

Mount Emerald Wind Farm Draft Environmental Impact Statement Public Notification Period

RATCH-AUSTRALIA CORPORATION LIMITED

Technical Note 3: MEWF Draft EIS - response to traffic- and transport-related public submissions

Submissions S006, S012, S017, S019, S023 | Rev 1

MEWF Draft EIS: traffic and transport response to submissions

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Executive Summary

This technical note responds to traffic- and transport-related queries received during the draft Environmental Impact Statement (EIS) public notification period for the Mount Emerald Wind Farm (MEWF) project. Traffic- and transport-related queries are addressed in response to Submissions S006, S012, S017, S019, and S023 (47 queries in total).

The sole purpose of this report and the associated services performed by Jacobs is to respond to an information request as part of the public notification period for the assessment of the MEWF Project as proposed by RATCH-Australia Corporation Limited in accordance with the scope of services set out in the contract between Jacobs and the Client (RATCH-Australia Corporation Limited). That scope of services, as described in this report, was developed with the Client.

In preparing this report, Jacobs has relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided by the Client and/or from other sources. Except as otherwise stated in the report, Jacobs has not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

Jacobs derived the data in this report from information sourced from the Client and/or available in the public domain at the time or times outlined in this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination of the project and subsequent data analysis, and re-evaluation of the data, findings, observations, and conclusions expressed in this report. Jacobs has prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations, and findings expressed in this report, to the extent permitted by law.

This report includes references to a number of documents which should be read in conjunction with this report. Referenced documents are listed adjacent to submission query responses within this report.

No excerpts are to be taken as representative of the findings. No responsibility is accepted by Jacobs for use of any part of this report in any other context.

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1. Introduction

1.1 Purpose of this Document

Jacobs Group (Australia) Pty Ltd (Jacobs) has been commissioned by RATCH-Australia Corporation Ltd (RATCH-Australia) to provide a technical response to a further round of information requests submitted during the draft Environmental Impact Statement (EIS) public notification period. The purpose of this report is to provide engineering input to the public's queries regarding the impact of traffic- and transport-related issues generated by the proposed MEWF project (Submissions S006, S012, S017, S019, and S023, raising 47 issues in total).

1.2 Background and Current Situation

The proposed project is situated on the Atherton Tableland within the jurisdiction of Tablelands Regional Council (TRC) and is located approximately 50 kilometres south-west of Cairns in Far North Queensland. More specifically, the site is 18 kilometres south of the township of Mareeba, 15 kilometres north of Atherton, and 6 kilometres south-west of Walkamin.

The major road adjacent to the proposed site is the Kennedy Highway, which runs in a north-south direction between Mareeba and Atherton. This road forms part of the planned route for the transport of the wind tower components from their delivery location. This State-Controlled road is a two lane, two-way, sealed road with sealed shoulders, unsealed verges, and is a gazetted 23 to 25-metre B-double route.

From the Kennedy Highway at Walkamin, the recommended (and most viable) route to the proposed MEWF site is via Hansen Road and Springmount Road, and direct access to the site is off Kippen Drive. All of these roads are locally controlled by Tablelands Regional Council and are generally two lane, two-way, sealed roads with unsealed shoulders and verges. Kippen Drive, however, is an unbound gravel road/track.

Based on information received from RATCH-Australia, a maximum of 75 wind turbines are planned for construction. Previous MEWF proposals have made reference to tourist viewing facilities. However, the current Development Application for the project states, "No specific visitor information centre or other viewing platforms are proposed as part of this current development application." Should any viewing facilities be required, they would be subject to their own development application, supporting studies, and assessments.

Jacobs (previously Sinclair Knight Merz) provided technical assistance with the Mount Emerald Wind Farm Traffic Impact Assessment (TIA), dated 8 August 2011. Following this, TRC requested further information. This was provided as Technical Note 1: Mount Emerald Wind Farm Traffic Impact Assessment Engineering Responses, dated 19 December 2012. The proposed MEWF project was also called-in by the State Government for assessment. A response to a request for information was provided as Technical Note 2: Traffic Impact Assessment Engineering Responses, dated 29 August 2014. As a part of the draft EIS public notification period, additional queries were submitted by the public. The following sections address traffic- and transport-related queries regarding the potential impact of the proposed MEWF project.

2. Response to submissions received during the draft EIS public notification period

No.	ID	Issue	Response to Submissions	References not included in Technical Note 3
<u>Socio-Economic Impacts</u>				
1	S017	The Traffic Impact Assessment needs to assess the impacts (i.e. the potential positive and negative short term outcomes and long term impacts to the social, economic, and natural environment).	Response to be provided following completion of socio economic assessment by Jacobs.	Addressed by a separate socio-economic scope of works by Jacobs (Jacobs project reference no. QE06742)
<u>Traffic Management</u>				
2	S023	Ultimately, a traffic management plan will be appreciated detailing the strategies Ratch is to put in place to reduce the impact of its slow moving traffic.	<p>The following techniques will be implemented to reduce the impact of slow moving traffic on the local and wider road network during the construction, operation, and decommissioning phases as per the draft EIS:</p> <ul style="list-style-type: none"> Assessment of the condition of existing pavements to ascertain the need and extent of pavement upgrade or construction works required. Road and intersection conditions will be established by the use of field surveys and regular site inspections. When required, rehabilitation of the pavement and/or edges of seal, shoulders and verges will be carried out. At the completion of the works the access roads will be in the same or superior condition than at the commencement of the works. Procedures will be established to monitor traffic impacts on public and internal access tracks during construction, including noise, dust, and travel times, and to implement modified work methods to reduce such impacts where possible. No oversize or large trucks associated with the construction would operate on the Kennedy Highway during school bus/zone hours. Regular road dilapidation surveys will be completed during construction. The mitigation measures incorporated for the construction phase of the development should adequately cover any future operations requirements. A procedure will be established to ensure the ongoing maintenance of access roads during the operation phase. <p>Following the engagement of an Engineering, Procurement, and Construction (EPC) Contractor/Turbine Supplier, the Contractor/Supplier will be required to complete a Traffic Management Plan as required under Transport and Main Roads Specifications, MRTS02 Provision for Traffic.</p>	<p>Refer to draft EIS, Volume 1, Section 9.4 & 9.5 (Mitigation Measures)</p> <p>Transport and Main Roads Specifications, MRTS02 Provision for Traffic</p>

No.	ID	Issue	Response to Submissions	References not included in Technical Note 3
Public Roads - Repairs				
3	S006	Resource Requirements does not highlight the damage to public roads that would inevitably result from the transportation of these gargantuan construction materials and heavy machinery. There is no assurance that the dusts and other harmful airborne particulate pollutants generated could be adequately managed so as not to endanger nearby residences.	<p>A number of mitigation procedures will be implemented to assess any damage to public roads as per the draft EIS including:</p> <ul style="list-style-type: none"> Assessment of the condition of existing pavements to ascertain the need and extent of pavement upgrade or construction works required. Road and intersection conditions will be established by the use of field surveys and regular site inspections. When required, rehabilitation of the pavement and/or edges of seal, shoulders and verges will be carried out. At the completion of the works the access roads will be in the same or superior condition than at the commencement of the works. Regular road dilapidation surveys will be completed during construction. <p>The following mitigation measures are listed in the draft EIS to reduce erosion and dust emissions during the Construction and Operation phases.</p> <p>For access tracks:</p> <ul style="list-style-type: none"> Minimisation of daily vehicle movements. Provision of armouring (gravel). Employment of a water truck during construction. Dust suppression additives. <p>For tower sites:</p> <ul style="list-style-type: none"> Use of wind breaks (natural tree-line, erosion fences). Seeding with fast growing non-invasive sterile annual grass species and low growing shrubs. Armouring (hydromulching, gravel). Watering. <p>The Preliminary Environmental Management Plan (Appendix 33 of the draft EIS), Sections 4.6 and 6.6, list performance objectives, management strategies, performance indicators; and procedures for monitoring, reporting, and taking corrective action in the management of Air Emissions during the Construction and Decommissioning phases.</p>	<p>Refer to draft EIS, Volume 1, Section 9.4 (Mitigation Measures)</p> <p>Refer to draft EIS, Volume 2, Section 12.2 (Air Quality)</p> <p>Refer to Preliminary Environmental Management Plan (Appendix 33, EIS) Sections 4.6 & 6.6 (Air Emissions)</p>

No.	ID	Issue	Response to Submissions	References not included in Technical Note 3
4	S017	Will the proponent commit to repair all damage to roads, both local and state? The project site is classified as “primary production” by the local council and there would be no increase in general rates as a result of the construction of the wind farm which would help offset increased council costs.	<p>The Department of State Development Infrastructure and Planning may impose conditions in the Development Approval for over-dimensional vehicles, if they see fit, which stipulate payment for accelerated road wear.</p> <p>Following approval, conditions of operation may be imposed by the Department of Transport and Main Roads, if deemed appropriate, to reduce the risk of potentially damage to road infrastructure or to improve safety for road users. Excess mass and dimension approvals will be required for over-dimensional vehicles under the <i>Transport Operations (Road Use Management—Mass, Dimensions and Loading) Regulation 2005</i>. A permit will be required from the chief executive or commissioner for the safe movement of vehicles, which will stipulate the condition of operations.</p>	Transport Operations (Road Use Management—Mass, Dimensions and Loading) Regulation 2005
5	S006	The assurance that there would be "safe and efficient functioning of the surrounding road network" arising from this extremely damaging transportation haulage for this gigantic industrial project is an empty promise. RACL must bear full costs and responsibility for road repairs. Our rural roads must be protected by not allowing this IWT project to proceed.		
6	S006	Traffic and Transport makes no reference to the very costly deterioration of road network that would result from the heavy traffic of very damaging massive loads transported. This must be taken into account as another of the many ills that this IWT project inflicts for which RACL must bear full responsibility.		
7	S012	Regional road impact and increased repair costs – who covers the ongoing repair bills?		
8	S019	The Cummings Report and the draft EIS do not appear to address the cost of damage to local road networks. Moyne Council in Victoria estimates that construction of a wind farm caused damages of \$14 million to its local roads, but the wind farm company has offered only \$1 million in compensation. The final EIS should clearly state what arrangements will be put in place to pay for road damage, both for local and state owned roads.		
9	S023	How much money and whose responsibility is it to maintain the road system? Moyne Council estimates that the building of the local wind farm caused damages of \$14 million to the local roads. However the wind farm company has only offered \$1 million.		

No.	ID	Issue	Response to Submissions	References not included in Technical Note 3
<u>Transport Route to Site</u>				
10	S017	The traffic impact of transporting turbines and associated material to MEWF via Palmerston Highway or inland route and via Atherton Tablelands needs to be assessed.	<p>Wind farm turbines and associated material will be transported from the port of Cairns to the proposed MEWF site via two routes identified within Technical Note 2 (<i>Traffic Impact Assessment Engineering Responses, 2014</i>) under the response to Question 23. The two identified routes use Palmerston Highway and Kennedy Highway (Cairns - Mareeba), and vehicle types will be dependent on permissible vehicle configurations. To reduce the impact to the public, transportation of turbine components will be under traffic control, and may require minor road works to remove and reinstate existing road furniture at intersections and through townships. Locations that may require such measures were identified within the response to Technical Note 2, Question 23. This has been included for information in Appendix A of this report, and the transport route maps (issued as Appendix A of the 2014 technical report) are included in Appendix B.</p> <p>In order to reduce the traffic impact and improve public safety, the EPC Contractor/Turbine Supplier engaged to transport the wind farm components will be required to meet the following requirements:</p> <ul style="list-style-type: none"> Vehicles travelling with a width in excess of 4.6m require a Letter of No Objection issued by a Main Roads permit management office. The Guideline for Excess Dimension, Form No. 4 (available from the Department of Transport and Main Roads Website: www.tmr.qld.gov.au) states that vehicles will require escorts as per the Critical Area Map (refer to Appendix C). Routes traversed will be both Type A (1 police, 2 escorts) and Type B (3 escorts). Note that additional permits may be required for the transportation of wind turbine blades as vehicle length exceeds those listed in the Guideline for Excess Dimension. Conditions of operation may be imposed by the Department of Transport and Main Roads, if deemed appropriate, to reduce the risk of damage to road infrastructure or to improve safety for road users. As per the <i>Transport Operations (Road Use Management—Mass, Dimensions and Loading) Regulation 2005</i>, a permit will be required from the chief executive or commissioner for the safe movement of vehicles, which may stipulate: <ul style="list-style-type: none"> (a) the roads on which a vehicle or type of vehicle may be driven; (b) the maximum permissible dimensions of the vehicle together with any load; (c) the maximum permissible mass of the vehicle (d) any permissible or requisite modifications to the vehicle; (e) the times when the vehicle may be driven; (f) signs and warning devices to be displayed on the vehicle; (g) when the vehicle must travel with a pilot vehicle or escort vehicle; (h) requirements for pilot vehicles and pilot vehicle drivers, and escort vehicles and escort vehicle drivers; (i) the maximum speeds at which the vehicle may be driven; (j) other matters relevant to the safe movement of the vehicle 	<p>http://www.tmr.qld.gov.au/business-industry/Heavy-vehicles/Excess-mass-and-dimensions/Excess-mass-and-dimension-operations.aspx</p> <p>Guideline for Excess Dimension, Form No. 4 (Version 8) (www.tmr.qld.gov.au)</p> <p>Transport Operations (Road Use Management—Mass, Dimensions and Loading) Regulation 2005</p>

