e) each person who may elect to become a co-respondent for the appeal, other than an eligible submitter who is not a principal submitter in an appeal under paragraph (c) or (d); and*

*(f) for an appeal to the P&E Court—the chief executive; and*

*(g) for an appeal to a tribunal under another Act—any other person who the registrar considers appropriate.*

**(4) The *service period* is—**

*(a) if a submitter or advice agency started the appeal in the P&E Court—2 business days after the appeal is started; or*

*(b) otherwise—10 business days after the appeal is started.*

**(5) A notice of appeal given to a person who may elect to be a co-respondent must state the effect of subsection (6).**

**(6) A person elects to be a co-respondent by filing a notice of election, in the approved form, within 10 business days after the notice of appeal is given to the person.**

### **231 Other appeals**

**(1) Subject to this chapter, schedule 1 and the P&E Court Act, unless the Supreme Court decides a decision or other matter under this Act is affected by jurisdictional error, the decision or matter is non-appealable.**

**(2) The Judicial Review Act 1991, part 5 applies to the decision or matter to the extent it is affected by jurisdictional error.**

**(3) A person who, but for subsection (1) could have made an application under the Judicial Review Act 1991 in relation to the decision or matter, may apply under part 4 of that Act for a statement of reasons in relation to the decision or matter.**

**(4) In this section—**

***decision* includes—**

*(a) conduct engaged in for the purpose of making a decision; and*

*(b) other conduct that relates to the making of a decision; and*

*(c) the making of a decision or the failure to make a decision; and*

*(d) a purported decision; and*

*(e) a deemed refusal.*

***non-appealable*, for a decision or matter, means the decision or matter—**

*(a) is final and conclusive; and*

*(b) may not be challenged, appealed against, reviewed, quashed, set aside or called into question in any other way under the Judicial Review Act 1991 or otherwise, whether by the Supreme Court, another court, a tribunal or another entity; and*

*(c) is not subject to any declaratory, injunctive or other order of the Supreme Court, another court, a tribunal or another entity on any ground.*

### **232 Rules of the P&E Court**

**(1) A person who is appealing to the P&E Court must comply with the rules of the court that apply to the appeal.**

**(2) However, the P&E Court may hear and decide an appeal even if the person has not complied with rules of the P&E Court.**

## **Part 2 Development tribunal**

### **Division 1 General**

#### **233 Appointment of referees**

**(1) The Minister, or chief executive, (the appointer) may appoint a person to be a referee, by an appointment notice, if the appointer considers the person—**

*(a) has the qualifications or experience prescribed by regulation; and*

*(b) has demonstrated an ability—*

*(i) to negotiate and mediate outcomes between parties to a proceeding; and*

(ii) to apply the principles of natural justice;  
and

(iii) to analyse complex technical issues;  
and

(iv) to communicate effectively, including,  
for example, to write informed succinct and  
well-organised decisions, reports,  
submissions or other documents.

(2) The appointer may—

(a) appoint a referee for the term, of not more  
than 3 years, stated in the appointment notice;  
and

(b) reappoint a referee, by notice, for further  
terms of not more than 3 years.

(3) If an appointer appoints a public service officer as  
a referee, the officer holds the appointment  
concurrently with any other appointment that the  
officer holds in the public service.

(4) A referee must not sit on a tribunal unless the  
referee has given a declaration, in the approved  
form and signed by the referee, to the chief  
executive.

(5) The appointer may cancel a referee's  
appointment at any time by giving a notice,  
signed by the appointer, to the referee.

(6) A referee may resign the referee's appointment  
at any time by giving a notice, signed by the  
referee, to the appointer.

(7) In this section—

**appointment notice** means—

(a) if the Minister gives the notice—a gazette  
notice; or

(b) if the chief executive gives the notice—a  
notice given to the person appointed as a referee.

#### **234 Referee with conflict of interest**

(1) This section applies if the chief executive informs  
a referee that the chief executive proposes to  
appoint the referee as a tribunal member, and  
either or both of the following apply—

(a) the tribunal is to hear a matter about  
premises—

(i) the referee owns; or

(ii) for which the referee was, is, or is to be,  
an architect, builder, drainer, engineer,  
planner, plumber, plumbing inspector,  
certifier, site evaluator or soil assessor; or

(iii) for which the referee has been, is, or will  
be, engaged by any party in the referee's  
capacity as an accountant, lawyer or other  
professional; or

(iv) situated or to be situated in the area of  
a local government of which the referee is  
an officer, employee or councillor;

(b) the referee has a direct or indirect personal  
interest in a matter to be considered by the  
tribunal, and the interest could conflict with the  
proper performance of the referee's functions for  
the tribunal's consideration of the matter.

(2) However, this section does not apply to a referee  
only because the referee previously acted in  
relation to the preparation of a relevant local  
planning instrument.

(3) The referee must notify the chief executive that  
this section applies to the referee, and on doing  
so, the chief executive must not appoint the  
referee to the tribunal.

(4) If a tribunal member is, or becomes, aware the  
member should not have been appointed to the  
tribunal, the member must not act, or continue to  
act, as a member of the tribunal.

#### **235 Establishing development tribunal**

(1) The chief executive may at any time establish a  
tribunal, consisting of up to 5 referees, for tribunal  
proceedings.

(2) The chief executive may appoint a referee for  
tribunal proceedings if the chief executive  
considers the referee has the qualifications or  
experience for the proceedings.

(3) The chief executive must appoint a referee as the  
chairperson for each tribunal.

(4) A regulation may specify the qualifications or  
experience required for particular proceedings.

(5) After a tribunal is established, the tribunal's  
membership must not be changed.

### **236 Remuneration**

*A tribunal member must be paid the remuneration the Governor in Council decides.*

### **237 Tribunal proceedings**

*(1) A tribunal must ensure all persons before the tribunal are afforded natural justice.*

*(2) A tribunal must make its decisions in a timely way.*

*(3) A tribunal may—*

*(a) conduct its business as the tribunal considers appropriate, subject to a regulation made for this section; and*

*(b) sit at the times and places the tribunal decides; and*

*(c) hear an appeal and application for a declaration together; and*

*(d) hear 2 or more appeals or applications for a declaration together.*

*(4) A regulation may provide for—*

*(a) the way in which a tribunal is to operate, including the qualifications of the chairperson of the tribunal for particular proceedings; or*

*(b) the required fee for tribunal proceedings.*

### **238 Registrar and other officers**

*(1) The chief executive may, by gazette notice, appoint—*

*(a) a registrar; and*

*(b) other officers (including persons who are public service officers) as the chief executive considers appropriate to help a tribunal perform its functions.*

*(2) A person may hold the appointment or assist concurrently with any other public service appointment that the person holds.*

## **Division 2 Applications for declarations**

### **239 Starting proceedings for declarations**

*(1) A person may start proceedings for a declaration by a tribunal by filing an application, in the approved form, with the registrar.*

*(2) The application must be accompanied by the required fee.*

### **240 Application for declaration about making of development application**

*(1) The following persons may start proceedings for a declaration about whether a development application is properly made—*

*(a) the applicant;*

*(b) the assessment manager.*

*(2) However, a person may not seek a declaration under this section about whether a development application is accompanied by the written consent of the owner of the premises to the application.*

*(3) The proceedings must be started by—*

*(a) the applicant within 20 business days after receiving notice from the assessment manager, under the development assessment rules, that the development application is not properly made; or*

*(b) the assessment manager within 10 business days after receiving the development application.*

*(4) The registrar must, within 10 business days after the proceedings start, give notice of the proceedings to the respondent as a party to the proceedings.*

*(5) In this section—*

**respondent means—**

*(a) if the applicant started the proceedings—the assessment manager; or*

*(b) if the assessment manager started the proceedings—the applicant.*

### **241 Application for declaration about change to development approval**

*(1) This section applies to a change application for a development approval if—*

*(a) the approval is for a material change of use of premises that involves the use of a classified building; and*

*(b) the responsible entity for the change application is not the P&E Court.*

*(2) The applicant, or responsible entity, for the change application may start proceedings for a*

declaration about whether the proposed change to the approval is a minor change.

- (3) The registrar must, within 10 business days after the proceedings start, give notice of the proceedings to the respondent as a party to the proceedings.

(4) In this section—

**respondent** means—

- (a) if the applicant started the proceedings—the responsible entity; or
- (b) if the responsible entity started the proceedings—the applicant.