No.	ID	Issue	Response to Submissions	References not included in Technical Note 3
11	S019	The proponents state that “once more detail is known about the exact type of transport vehicles and routing, more detailed swept path analysis would be undertaken along the truck route.” Throughout the draft EIS, the proponents are promising further detailed surveys following the approval of their proposal, in order to establish or refine further mitigation measures. The proponents have had years to work on these details. If the details are not included in the draft EIS, it is because the proponents don't want the community and local industries to know the true scale of the traffic impacts. Once again, the draft EIS has failed to provide the required detail specified in the Guidelines. These details should be made publicly available and provided in the final EIS in order for the Minister to make an informed decision.	<p>A swept path analysis of the intersections listed in Table 2-2 and Table 2-3 of Appendix A of this report were modelled to identify potential works and further investigations which may be required. The swept paths of a 53.0-metre semitrailer used to transport rotor blades, and a 19.0-metre semitrailer to transport smaller components, were modelled at the relevant intersections and have been included in Appendix D of this report. Typical requirements at these locations may include, but are not limited to, the following (refer to response to Question 23 under Appendix A for a detailed list of requirements):</p> <ul style="list-style-type: none"> • Traffic control • Removal and re-erection of road signage • Removal and reinstatement of kerbs and traffic islands • Shoulder widening • Confirmation of clearance to overhead power lines • Confirmation of clearance to railway crossing signals • Confirmation of clearance to traffic signal mast arms <p>Please note that following the engagement of the EPC Contractor/Turbine Supplier to transport equipment, additional horizontal and vertical geometry checks may be required to confirm the suitability of specific vehicles.</p>	
12	S023	How to get blades through rural towns? No attention has been paid to the ability to get long loads through the rural towns of Malanda, Kairi, Tolga, or Walkamin.	<p>The two routes identified for transporting wind farm components are listed in Appendix A and B as a part of the response to Question 23 under Technical Note 2 (<i>Traffic Impact Assessment Engineering Responses, 2014</i>). Vehicle turn movements (a swept path analysis) have been modelled through intersections and towns, and are included in Appendix D. Local residents will be made aware of planned vehicle movements prior to commencement via various forms of media and notifications. Mitigation measures, which will be implemented when transporting rotor blades through or past the following towns, are listed below:</p> <ul style="list-style-type: none"> • Malanda - Vehicles will travel through Malanda via Millaa Millaa - Malanda Road (Patrick Street) and Malanda - Atherton Road (James Street). Over-dimensional vehicles will navigate this intersection under traffic control and will be travelling under the required escort for the entirety of this route to minimise disturbance to the public and to improve safety for road users and pedestrians. • Atherton - Atherton will be bypassed as per the route identified in Appendix A where vehicles will turn onto Marks Lane and travel along Tinaroo Falls Dam Road/Kairi Road. • Kairi – Over-dimensional vehicles will not need to travel through the township of Kairi as they will use Tinaroo Falls Dam Rd and Kairi Road. Shoulder widening within the road reserve may be required to successfully complete the turn at the intersection of these two roads. Over-dimensional vehicles will navigate this intersection under traffic control and will be travelling under the required escort for the entirety of this route to minimise disturbance to and to improve safety of the public while travelling through the town. • Tolga - Vehicles will bypass Tolga via Lawson Street when travelling from Cairns to the proposed MEWF site. When travelling from the proposed MEWF site to Cairns, it is recommended that vehicles travel on Lawson Street instead of through Tolga, to minimise disturbance to the public. Over-dimensional vehicles will navigate the Kennedy Highway/Lawson Street and Lawson Street/Kairi Road intersections under traffic control and will be travelling under the required escort for the entirety of this route to minimise disturbance and to improve public safety. • Walkamin – Over-dimensional vehicles will travel past Walkamin via the Kennedy Highway under escort to minimise disturbance and to improve public safety. As vehicles are not required to turn through any intersections at this location, disruption to the public will be minimal. Traffic control will be implemented at the Hansen Road/Kennedy Highway intersection north of Walkamin to minimise disturbance and improve public safety. 	

No.	ID	Issue	Response to Submissions	References not included in Technical Note 3
13	S023	There has been no discussion on how many large loads will occupy the road at any one time, causing delays. Will the huge vehicles be travelling in convoy, if so, how many and what length of delays can be expected? Or do they travel singularly causing shorter and more frequent local traffic delays?	<p>A proposed transportation schedule, detailing the number of vehicles, travel times, and proposed routes, will be made available following the engagement of the EPC Contractor/Turbine Supplier.</p> <p>The EPC Contractor/Turbine Supplier will be required to follow the permits and requirements that were identified in Response No. 10 (S017) of this report for the safe movement of vehicles. These requirements may stipulate the times vehicles are permitted to travel the route. The nominated EPC Contractor/Turbine Supplier will be responsible for preparing a Traffic Management Plan (TMP) detailing this information.</p> <p>Local residents will be made aware of planned vehicle movements prior to commencement via various forms of media and notifications.</p>	

No.	ID	Issue	Response to Submissions	References not included in Technical Note 3
Traffic Data				
14	S017	Traffic data used in draft EIS is over 5 years old and more up to date data is required.	Refer to Response No. 20.	
15	S017	Averages and assumptions used to predict traffic generation and distribution do not adequately describe the impact in reality, e.g. number of heavy vehicles per day will change over the construction period. Diluting traffic impacts by averaging does not correctly inform the community of potential peak impacts. The local route needs to be clearly identified. Provide details as above and update the Traffic Impact Assessment.	Identified routes for the transportation of turbine components are listed in Appendix A and B of this report. Updates to the traffic volume data are listed in Response No. 20 and 21-23.	
16	S019	The Traffic Management Plan is based on outdated road traffic data that bears no resemblance to the state of play in 2014: Howe Farming has expanded and now carries over 130 cars and buses and eight trucks per day; Mount Uncle has entered corporate farming with Costa and expanded to 40 vehicles plus two trucks per day; Lotus Glen Correctional Centre has had a \$450 million upgrade and generates 282 vehicles and six trucks per day; The Sugar Mill has been sold to Thailand interests and has expanded to attract ten cars and 180 trucks per day; four new banana farms have been recently developed on Hansen and Channel Roads attracting another 65 staff vehicles; Dole Australia was sold to Itoshu Japan in 2012 and now processes bananas and pineapples between Hansen and Channel Road with further increases in vehicle, tractor and heavy truck traffic. With these developments, traffic has increased considerably, even developing "rush hours" as workers travel to and from their employment between 6-8am and 3-5pm. The proponents estimate there are 173 vehicles during peak hours, but by counting vehicles in car parks we estimate the figure is closer to 580 vehicles. Local agri-businesses farm more than one property and there are often tractors and other heavy, slow-moving farm equipment on local roads as they move between their farms. These businesses and our community will be impacted by substantial traffic increases and delays due to the wind farm construction.	<p>The traffic count of 582 vehicles was derived as per Figure 1 of S023.</p> <p>Figure 1 includes traffic counts from a variety of intersections (Hansen/Channel Road, Hansen/Chewko Road, Springmount Road/Kippen Drive, and Springmount Road/Chettle Road) and vehicles travelling on Hansen/Springmount Road and Channel Road. This count is relevant to the peak traffic timeframe of 6:00am to 8:00am and 3:00pm to 7:00pm (a total of 6 hours). Figure 1 notes this count in the units of "cars per day".</p> <p>The peak hour traffic calculation of 173 vehicles listed in the draft EIS is not comparable to the value given by S023, as 173 vehicles is the traffic count on Hansen Road at the Chewko Road intersection only, and is a peak estimate for one hour.</p>	Refer to Figure 1, SI023
17	S017	Traffic during operation due to tourist vehicles (100 vpd) is dependent on location of viewing site which has not been provided.	<p>At this time, tourist viewing facilities are not considered part of the wind farm proposal.</p> <p>The Development Application for the project states, "<i>No specific visitor information centre or other viewing platforms are proposed as part of this current development application.</i>"</p> <p>References to viewing facilities and tourist vehicles have been made in regard to previous wind farm approvals, which have included conditions requiring facilities to be built. Should any viewing facilities be required, they would be subject to their own development application, supporting studies, and assessments.</p> <p>Inclusion of an estimate for tourist vehicles has been made on a conservative basis to understand cumulative impacts of the proposal.</p>	
18	S019	The Traffic Impact Assessment is mainly concerned with the movement of turbine components, and does not adequately detail the finalized route. It does not detail the traffic and road impacts during the 12-month Pre-construction Phase when internal roads (including Kippin Drive) will be substantially upgraded. The draft EIS states that "external sourcing of materials for the road base and the tower foundation will be done in the first six months, so there will be increased activities in the first six months during the construction period." This intensive use is not separated from the rest of the two-year construction period, and it is not explained when this work will be undertaken and how it will affect local industries and other road users. The use of Annual Average Daily Traffic figures hides the potential impacts of Pre-construction and Construction phases. The Traffic Impact Assessment does not properly explain the routes that will be used by other construction traffic, such as quarry materials. These details should be made publicly available immediately in order for our community to properly understand and comment on the potential noise, dust, and traffic impacts on social, economic, and environmental matters.	<p>Identified routes for the transportation of turbine components are listed in Appendix A and B of this report.</p> <p>As stated in the draft EIS, there will be increased activities in the first six months of the Construction Period. Estimates of traffic volumes during the Construction Phase are based on the assumption that most heavy-vehicle movements will be sourcing materials for the road base, used in roadworks, or for construction of tower foundations during the first six months. Fewer heavy vehicle movements are required during months 7 to 24 of the Construction Phase as these will predominantly be involved in the assembly of tower components. Light-vehicle numbers are assumed to be consistent across the entire two-year Construction period. Table 9.1 (<i>Vehicle Movements expected during the 2-year construction and wind tower installation period</i>) from the draft EIS has been amended to clarify this data, and is included as Appendix E.</p> <p>The draft EIS states that materials will be sourced from operating quarries in the area, with preference given to sources in close proximity of the site to reduce transport costs and traffic impact. These may include but are not limited to the following quarries in the Tablelands Region: Paddy's Green Pit, Tableland Sand, Tichum Creek Quarry, Walsh River Quarry, and Wongabel Quarry.</p>	

No.	ID	Issue	Response to Submissions	References not included in Technical Note 3
19	S023	<p>Local Road Users The Figure1 below identifies the road users on Hansen, Chewko, Channel, Springmount, Kippin Drive, and Chettle Roads.</p> <p>Apart from their school bus disclosure, no mitigating strategies are apparent in the Ratch/SKM reports to allow a total of 582 cars per day between the hours of 6am and 8am and 3pm and 7pm to travel through the identified bottle necks of Hansen, Chewko, Channel, and Springmount Roads unhindered. Most of these workers are essentials service workers and need to be at their workplace at a set time each morning. Farmers will object if their staff are held up, arriving late to commence the day, especially as vehicles leave for the paddocks and workers must be on board. This figure is a very conservative estimate and is arrived at by counting the number of cars in the car parks. It does not include the workers who are dropped off and collected in the afternoon. It also does not include the workers travelling through Hansen and Channel Roads going to and from their place of employment.</p> <p>Our figure of 582 is very different to the 173 peak hour vehicles that SKM and Ratch projected for Hansen Road during the construction period. Will they be reviewing their estimates?</p>	<p>The following management and mitigation measures will be implemented to reduce the impact of slow moving traffic on the local and wider road network during the Construction and Decommissioning Phases as per the draft EIS:</p> <ul style="list-style-type: none"> Establishment and implementation of procedures to monitor traffic impacts on public and internal access tracks during construction, including noise, dust, and travel times, and to implement modified work methods to reduce such impacts where possible. No oversize or large trucks associated with the construction would operate on the Kennedy Highway during the school bus/zone hours <p>A comparison of the 582 cars per day derived from Figure 1 (S023) and the 173 vehicle estimate for peak hour at the Chewko/Hansen Road intersection has been completed as a part of response No. 16 of this report.</p>	Refer to draft EIS, Volume 1, Section 9.4 (Mitigation Measures)
20	S023	<p>Ratch/SKM assumptions are based on 6 year old figures that do not in reality reflect the state of play in 2014. Their 3% per annum rise was exceeded by another 5% in 2012 and 2013 and may plateau or continue rising beyond 8% depending on further development in the area.</p>	<p>Estimates for the Hansen Road/Chewko Road and the Kennedy Highway/Hansen Road intersections are based on 2008 and 2010 data, respectively, with the application of a known growth rate (3% per annum). More recent data (count year 2013) for the Kennedy Highway at the Hansen Road intersection has been obtained and has been included in Appendix G. The applicable road section is from chainage 0 to chainage 25.49km. The data details the following observed growth rates:</p> <p>1 Year Growth Rate (2012 – 2013): -1.92% 5 Year Growth Rate (2008 – 2013): 1.82% 10 Year Growth Rate (2003 – 2013): 2.36%</p> <p>This data shows that the assumed growth rate of 3% per annum is a conservative estimate and has been applied to the more recent 2013 data to calculate the design/construction year traffic volumes as shown below:</p> <p>Road: Kennedy Highway Location: Hansen Road Intersection Count Year: 2013 AADT (vpd): 5324 Peak Hour (vph): 638 Heavy Vehicles (%): 11.9 Construction Year AADT (2016): 5818 Construction Year Peak Hour (vph, 2016): 698 Previous Design Year AADT (2022): 6947 Previous Design Year Peak Hour (vph, 2022): 834 Current Design Year AADT (2026): 7818 Current Design Year Peak Hour (vph, 2026): 938</p> <p>Note that design year traffic volumes have been calculated by applying a growth rate of 3% per annum and peak hour has been assumed to be 12% of AADT volume. The assumed construction year is 2016.</p>	Refer to draft EIS, Volume 1, Section 9.2 (Impact Assessment)

No.	ID	Issue	Response to Submissions	References not included in Technical Note 3
21	S023	Below the first column of Designer Year, 7,398, in the same column of construction period, we have an Increased AADT, 5,749. An optical illusion to impress that there will be 1,649 vehicles LESS per day during construction. SKM should be held to task for trying to manipulate the results with the mock year of 2022. We can discount their projections.	The figures referenced in the draft EIS state that 7,398 vehicles per day is the AADT volume for the design year (2022) for the Kennedy Highway at the Hansen Road intersection. This is based on a 3% increase per year from the count year (2008) figure of 4,891 vehicles per day. The construction year AADT volume of 5,749 is for the construction year (2012). It is based on a 3% increase per year from the count year (2008) to an AADT of 5,670 vehicles per day in 2012. 79 average trips-per-day is then added to reach a total of 5,749 vpd. The two figures 7,398 vpd and 5,749 vehicles per day do not match as they are from different design/construction years (2012 and 2022).	Refer to draft EIS, Volume 1, Section 9.2 (Impact Assessment)
22	S023	At first glance across the tables it appears that with 7,398 vehicles per day pre construction, then down to 5, 7 49 vehicles per day during construction there will be no impact. The data also indicates that there is NO heavy traffic on Hansen Road both pre-construction and during construction, while stating that there is 5.9% heavy traffic on Kennedy Highway, both pre and during construction. Surely the amount of heavy traffic on Hansen Road will rise dramatically during construction.	Heavy vehicle volumes were not listed for Hansen Road at the Chewko Road intersection in the draft EIS as existing data of the volume of heavy vehicles was not known and thus, it was not suitable to estimate an increase in the volume of heavy vehicles. More recent traffic data has been obtained for the Kennedy Highway at the Hansen Road intersection (2013 count year) where the heavy vehicle volume has been estimated at 11.9%. A volume of 52 heavy vehicle trips per day for the two year construction period can be estimated from the data provided in the Vehicle Movements table in Appendix E. This represents an increase of approximately 0.9% heavy vehicle usage (12.8% total) in the assumed construction year of 2016.	
23	S023	In Table 9.3, the number of heavy vehicles has remained the same (5.9%) as the Preconstruction Table (5.9%). Yet the Wind Farm figures estimate:14,261 concrete truck trips,577 flat tray trucks,2 elevated platform trucks,513 Semi/low loaders,90 water takers,78 Over length/oversize trucks,3,607 4WD vehicles,4,580 Bus/coach 30 seaters,21 pieces of earth moving equipment on low loaders,4 cranes and20 44t cranes, moving along our local roads during construction,= 23, 753 vehicle movements.While still purporting NO increase in heavy vehicle movement i.e. for pre-construction and also during construction, heavy vehicle traffic remains the same at 5.9% on Kennedy highway but still no heavy traffic uses Hansen Road. Is Ratch Australia going to rectify their vehicle figures?		
24	S023	The data for Kennedy Highway, collated in 2012, in Table 9.3 is an estimation of vpd, and is not based on an actual count. It also has not taken into account the increase in corporate farming; the prison expansion and the enlarged sugar mill (Refer to Figure 1).	The traffic data for the Kennedy Highway included in the draft EIS was calculated in 2012 based on a traffic count completed in 2008. Design and construction traffic volumes were calculated from the figure obtained during the count year through the application of a conservative growth rate of 3% per annum. These traffic volume figures have been estimated based on more current data from a traffic count performed in 2013 and are listed in Response No. 20.	Refer to draft EIS, Volume 1, Section 9.2 (Impact Assessment)
25	S023	<u>Buses</u> Ratch Australia states that approximately 4,580 bus movements will occur to deliver workers on site, from local towns or a camp. They have neglected to outline where the accommodation will be sourced from, which roads will be used, and how buses will impact on the local farm worker buses delivering workers to the farms each morning.	The estimated number of bus movements (4,580) is based on the number of workers expected to be on site. An assessment of the calculation of the maximum number of workers and staff vehicles was completed in Technical Note 2 (<i>Traffic Impact Assessment Engineering Responses, 2014</i>) under the response to Question 26 which has been included for information in Appendix F of this report. Workers are expected to be transported from pick-up and drop-off points at nearby townships; however the exact location of accommodation facilities and pick-up/drop-off points will not be known until employees have been engaged. The draft EIS states that procedures will be established to monitor traffic impacts on public and internal access tracks during construction, including noise, dust, and travel times, and modified work methods will be implemented to reduce such impacts, where possible.	Refer to draft EIS, Volume 1, Section 9.4 (Mitigation Measures)

No.	ID	Issue	Response to Submissions	References not included in Technical Note 3
Hansen Road/Springmount Road				
26	S019	Hansen Road is described as the preferred route for wind farm construction traffic, but residents predict that heavy traffic and delays will lead to increased use of minor roads such as Channel Road and Morganbury Road. This places greater pressure on these narrow, dangerous roads and the residents who live beside them.	<p>The following management and mitigation measures will be implemented to reduce the impact of slow moving traffic on the local road network during the Construction and Decommissioning Phases as per the draft EIS as listed under Response No. 2.</p> <p>In addition, to reduce public impact and improve safety on the local road network, the EPC Contractor/Turbine Supplier engaged to transport wind farm components will be required to meet the requirements listed under Response No. 10.</p> <p>The EPC Contractor/Turbine Supplier will be required to complete a Traffic Management Plan as per <i>Transport and Main Roads Specifications, MRTS02 Provision for Traffic</i> and shall:</p> <ul style="list-style-type: none"> Describe traffic arrangements which provide for any necessary sequencing of the work under the Contract while minimising disruption and confusion to road users, local traffic, public transport, emergency vehicles, pedestrians and cyclists. Where required, describe how the construction work area shall be physically and visually isolated from road users. Provide details of how local access to communities and adjacent private properties and businesses will be maintained. Provide details of arrangements to be made for detouring traffic. Provide details of all road closures and/or restrictions required to undertake the work under the Contract. Provide details for timely notification and engagement of the community (business owners, road users and other stakeholders) in advance of alterations to existing traffic conditions. <p>A proposed transportation schedule, detailing the number of vehicles, travelling times, and routes, will be made available following the engagement of the EPC Contractor/Turbine Supplier. Local residents will be made aware of planned vehicle movements prior to commencement via various forms of media and notifications by the Community Liaison Team.</p>	Transport and Main Roads Specifications, MRTS02 Provision for Traffic
27	S023	This road has been upgraded to take the Sugar Mill trucks and the Waste Facility trucks. It is also the main entrance to Lotus Glen Correctional Centre with not only staff utilising it but also the many delivery trucks and prisoner transport vehicles. At peak times during the day it can also be a very busy road. Most years, see a roll-over of at least one of the sugar cane trucks.		
28	S023	Delays on Hansen Road. There is no indication in the traffic reports of expected delays on Hansen Road. This busy road services many important industries which contribute millions of dollars to the local economy each year.		

No.	ID	Issue	Response to Submissions	References not included in Technical Note 3
Channel Road				
29	S023	<u>Channel Road</u> Walkamin Enterprises on Channel Road has 5 people movers, which take workers to their places of employment departing from 5.30 am each morning. Some vehicles make multiple trips while others return after the day's work is finished. Transporting up to 70 workers from Channel Road and their second accommodation on Chewko Road, means the timetable is tight and begs the question, how can we be guaranteed through passage to meet our deadlines?	<p>The following management and mitigation measures will be implemented to reduce the impact of slow moving traffic on the local road network during the Construction and Decommissioning Phases as per the draft EIS as listed under Response No. 2.</p> <p>In addition, to reduce public impact and improve safety on the local road network, the EPC Contractor/Turbine Supplier engaged to transport wind farm components will be required to meet the requirements listed under Response No. 10.</p> <p>The EPC Contractor/Turbine Supplier will be required to complete a Traffic Management Plan as per <i>Transport and Main Roads Specifications, MRTS02 Provision for Traffic</i> and shall:</p> <ul style="list-style-type: none"> Describe traffic arrangements which provide for any necessary sequencing of the work under the Contract while minimising disruption and confusion to road users, local traffic, public transport, emergency vehicles, pedestrians and cyclists. Where required, describe how the construction work area shall be physically and visually isolated from road users. Provide details of how local access to communities and adjacent private properties and businesses will be maintained. Provide details of arrangements to be made for detouring traffic. Provide details of all road closures and/or restrictions required to undertake the work under the Contract. Provide details for timely notification and engagement of the community (business owners, road users and other stakeholders) in advance of alterations to existing traffic conditions. <p>A proposed transportation schedule, detailing the number of vehicles, travelling times, and routes, will be made available following the engagement of the EPC Contractor/Turbine Supplier. Local residents will be made aware of planned vehicle movements prior to commencement via various forms of media and notifications by the Community Liaison Team.</p> <p>At present, tourist viewing facilities are not considered as part of the MEWF proposal. Previous wind farm approvals have made reference to viewing facilities and tourist vehicles. However, should any tourist amenities be required, they would be subject to their own development application, supporting studies, and assessments.</p> <p>It is recommended that workers travel only on approved routes to and from site to minimise disturbance on local roads. Control measures to enforce this operation will be produced following engagement of an EPC Contractor/Turbine Supplier.</p>	<p>Transport and Main Roads Specifications, MRTS02 Provision for Traffic</p> <p>Refer to draft EIS, Volume 1, Section 9.3 (Impact Assessment - Operation)</p>
30	S023	<u>Channel Road</u> If Hansen Road is choked with traffic, it will force more road users to bypass that journey and detour along Channel Road, placing locals at even more risk of accident. How will this situation be avoided, or could Channel Road become a NO THROUGH ROAD?		
31	S023	Refer to The Tablelander on Facebook to view the numerous accidents that have occurred on these narrow country roads. We do not need any more traffic on these roads and to suggest tourists utilize Channel Road and stop to view any turbines, is committing the local residents to a highly dangerous situation.		
32	S023	<u>Prison Build</u> During the upgrade and expansion to LGCC a meeting was held with the residents of Channel Road after the continuous concrete trucks made living on this road unbearable. The contractors then enforced that all workers, concrete trucks, delivery trucks and anyone else involved in the prison build was to use Hansen Road due to safety and noise impacts. Should any vehicle involved in the build be seen using Channel Road, the driver would lose either their position or their contract. Would Ratch offer the same protection?		