### **Division 3 Tribunal proceedings for appeals and declarations**

#### **242 Action when proceedings start**

If a document starting tribunal proceedings is filed with the registrar within the period required under this Act, and is accompanied by the required fee, the chief executive must—

- (a) establish a tribunal for the proceedings; and
- (b) appoint 1 of the referees for the tribunal as the tribunal's chairperson, in the way required under a regulation; and
- (c) give notice of the establishment of the tribunal to each party to the proceedings.

#### **243 Chief executive excusing noncompliance**

(1) This section applies if—

- (a) the registrar receives a document purporting to start tribunal proceedings, accompanied by the required fee; and
- (b) the document does not comply with any requirement under this Act for validly starting the proceedings.

(2) The chief executive must consider the document and decide whether or not it is reasonable in the circumstances to excuse the noncompliance (because it would not cause substantial injustice in the proceedings, for example).

(3) If the chief executive decides not to excuse the noncompliance, the chief executive must give a notice stating that the document is of no effect,

because of the noncompliance, to the person who filed the document.

(4) The chief executive must give the notice within 10 business days after the document is given to the chief executive.

(5) If the chief executive does excuse the noncompliance, the chief executive may act under section 242 as if the noncompliance had not happened.

#### **244 Ending tribunal proceedings or establishing new tribunal**

(1) The chief executive may decide not to establish a tribunal when a document starting tribunal proceedings is filed, if the chief executive considers it is not reasonably practicable to establish a tribunal.

Examples of when it is not reasonably practicable to establish a tribunal—

- there are no qualified referees or insufficient qualified referees because of a conflict of interest
- the referees who are available will not be able to decide the proceedings in a timely way

(2) If the chief executive considers a tribunal established for tribunal proceedings—

(a) does not have the expertise to hear or decide the proceedings; or

(b) is not able to make a decision for proceedings (because of a tribunal member's conflict of interest, for example); the chief executive may decide to suspend the proceedings and establish another tribunal, complying with section 242(c), to hear or re-hear the proceedings.

(3) However, the chief executive may instead decide to end the proceedings if the chief executive considers it is not reasonably practicable to establish another tribunal to hear or re-hear the proceedings.

(4) If the chief executive makes a decision under subsection (1) or (3), the chief executive must give a decision notice about the decision to the parties to the proceedings.

(5) Any period for starting proceedings in the P&E Court, for the matter that is the subject of the tribunal proceedings, starts again when the chief

executive gives the decision notice to the party who started the proceedings.

- (6) The decision notice must state the effect of subsection (5).

#### **245 Refunding fees**

The chief executive may, but need not, refund all or part of the fee paid to start proceedings if the chief executive decides under section 244—

- (a) not to establish a tribunal; or
- (b) to end the proceedings.

#### **246 Further material for tribunal proceedings**

- (1) The registrar may, at any time, ask a person to give the registrar any information that the registrar reasonably requires for the proceedings.

Examples of information that the registrar may require—

- material about the proceedings (plans, for example)
- information to help the chief executive decide whether to excuse noncompliance under section 243
- for a deemed refusal—a statement of the reasons why the entity responsible for deciding the application had not decided the application during the period for deciding the application.

- (2) The person must give the information to the registrar within 10 business days after the registrar asks for the information.

#### **247 Representation of Minister if State interest involved**

If, before tribunal proceedings are decided, the Minister decides the proceedings involve a State interest, the Minister may be represented in the proceedings.

#### **248 Representation of parties at hearing**

A party to tribunal proceedings may appear—

- (a) in person; or
- (b) by an agent who is not a lawyer.

#### **249 Conduct of tribunal proceedings**

- (1) Subject to section 237, the chairperson of a tribunal must decide how tribunal proceedings are to be conducted.

- (2) The tribunal may decide the proceedings on submissions if the parties agree.

- (3) If the proceedings are to be decided on submissions, the tribunal must give all parties a notice asking for the submissions to be made to the tribunal within a stated reasonable period.

- (4) Otherwise, the tribunal must give notice of the time and place of the hearing to all parties.

- (5) The tribunal may decide the proceedings without a party's submission (written or oral) if—

- (a) for proceedings to be decided on submissions—the party's submission is not received within the time stated in the notice given under subsection (3); or

- (b) for proceedings to be decided by hearing—the person, or the person's agent, does not appear at the hearing.