No.	ID	Issue	Response to Submissions	References not included in Technical Note 3
Kippen Drive				
33	S023	<p>Kippen Drive This road is currently a dirt track, with plans for its expansion. Recent sales of properties along this road came with gag clauses that state the purchasers cannot speak out about the proposal. However for years these residents will be subjected to noise, constant traffic, and intrusion in to their current peaceful, rural lives. As the property driveways join Kippen Drive, gaining access to their properties at all times may well be hampered by construction traffic. We look forward to Ratch's solution to the unfortunate plight of these residents.</p>	<p>The following management and mitigation measures will be implemented to reduce the impact of slow moving traffic on the local road network during the Construction and Decommissioning Phases as per the draft EIS as listed under Response No. 2.</p> <p>In addition, to reduce public impact and improve safety on the local road network, the EPC Contractor/Turbine Supplier engaged to transport wind farm components will be required to meet the requirements listed under Response No. 10.</p> <p>The EPC Contractor/Turbine Supplier will be required to complete a Traffic Management Plan as per <i>Transport and Main Roads Specifications, MRTS02 Provision for Traffic</i> and shall:</p> <ul style="list-style-type: none"> Describe traffic arrangements which provide for any necessary sequencing of the work under the Contract while minimising disruption and confusion to road users, local traffic, public transport, emergency vehicles, pedestrians and cyclists. Where required, describe how the construction work area shall be physically and visually isolated from road users. Provide details of how local access to communities and adjacent private properties and businesses will be maintained. Provide details of arrangements to be made for detouring traffic. Provide details of all road closures and/or restrictions required to undertake the work under the Contract. Provide details for timely notification and engagement of the community (business owners, road users and other stakeholders) in advance of alterations to existing traffic conditions. <p>A proposed transportation schedule, detailing the number of vehicles, travelling times, and routes, will be made available following the engagement of the EPC Contractor/Turbine Supplier. Local residents will be made aware of planned vehicle movements prior to commencement via various forms of media and notifications by the Community Liaison Team.</p>	Transport and Main Roads Specifications, MRTS02 Provision for Traffic
34	S023	<p>Kippen Drive The development application refers to work times between 6am and 6pm, 6 days a week and sometimes on Sundays, meaning that these residents will be severely impacted. The Martin's farm (right hand driveway) next to Kippen Drive is an organic farm of some 300+ acres, and although the developers have been asked what road surface will be on Kippen Drive, they have to date not given an answer. Should Kippen Drive remain a dirt road, the dust will cause a loss of plant quality for the organic farm and thus loss of his business.</p>		
35	S023	<p>Viewing Platform In their (Ratch) original Development Application, mention was made of a viewing platform on Channel Road. When this was challenged I was told that it was a mistake and the viewing platform was to be positioned on Kippen Drive. Kippen Drive is close to the base of the mountains and each side of the road is privately owned land, having recently been subdivided and sold by Port Bajool. The owners of these properties have had "Gag Clauses" included in their contracts, preventing them from speaking out about the development.</p> <p>It is interesting that a viewing platform is mooted for a road which has no space for a traffic stop/turnaround or viewing platform. Also by Ratch Australia's own admission and viewable on their map developed by Green Bean Design, that from Kippen Drive, 0 -15 turbines only may be seen. Figure 11. ZVI Diagram 1 Tip of blade is included.</p> <p>In this Figure Kippen Drive is represented by the blue area to the north of the turbines. What point is a viewing platform which does not have a view of turbines? We believe that Ratch has not been honest in this statement, and is trying to quell the concerns of Channel Road residents. We ask, where is the viewing platform going to be? They have not answered this.</p>	<p>At present, tourist viewing facilities are not considered part of the MEWF proposal. The Development Application for the project states; <i>"No specific visitor information centre or other viewing platforms are proposed as part of this current development application."</i></p> <p>References to viewing facilities and tourist vehicles have been made in regard to previous wind farm approvals which have included conditions requiring facilities to be built. Should any viewing facilities be required they would be subject to their own development application, supporting studies, and assessments.</p> <p>Inclusion of an estimate of tourist vehicles has been made on a conservative basis to understand cumulative impacts of the proposal.</p>	Refer to draft EIS, Volume 1, Section 9.3 (Impact Assessment - Operation)

No.	ID	Issue	Response to Submissions	References not included in Technical Note 3
<u>Mitigation</u>				
36	S019	The proponents consider putting up a few signs and withholding traffic during school bus hours is sufficient to mitigate the impacts of substantially increased traffic volumes. We contend that further mitigation measures are necessary. Due to high volumes of work traffic between 6-9am, and 3-8pm, wind farm construction traffic should avoid these times to insure the least amount of disruption to our community's daily schedules.	<p>The following management and mitigation measures will be implemented to reduce the impact of slow moving traffic on the local road network during the Construction and Decommissioning Phases as per the draft EIS as listed under Response No. 2.</p> <p>In addition, to reduce public impact and improve safety on the local road network, the EPC Contractor/Turbine Supplier engaged to transport wind farm components will be required to meet the requirements listed under Response No. 10.</p>	Transport and Main Roads Specifications, MRTS02 Provision for Traffic
37	S019	The proponents are proposing to upgrade only the Springmount Road and Kippin Drive intersection as otherwise the heavy transport required to move the turbine components will not be able to negotiate the corner. The only other hard mitigation measures proposed are road signs and some minor vegetation clearing. In other words, other road users and nearby residents will have to put up with the threats to their safety and the inconvenience of up to 168 additional vehicles per hour (1400 vehicles a day) using Springmount Road. The draft EIS has not adequately addressed the standard of roadworks required to ensure a safe and suitable transport route during and after construction. These details should be made available to our community and included in the final EIS.	<p>The EPC Contractor/Turbine Supplier will be required to complete a Traffic Management Plan as per <i>Transport and Main Roads Specifications, MRTS02 Provision for Traffic</i> and shall:</p> <ul style="list-style-type: none"> Describe traffic arrangements which provide for any necessary sequencing of the work under the Contract while minimising disruption and confusion to road users, local traffic, public transport, emergency vehicles, pedestrians and cyclists. Where required, describe how the construction work area shall be physically and visually isolated from road users. Provide details of how local access to communities and adjacent private properties and businesses will be maintained. Provide details of arrangements to be made for detouring traffic. Provide details of all road closures and/or restrictions required to undertake the work under the Contract. Provide details for timely notification and engagement of the community (business owners, road users and other stakeholders) in advance of alterations to existing traffic conditions. <p>A proposed transportation schedule, detailing the number of vehicles, travelling times, and routes, will be made available following the engagement of the EPC Contractor/Turbine Supplier. Local residents will be made aware of planned vehicle movements prior to commencement via various forms of media and notifications by the Community Liaison Team.</p> <p>Table 9.1 states that an average of 79 additional vehicle movements per day will be experienced, rather than 168 additional vehicles per hour or 1400 additional vehicles per day.</p>	
38	S023	<p><u>School Buses</u></p> <p>The report states that there will be no oversize or large trucks associated with the construction on Kennedy Highway during school bus hours between 7.30 - 9.00 am and 3.00 pm and 4.30 pm. The hours are actually 7.00 am to 9.00 am and 2.00pm and 4.00 pm. No school buses travel on Hansen Road and only one travels the length of Channel road. Walkamin Primary School does not have a bus now and parents must either drive or walk their children to this school.</p>	The draft EIS report was issued in 2012 prior to the change in school bus and school zone operating hours. No oversize or large trucks associated with the construction will operate on the Kennedy Highway during school bus/zone hours.	

No.	ID	Issue	Response to Submissions	References not included in Technical Note 3
Transport Times				
39	S023	Our 2014 figures highlight the fact that due to high volumes of work traffic between 6am and 9am, and 3pm and 8pm, these times have to be avoided by Ratch traffic to insure least amount of disruption to daily schedules. Accordingly, the less congested times are between 9am and 3pm, and 8pm and 6am.	<p>The following management and mitigation measures will be implemented to reduce the impact of slow moving traffic on the local road network during the Construction and Decommissioning Phases as per the draft EIS as listed under Response No. 2.</p> <p>In addition, to reduce public impact and improve safety on the local road network, the EPC Contractor/Turbine Supplier engaged to transport wind farm components will be required to meet the requirements listed under Response No. 10.</p> <p>The EPC Contractor/Turbine Supplier will be required to complete a Traffic Management Plan as per <i>Transport and Main Roads Specifications, MRTS02 Provision for Traffic</i> and shall:</p> <ul style="list-style-type: none"> Describe traffic arrangements which provide for any necessary sequencing of the work under the Contract while minimising disruption and confusion to road users, local traffic, public transport, emergency vehicles, pedestrians and cyclists. Where required, describe how the construction work area shall be physically and visually isolated from road users. Provide details of how local access to communities and adjacent private properties and businesses will be maintained. Provide details of arrangements to be made for detouring traffic. Provide details of all road closures and/or restrictions required to undertake the work under the Contract. Provide details for timely notification and engagement of the community (business owners, road users and other stakeholders) in advance of alterations to existing traffic conditions. <p>A proposed transportation schedule, detailing the number of vehicles, travelling times, and routes, will be made available following the engagement of the EPC Contractor/Turbine Supplier. Local residents will be made aware of planned vehicle movements prior to commencement via various forms of media and notifications by the Community Liaison Team.</p> <p>Traffic control will be implemented at locations where required, such as (but not limited to) intersections and accesses to work sites. The location of traffic control and associated traffic management schemes will be included within the Traffic Management Plan. The Traffic Management Plan will be completed following the engagement of an EPC Contractor/Turbine Supplier.</p>	Transport and Main Roads Specifications, MRTS02 Provision for Traffic
40	S023	9am to 3pm Ratch traffic will be competing with, heavy delivery and pick up vehicles, Sugar Mill transports, fuel delivery trucks and waste management semitrailers, heavy farm vehicles and prison escorts.		
41	S023	The 8pm to 6am time slot is the most contentious interval for the local residents as it impinges on their "Quiet Time". In this rural setting there is next to NO noise at night. Please advise what hours will be utilised to transport wind farm material to the construction site?		
42	S023	Lolly Pop men or traffic control/lights. Where will these be and how will they interfere with the morning and afternoon traffic		
43	S023	Transport times for huge loads. At what time of the day or night will large loads be transported? If it is during the day time, severe disruption to local traffic will be experienced. If it is during the night time, the prison and sugar mill will experience disruptions. Adding insult to injury, night time transfers will awaken residents who live next to Hansen Road, the western end of Channel Road and Kippen Drive, due to the noise and lights from the large loads and escort vehicles, as night time in this locality is noise free.		
44	S023	There are no street lights or flashing lights in this neighbourhood at night. Any such bright and flashing lights will negatively impact on the quality of life at night in this dark and serene environment.		
Emergency Vehicles				
45	S023	Officers and Dog Squad members regularly travel Springmount and Hansen Roads between the main centre and the prison farm. They must not be impeded as some calls may be for emergencies. Trips to Mareeba Airport for prisoner transport also may occur during day time and Polair flights transferring prisoners south may leave at 3.00 am. Many prisoner medical appointments travel to Mareeba and Cairns. All of the above are essential and any delay may be life threatening.	Following the engagement of an EPC Contractor/Turbine Supplier to transport wind farm turbine components, the Contractor will be responsible for developing a Traffic Management Plan. Under the <i>Transport and Main Roads Specifications, MRTS02 Provision for Traffic</i> , the Traffic Management Plan will describe traffic arrangements to improve safety and minimise the disruption to road users, local traffic, public transport, emergency vehicles, pedestrians, and cyclists, during the Construction Period. As a part of this requirement, emergency services will be notified of procedures to ensure that there are minimal delays in emergency situations.	Transport and Main Roads Specifications - MRTS02 Provision for Traffic
46	S023	<u>Police, Fire and Ambulance</u> As Kennedy Highway has NO alternative route; all emergency vehicles must use the highway. What plans are in place for an emergency vehicle to pass a turbine section which is slow moving and utilising the entire road space? The same applies to the Palmerston Range although this range does have a few overtaking lanes. Not so, on Kennedy highway between Tolga and the Hansen Road intersection.		
47	S023	<u>Dangerous Goods</u> Nowhere in the traffic plan, is there mention for the transport of dangerous goods. This may refer to explosives, chemicals, or fuel necessary for the construction phase. What safety plans are in place for these transports?	Requirement for transportation of dangerous goods will be known following the engagement of an EPC Contractor/Turbine Supplier. The Contractor will be responsible for abiding by the <i>Transport Operations (Road Use Management - Dangerous Goods) Regulation 2008</i> to ensure the safe transport of dangerous goods by road (if required).	Transport Operations (Road Use Management - Dangerous Goods) Regulation 2008 (www.tmr.qld.gov.au)

3. Conclusion

This technical note has addressed the queries received during the draft EIS public notification period, Submissions S006, S012, S017, S019 and S023, regarding the potential traffic- and transport-related impacts of the proposed MEWF project.

The response to the public queries identified a number of traffic- and transport-related questions regarding:

- Ongoing repair and maintenance of public roads
- Transport route to the MEWF site
- Traffic data used in the draft EIS
- Traffic- and safety- related issues of local roads including Hansen Road / Springmount Road; Channel Road; and Kippen Drive
- Mitigation measures which will be implemented during the Construction, Operation, and Decommissioning Phases
- Effect of construction works on transport times
- Emergency vehicle access on affected roads

As stated previously, this report should be read in full and in conjunction with any reference documents listed within the response to traffic- and transport-related public queries.

Appendix A. Engineering Response to Question 23 (From Jacobs 2014)

2. Response to Question 23

2.1 Query

Provide a clear description of all possible access routes (in their entirety) to the site for oversized vehicles. This should include at least a high level identification of constraints along the network and identification of measures that would be put in place to allow State Government and council to assess these impacts.

2.2 Response

Two possible access routes for oversized vehicles were analysed in their entirety from Cairns Port to Mount Emerald. Maps detailing these two routes have been included in Appendix A of this report. A summary of each route is detailed in Table 2-1 below:

Table 2-1 Possible access routes for oversized vehicles from Cairns Port to Mount Emerald

Route No.	Traversed Roads
1	Dutton Street, Kenny Street, Draper Street, Bruce Highway (Ray Jones Drive), Bruce Highway (Innisfail – Cairns), Palmerston Highway (Innisfail – Ravenshoe), Millaa Millaa – Malanda Road, Malanda – Atherton Road, Mars Lane, Tinaroo Falls Dam Road, Kairi Road, Lawson Street, Kennedy Highway (Mareeba – Ravenshoe), Hansen Road, Springmount Road, Kippen Drive.
2	Dutton Street, Kenny Street, Port Connection Road (Bunda Street), Martyn Street, Mulgrave Road, Sheridan Street, Captain Cook Highway (Cairns - Mossman), Kennedy Highway (Cairns - Mareeba), Kennedy Highway (Mareeba - Ravenshoe), Hansen Road, Springmount Road, Kippen Drive

Of the roads listed in each route above, Dutton Street and Kenny Street (partial) are controlled by Cairns Regional Council, and Marks Lane, Kiari Road, Lawson Street, Hansen Road, Springmount Road and Kippen Drive are controlled by TRC. All other listed roads are state controlled roads maintained by the Department of Transport and Main Roads (TMR). It is noted that all roads forming *Route 1* to Hansen Road are gazetted B-Double routes while the Kennedy Highway (Cairns – Mareeba) which forms a section of *Route 2* is a non-approved B-Double route. It is suggested that Lawson Street is utilised for both directions of travel on *Route 2* to avoid traversing through the township of Tolga when transporting large material components despite being a gazetted B-Double route for south bound traffic only.

A high level identification of constraints and measures, which may be required to be implemented, has been completed for each route to allow State Government and Councils to assess the impact of these constraints:

It is recommended that a horizontal and vertical (crests and sags) geometry check, in addition to checking the vehicle envelope, is completed for the full length of each route. Due to their generally narrower road widths, it is noted that the horizontal geometry of Council-controlled roads should be checked. Horizontal geometry limits and overhanging rainforest canopy experienced on the Kennedy Highway (Cairns – Mareeba) via *Route 2* will not permit the turn paths and the large envelope exhibited by the B-Doubles when transporting larger components (such as the rotor blade, hub, machine house components and steel sections). Contrary to this, there may be the potential for vehicle configurations with a smaller vehicle envelope and tighter turn path to utilise *Route 2* when transporting smaller components under a permit as it is significantly shorter in comparison to *Route 1*.

Due to the substantial turn paths and large vehicle envelope exhibited by the oversized vehicles and material components, traffic control may be required at intersections where over-dimensional vehicles

(wide loads) are required to turn. These intersections have been identified for both Routes 1 and 2 and are detailed in Table 2-2 and Table 2-3, respectively (refer below). Also listed for each intersection are minor works and additional control measures that may need to be implemented.

Table 2-2 Intersections potentially requiring traffic control and measures involving minor works – Route 1

Intersection	Potential measures/works that may be require implementation
Dutton St / Kenny St	<ul style="list-style-type: none"> • Traffic Control • Remove and re-erect signage • Check clearance to railway crossing signals • Check clearance to overhead power lines
Kenny St / Draper St (roundabout)	<ul style="list-style-type: none"> • Traffic Control • Remove and re-erect signage • Check clearance to overhead power lines
Draper St / Bruce Highway (Ray Jones Drive)	<ul style="list-style-type: none"> • Traffic Control • Remove and re-erect signage • Check clearance to signal mast arms
Bruce Highway (Innisfail - Cairns) / Palmerston Highway (Innisfail - Ravenshoe)	<ul style="list-style-type: none"> • Traffic Control • Remove and re-erect signage
Millaa Millaa - Malanda Road / Malanda - Atherton Road	<ul style="list-style-type: none"> • Traffic Control • Check clearance to overhead power lines
Malanda - Atherton Road / Marks Lane	<ul style="list-style-type: none"> • Traffic Control
Marks Lane / Tinaroo Falls Dam Road	<ul style="list-style-type: none"> • Traffic Control • Remove and re-erect signage
Tinaroo Falls Dam Road / Kiari Road	<ul style="list-style-type: none"> • Traffic Control • Check clearance to overhead power lines
Kiari Road / Lawson St	<ul style="list-style-type: none"> • Traffic Control • Check clearance to overhead power lines • Remove and re-erect signage
Lawson St / Kennedy Highway (Mareeba - Ravenshoe)	<ul style="list-style-type: none"> • Traffic Control
Kennedy Highway (Mareeba - Ravenshoe) / Hanson Road	<ul style="list-style-type: none"> • Traffic Control

Table 2-3 Intersections potentially requiring traffic control and measures involving minor works – Route 2

Intersection	Potential measures/works that may be require implementation
Dutton St / Kenny St	<ul style="list-style-type: none"> • Traffic Control • Remove and re-erect signage • Check clearance to railway crossing signals • Check clearance to overhead power lines
Kenny St / Port Connection Road (Bunda Street)	<ul style="list-style-type: none"> • Traffic Control • Remove and re-erect signage • Check clearance to overhead power lines
Port Connection Road (Bunda Street) / Martyn Street	<ul style="list-style-type: none"> • Traffic Control • Remove and re-erect signage • Check clearance to overhead power lines
Martyn Street / Mulgrave Road	<ul style="list-style-type: none"> • Traffic Control • Remove and re-erect signage • Check clearance to overhead power lines
Mulgrave Road / Captain Cook Highway (Sheridan Street)	<ul style="list-style-type: none"> • Traffic Control • Remove and re-erect signage
Captain Cook Highway (Cairns - Mossman) / Kennedy Highway (Cairns - Mareeba) (Roundabout)	<ul style="list-style-type: none"> • Traffic Control
Kennedy Highway (Mareeba - Ravenshoe) / Hanson Road	<ul style="list-style-type: none"> • Traffic Control

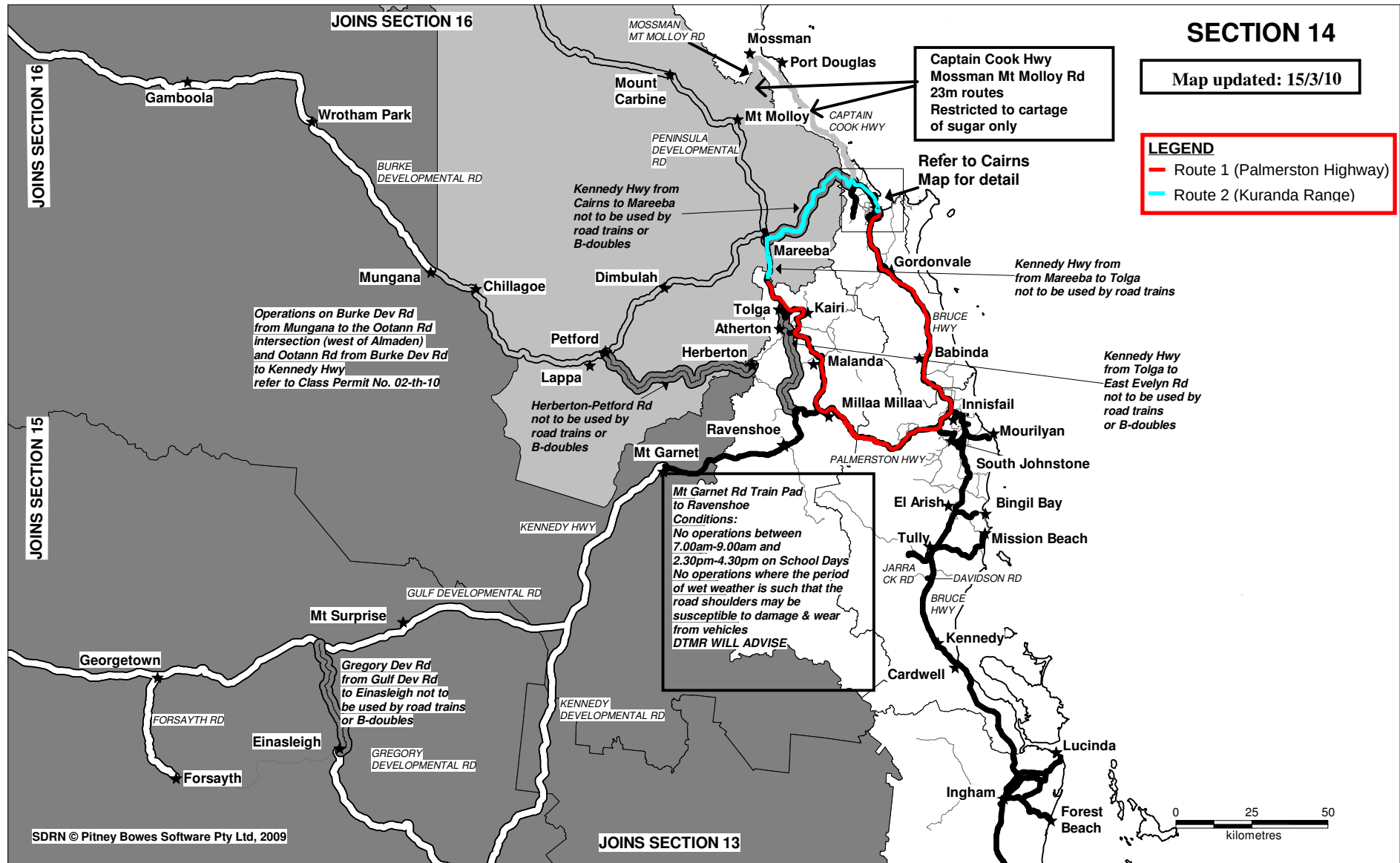
Any areas requiring a temporary lane closure must comply with the *Far North Queensland – Table of Allowable Lane Closures (TALC)* and will require an approved Traffic Guidance Scheme and Traffic Management Plan prior to implementation. It is also suggested that a Community Liaison Officer is utilised to communicate lane closures with the relevant Local Authorities; local business or organisations which may be affected; and the general public. It should be noted that these issues are not restricted to the locations noted above and the following issues may be experienced along the entire route:

- Vertical clearance of vehicle envelope to overhead power lines, gantry signs, signal mast arms, street lights and overhead fauna crossings (rope bridge, Palmerston Highway and Kennedy Highway (Cairns – Mareeba)) should be assessed to determine if there is a requirement to consult/engage the Department of Transport and Main Roads (TMR), Cairns Regional Council, Tablelands Regional Council or Ergon Energy as applicable for any adjustments that may be required to their assets.
- Structural integrity of culvert and bridge crossings should be determined by consulting TMR, Cairns Regional Council or Tablelands Regional Council as applicable to request recent inspections including details of type of inspection carried out. Further assessments may be required depending on the completeness of previous inspections.
- Requirement for permits and escorts to traverse the detailed routes should be identified and obtained as required.

It is recommended that a visual inspection is completed to identify areas of potential conflict along the entirety of the route prior to the commencement of any localised detailed investigations (if required).