- (6) When hearing proceedings, the tribunal—

- (a) need not proceed in a formal way; and

- (b) is not bound by the rules of evidence; and

- (c) may inform itself in the way it considers appropriate; and

- (d) may seek the views of any person; and

- (e) must ensure all persons appearing before the tribunal have a reasonable opportunity to be heard; and

- (f) may prohibit or regulate questioning in the hearing.

- (7) If, because of the time available for the proceedings, a person does not have an opportunity to be heard, or fully heard, the person may make a submission to the tribunal.

#### **250 Tribunal directions or orders**

A tribunal may, at any time during tribunal proceedings, make any direction or order that the tribunal considers appropriate.

Examples of directions—



- a direction to an applicant about how to make their development application comply with this Act
- a direction to an assessment manager to assess a development application, even though the referral agency's response to the assessment manager was to refuse the application

#### **251 Matters tribunal may consider**

- (1) This section applies to tribunal proceedings about—
  - (a) a development application or change application; or
  - (b) an application or request (however called) under the Building Act or the Plumbing and Drainage Act.
- (2) The tribunal must decide the proceedings based on the laws in effect when—
  - (a) the application or request was properly made; or
  - (b) if the application or request was not required to be properly made—the application or request was made.
- (3) However, the tribunal may give the weight that the tribunal considers appropriate, in the circumstances, to any new laws.

#### **252 Deciding no jurisdiction for tribunal proceedings**

- (1) A tribunal may decide that the tribunal has no jurisdiction for tribunal proceedings, at any time before the proceedings are decided—
  - (a) on the tribunal's initiative; or
  - (b) on the application of a party.
- (2) If the tribunal decides that the tribunal has no jurisdiction, the tribunal must give a decision notice about the decision to all parties to the proceedings.
- (3) Any period for starting proceedings in the P&E Court, for the matter that is the subject of the tribunal proceedings, starts again when the tribunal gives the decision notice to the party who started the proceedings.

- (4) The decision notice must state the effect of subsection (3).
- (5) If the tribunal decides to end the proceedings, the fee paid to start the proceedings is not refundable.

#### **253 Conduct of appeals**

- (1) This section applies to an appeal to a tribunal.
- (2) Generally, the appellant must establish the appeal should be upheld.
- (3) However, for an appeal by the recipient of an enforcement notice, the enforcement authority that gave the notice must establish the appeal should be dismissed.
- (4) The tribunal must hear and decide the appeal by way of a reconsideration of the evidence that was before the person who made the decision appealed against.
- (5) However, the tribunal may, but need not, consider—
  - (a) other evidence presented by a party to the appeal with leave of the tribunal; or
  - (b) any information provided under section 246.

#### **254 Deciding appeals to tribunal**

- (1) This section applies to an appeal to a tribunal against a decision.
- (2) The tribunal must decide the appeal by—
  - (a) confirming the decision; or
  - (b) changing the decision; or
  - (c) replacing the decision with another decision; or
  - (d) setting the decision aside, and ordering the person who made the decision to remake the decision by a stated time; or
  - (e) for a deemed refusal of an application—
    - (i) ordering the entity responsible for deciding the application to decide the application by a stated time and, if the entity does not comply with the order, deciding the application; or
    - (ii) deciding the application.

(3) However, the tribunal must not make a change, other than a minor change, to a development application.

(4) The tribunal's decision takes the place of the decision appealed against.

(5) The tribunal's decision starts to have effect—  
(a) if a party does not appeal the decision—at the end of the appeal period for the decision; or  
(b) if a party appeals against the decision to the P&E Court—subject to the decision of the court, when the appeal ends.

#### **255 Notice of tribunal's decision**

A tribunal must give a decision notice about the tribunal's decision for tribunal proceedings, other than for any directions or interim orders given by the tribunal, to all parties to proceedings.

#### **256 No costs orders**

A tribunal must not make any order as to costs.

#### **257 Recipient's notice of compliance with direction or order**

If a tribunal directs or orders a party to do something, the party must notify the registrar when the thing is done.

#### **258 Tribunal may extend period to take action**

(1) This section applies if, under this chapter, an action for tribunal proceedings must be taken within a stated period or before a stated time, even if the period has ended or the time has passed.

(2) The tribunal may allow a longer period or a different time to take the action if the tribunal considers there are sufficient grounds for the extension.