Appendix B. Multi-Combination Routes in Queensland: selection of maps with proposed routes

MULTI-COMBINATION ROUTES IN QUEENSLAND



B-DOUBLES

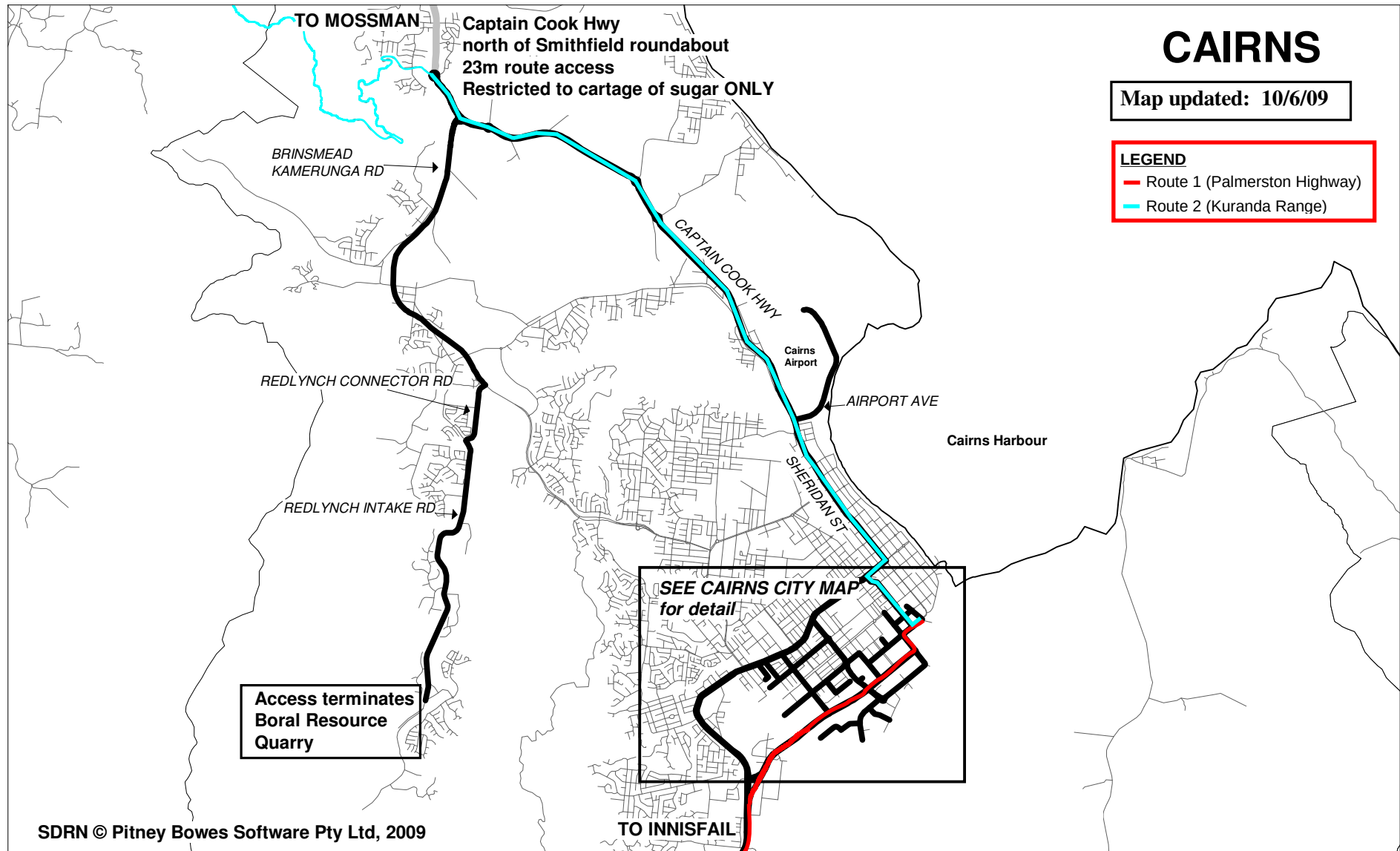
- 23 metre routes
- 23 & 25 metre routes

ROAD TRAINS

- Type 1 routes
- Type 1 & 2 routes

NO ROAD TRAINS or B-DOUBLES

REFER TO LEGEND FOR DETAILS OF OPERATIONS IN THE SHADED AREAS

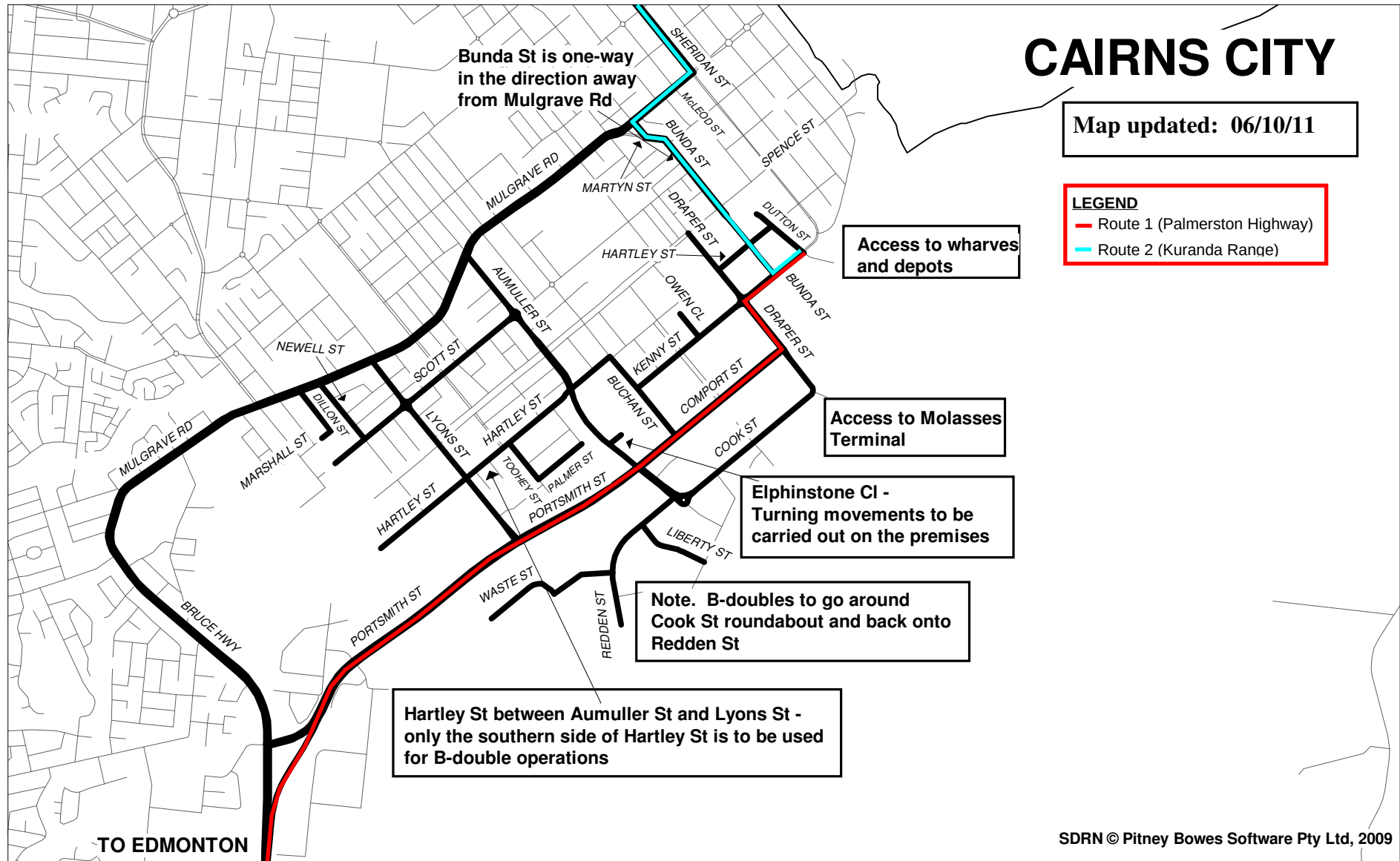


B-DOUBLES	
	23 metre routes
	23 & 25 metre routes

ROAD TRAINS	
	Type 1 routes
	Type 1 & 2 routes

NO ROAD TRAINS or B-DOUBLES	
	

REFER TO LEGEND FOR DETAILS OF OPERATIONS IN THE SHADED AREAS
Note: 23 & 25 metre B-doubles can access Type 1 & 2 road train routes



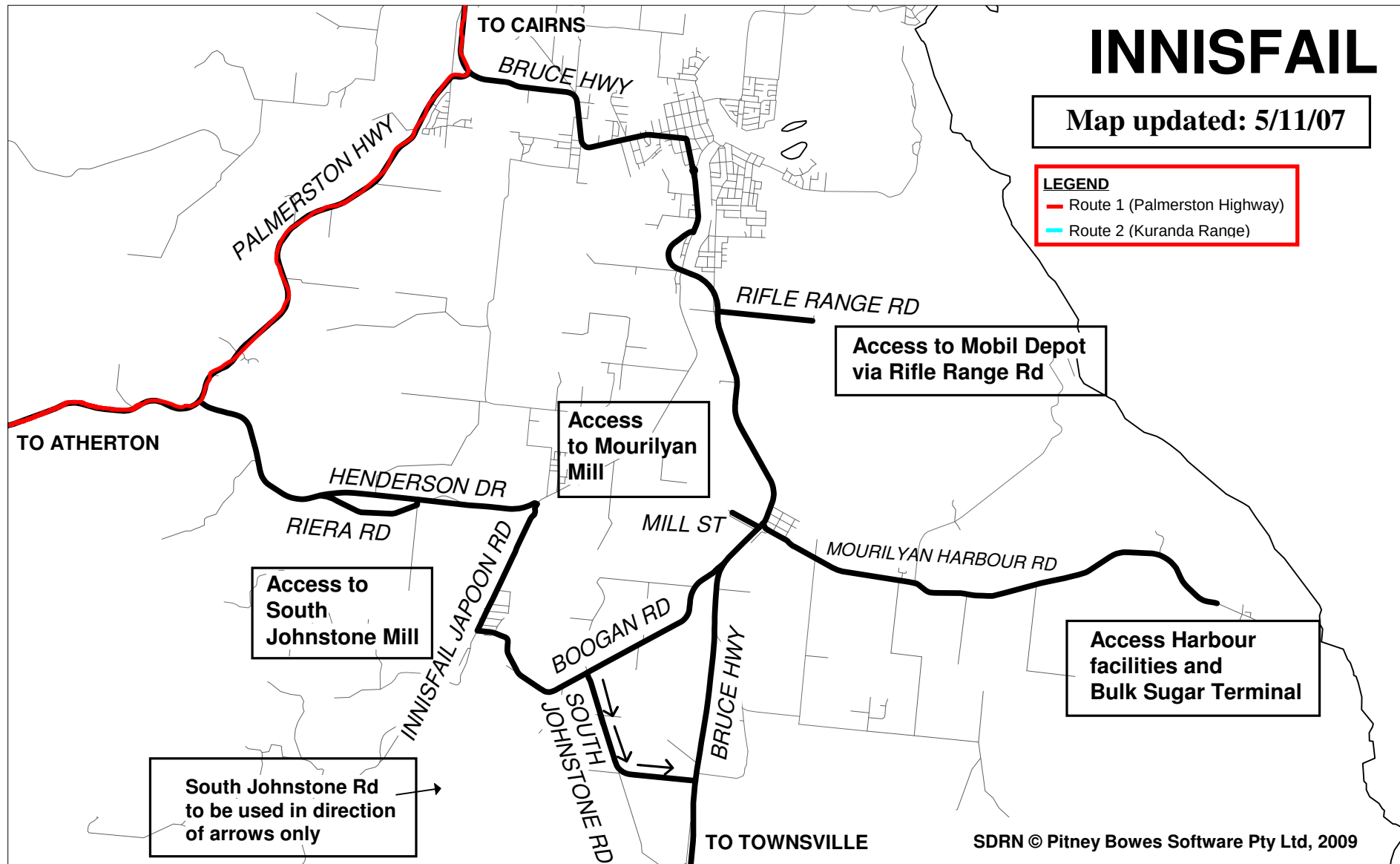
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B-DOUBLES	
	23 metre routes
	23 & 25 metre routes

ROAD TRAINS	
	Type 1 routes
	Type 1 & 2 routes

NO ROAD TRAINS or B-DOUBLES	
	

REFER TO LEGEND FOR DETAILS OF OPERATIONS IN THE SHADED AREAS
Note: 23 & 25 metre B-doubles can access Type 1 & 2 road train routes



B-DOUBLES

— 23 metre routes
— 23 & 25 metre routes

ROAD TRAINS

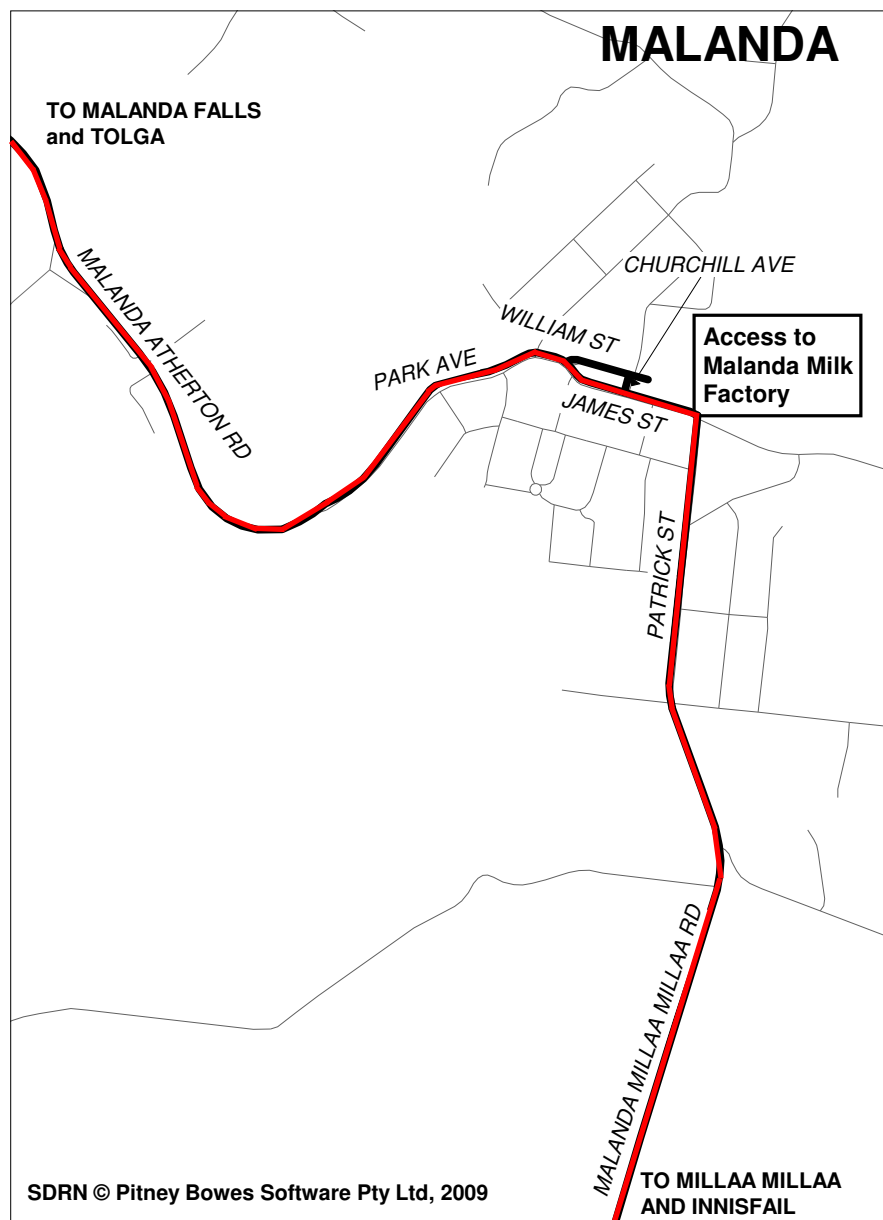
— Type 1 routes
— Type 1 & 2 routes

NO ROAD TRAINS
or B-DOUBLES



REFER TO LEGEND FOR DETAILS OF OPERATIONS IN THE SHADED AREAS

MULTI-COMBINATION ROUTES IN QUEENSLAND



LEGEND

- Route 1 (Palmerston Highway)
- Route 2 (Kuranda Range)

B-DOUBLES

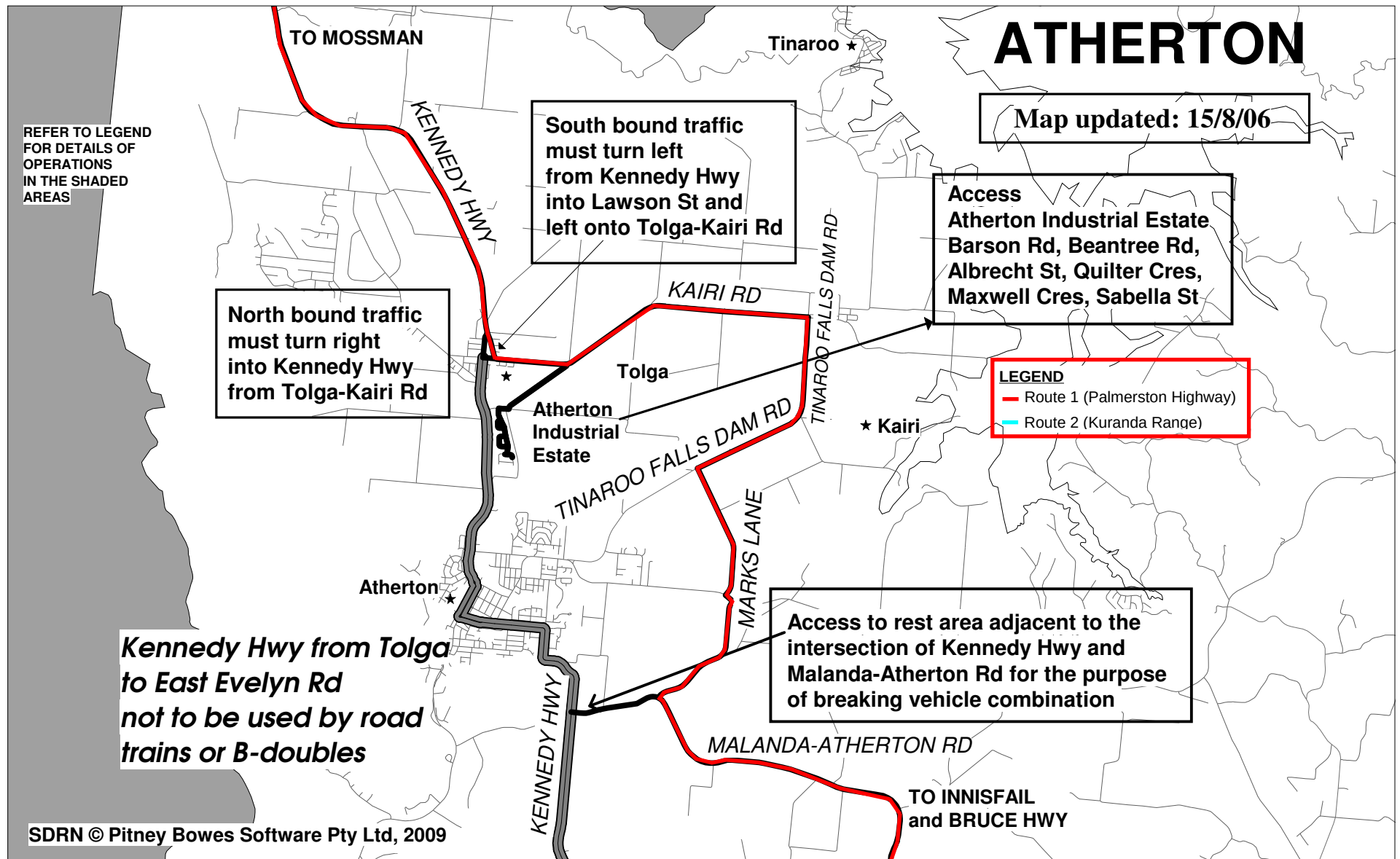
- 23 metre routes
- 23 & 25 metre routes

ROAD TRAINS

- Type 1 routes
- Type 1 & 2 routes

NO ROAD TRAINS or B-DOUBLES

REFER TO LEGEND FOR DETAILS OF OPERATIONS IN THE SHADED AREAS



B-DOUBLES

23 metre routes
23 & 25 metre routes

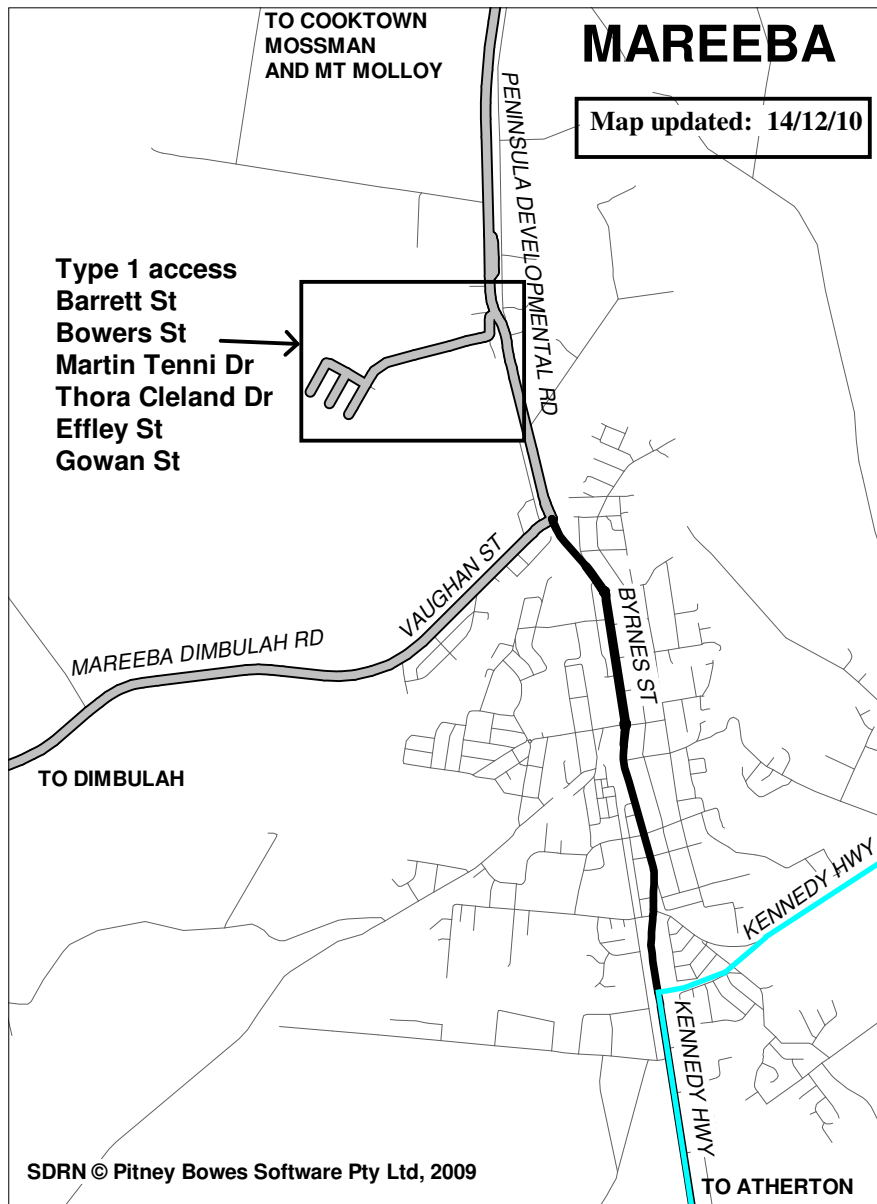
ROAD TRAINS

Type 1 routes
Type 1 & 2 routes

NO ROAD TRAINS
or B-DOUBLES

REFER TO LEGEND FOR DETAILS OF OPERATIONS IN THE SHADED AREAS

MULTI-COMBINATION ROUTES IN QUEENSLAND



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B-DOUBLES

-  23 metre routes
-  23 & 25 metre routes

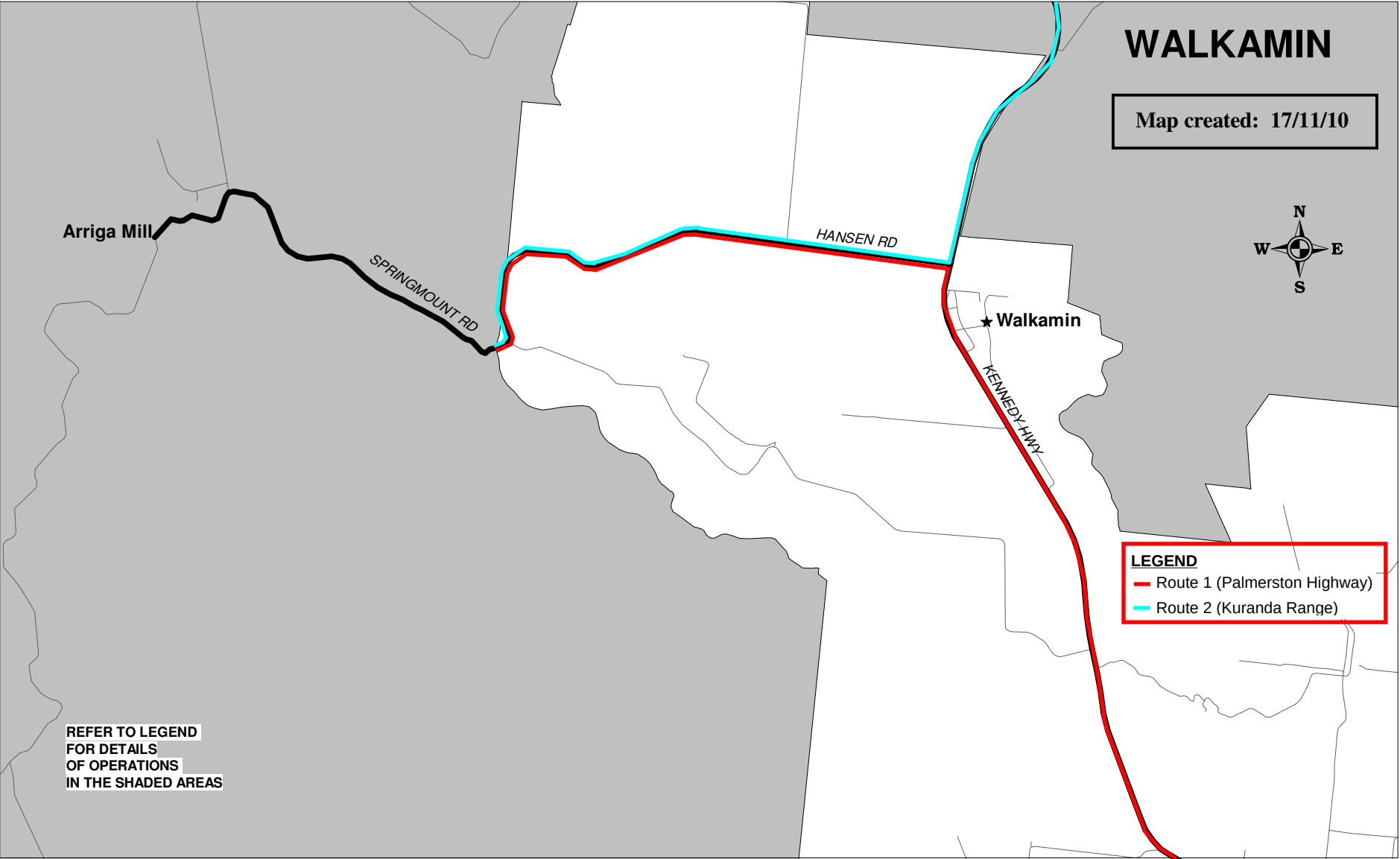
ROAD TRAINS

-  Type 1 routes
-  Type 1 & 2 routes

NO ROAD TRAINS or B-DOUBLES



**REFER TO LEGEND FOR DETAILS OF
OPERATIONS IN THE SHADED AREAS**
Note: 23 & 25 metre B-doubles can
access Type 1 & 2 road train routes