#### **259 Publication of tribunal decisions**

The registrar must publish tribunal decisions under the arrangements, and in the way, that the chief executive decides.

### **Schedule 1 Appeals**

#### **section 229**

#### **Appeal rights and parties to appeals**

(1) Table 1 states the matters that may be appealed to—

- (a) the P&E court; or
- (b) a tribunal.

(2) However, table 1 applies to a tribunal only if the matter involves—

(a) the refusal, or deemed refusal of a development application, for—

- (i) a material change of use for a classified building; or
- (ii) operational work associated with building work, a retaining wall, or a tennis court; or

(b) a provision of a development approval for—

- (i) a material change of use for a classified building; or
- (ii) operational work associated with building work, a retaining wall, or a tennis court; or

(c) if a development permit was applied for—the decision to give a preliminary approval for—

- (i) a material change of use for a classified building; or
- (ii) operational work associated with building work, a retaining wall, or a tennis court; or

(d) a development condition if—

- (i) the development approval is only for a material change of use that involves the use of a building classified under the Building Code as a class 2 building; and
- (ii) the building is, or is proposed to be, not more than 3 storeys; and
- (iii) the proposed development is for not more than 60 sole-occupancy units; or

(e) a decision for, or a deemed refusal of, an extension application for a development approval that is only for a material change of use of a classified building; or

(f) a decision for, or a deemed refusal of, a change

application for a development approval that is only for a material change of use of a classified building; or

(g) a matter under this Act, to the extent the matter relates to the Building Act, other than a matter under that Act that may or must be decided by the Queensland Building and Construction Commission; or

(h) a decision to give an enforcement notice—

(i) in relation to a matter under paragraphs (a) to (g); or

(ii) under the Plumbing and Drainage Act; or

(i) an infrastructure charges notice; or

(j) the refusal, or deemed refusal, of a conversion application; or

(l) a matter prescribed by regulation.

(3) Also, table 1 does not apply to a tribunal if the matter involves—

(a) for a matter in subsection (2)(a) to (d)—

(i) a development approval for which the development application required impact assessment; and

(ii) a development approval in relation to which the assessment manager received a properly made submission for the development application; or

(b) a provision of a development approval about the identification or inclusion, under a variation approval, of a matter for the development.

(4) Table 2 states the matters that may be appealed only to the P&E Court.

(5) Table 3 states the matters that may be appealed only to the tribunal.

(6) In each table—

(a) column 1 states the appellant in the appeal; and

(b) column 2 states the respondent in the appeal; and

(c) column 3 states the co-respondent (if any) in the appeal; and

(d) column 4 states the co-respondents by election (if any) in the appeal.

(7) If the chief executive receives a notice of appeal under section 230(3)(f), the chief executive may elect to be a co-respondent in the appeal.

(8) In this section—

**storey** see the Building Code, part A1.1.

**Table 1**

**Appeals to the P&E Court and, for certain matters, to a tribunal**

**1. Development applications**

For a development application other than a development application called in by the

Minister, an appeal may be made against—

(a) the refusal of all or part of the development application; or

(b) the deemed refusal of the development application; or

(c) a provision of the development approval; or

(d) if a development permit was applied for—the decision to give a preliminary approval.

**EXTRACT FROM THE *PLANNING ACT 2016*  
RELATING TO LAPSE DATES**

***Division 4 Lapsing of and extending  
development approvals***

***85 Lapsing of approval at end of current period***

*(1) A part of a development approval lapses at the end of the following period (the **currency period**)—*

*(a) for any part of the development approval relating to a material change of use—if the first change of use does not happen within—*

*(i) the period stated for that part of the approval; or*

*(ii) if no period is stated—6 years after the approval starts to have effect;*

*(b) for any part of the development approval relating to reconfiguring a lot—if a plan for the reconfiguration that, under the Land Title Act, is required to be given to a local government for approval is not given to the local government within—*

*(i) the period stated for that part of the approval; or*

*(ii) if no period is stated—4 years after the approval starts to have effect;*

*(c) for any other part of the development approval if the development does not substantially start within—*

*(i) the period stated for that part of the approval; or*

*(ii) if no period is stated—2 years after the approval starts to take effect.*

*(2) If part of a development approval lapses, any monetary security given for that part of the approval must be released.*