B-DOUBLES

- 23 metre routes
- 23 & 25 metre routes

ROAD TRAINS

- Type 1 routes
- Type 1 & 2 routes

NO ROAD TRAINS or B-DOUBLES

REFER TO LEGEND FOR DETAILS OF OPERATIONS IN THE SHADED AREAS

Appendix C. Critical Areas and Roads in Queensland for Vehicles/Combinations Requiring Pilot/Escort map

Critical Areas & Roads in Queensland

for Vehicles/Combinations requiring Pilot/Escort

at 30 June 2011

Incorporates all state-controlled roads declared under the *Transport Infrastructure Act 1994* and other non state-controlled roads that form part of the state strategic road network



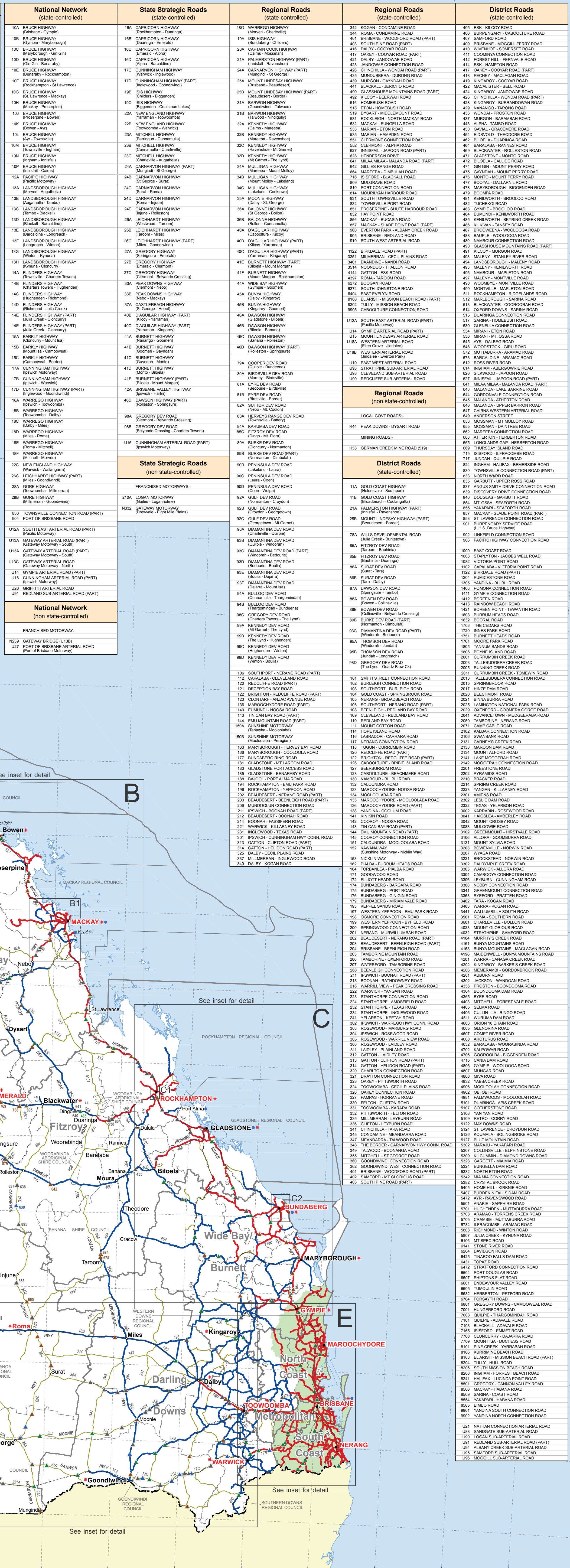
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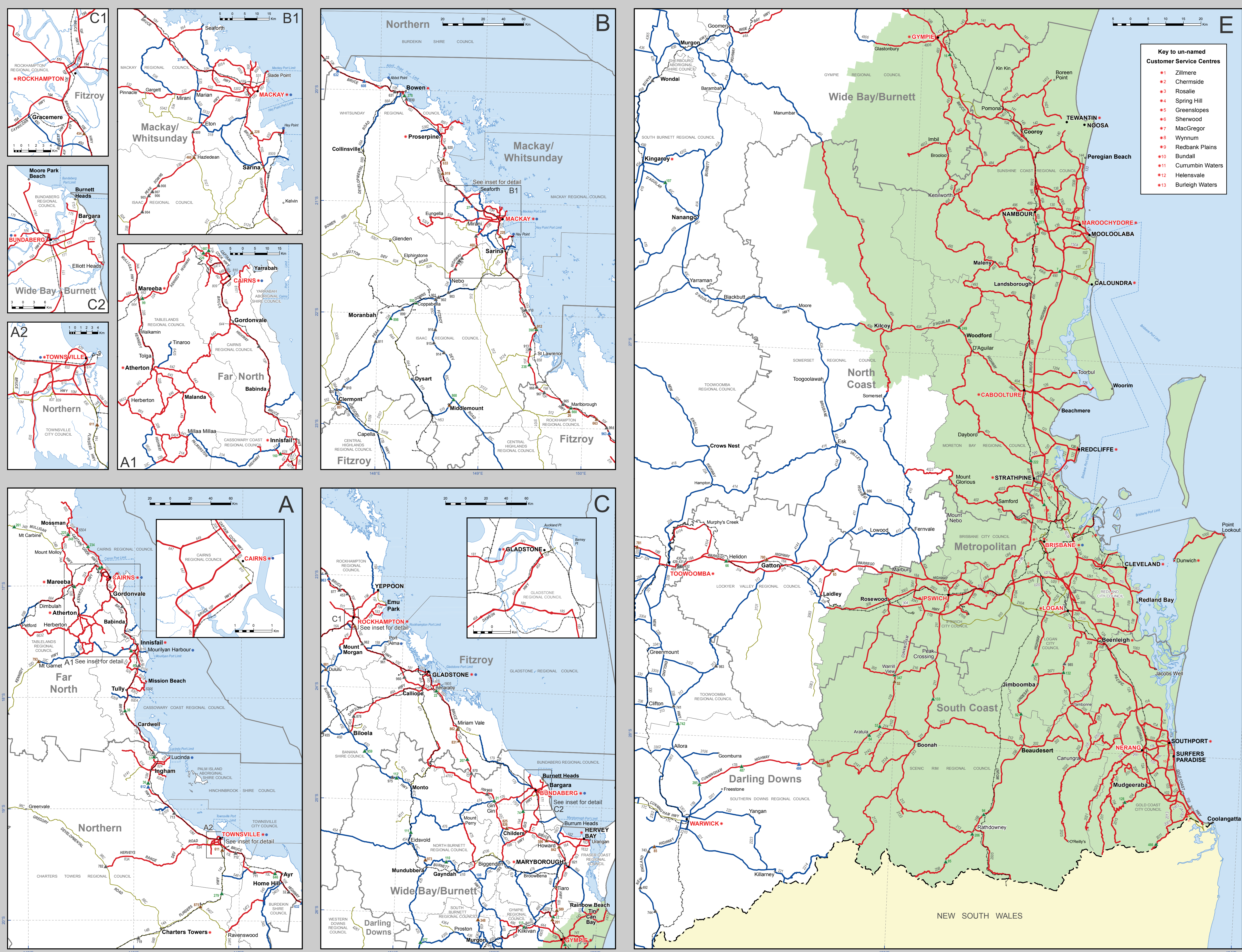
- Type A (1 police, 2 escorts)
- Type B (3 escorts)
- State-controlled Roads
- Old Rail
- Region Boundary
- LGA Boundary
- Maritime Trading Port
- Motorist rest area and scenic stop
- Heavy vehicle rest area
- Heavy vehicle stopping place
- Dual use motorist/heavy vehicle

Type A (1 police, 2 escorts)
Pilot and escort requirements of the "Performance Guideline for Pilot and Escort Vehicles and Drivers"

Road Regions	Region number	Office	Local Government	Time LG No
CENTRAL WEST	201	Barcaldine	ARKUN SHIRE COUNCIL	202
CENTRAL WEST	202	Townsville	BALDWIN SHIRE COUNCIL	203
FAR NORTH	203	Warrack	BANANA SHIRE COUNCIL	204
FITZROY	204	Rockhampton	BALDWIN SHIRE COUNCIL	205
MACKAY/WHITSUNDAY	205	Brisbane	BLACKALL/TAMBO REGIONAL COUNCIL	206
METROPOLITAN	206	Brisbane	BULLA SHIRE COUNCIL	207
NORTH COAST	207	Brisbane	BRISBANE CITY COUNCIL	208
NORTHERN	208	Brisbane	BULLA SHIRE COUNCIL	209
NORTH WEST	209	Townsville	BULLA SHIRE COUNCIL	210
SOUTH COAST	210	Logan	BURDEKIN SHIRE COUNCIL	211
SOUTH WEST	211	Logan	BURDEKIN SHIRE COUNCIL	212
WIDE BAY/FITZROY	212	Bundaberg	BURDEKIN SHIRE COUNCIL	213
		Roma	CARNS REGIONAL COUNCIL	214
		Gympie	CARNS REGIONAL COUNCIL	215
			CARNTON SHIRE COUNCIL	216
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			CARNTON SHIRE COUNCIL	272
			CARNTON SHIRE COUNCIL	273

Note: This map forms part of the "Performance Guideline for Pilot and Escort Vehicles and Drivers"





Critical Areas and roads in Queensland

This map has been produced to ensure there is adequate warning to motorists, of the movement of oversize vehicles and vehicle combinations accompanied by pilot and escort vehicles in critical areas and roads throughout Queensland.

The areas and roads have been determined by Department of Transport and Main Roads, the Queensland Police Service and industry representatives as requiring a greater number of escorts than are specified in the Guideline for Excess Dimension - Vehicles Carrying Indivisible Articles, Special Purpose Vehicles, Vehicles that require a Pilot or Escort Form Number 4 (Form 4).

Pilot and escort vehicle requirements when accompanying an oversize vehicle or vehicle combination exceeding 4.5 metres wide but not exceeding 5.5 metres wide are specified in the Guideline Form 4.

The following roads and areas have been specified on the map as requiring extra escorts:-

OPERATION ON STATE-CONTROLLED ROADS

TYPE A (1 police, 2 escorts) - Red Line
TYPE B (3 escorts) - Blue Line

OPERATION ON OTHER ROADS (By Area)

TYPE A (1 police, 2 escorts) - Green Area
Pilots and escort requirements of the Guideline Form 4 - White Area

Pilot and escort vehicles required when accompanying oversize vehicles or vehicle combinations not exceeding 4.5 metres wide are specified in the Guideline Form 4.

Agricultural vehicles operating with or without their own motive power at a dimension which requires a pilot or escort vehicle are required to operate under the conditions of the Guideline for Excess Dimension Agricultural Vehicles and Agricultural Combinations Form Number 14.

Pilot and escort vehicle requirements when accompanying agricultural vehicles being transported on a vehicle or a trailer at a dimension which requires a pilot or escort vehicle are specified in the Guideline Form 4.

Operators of special purpose vehicles, as well as operators of vehicles transporting indivisible articles, at dimensions which require pilots or escorts are required to operate under the conditions of the Guideline Form 4.

For further information, please visit www.tmr.qld.gov.au/Business-and-industry/Heavy-vehicles/Heavy-vehicle-guidelines-and-class-permits

Critical Areas and Roads in Queensland

June 2011



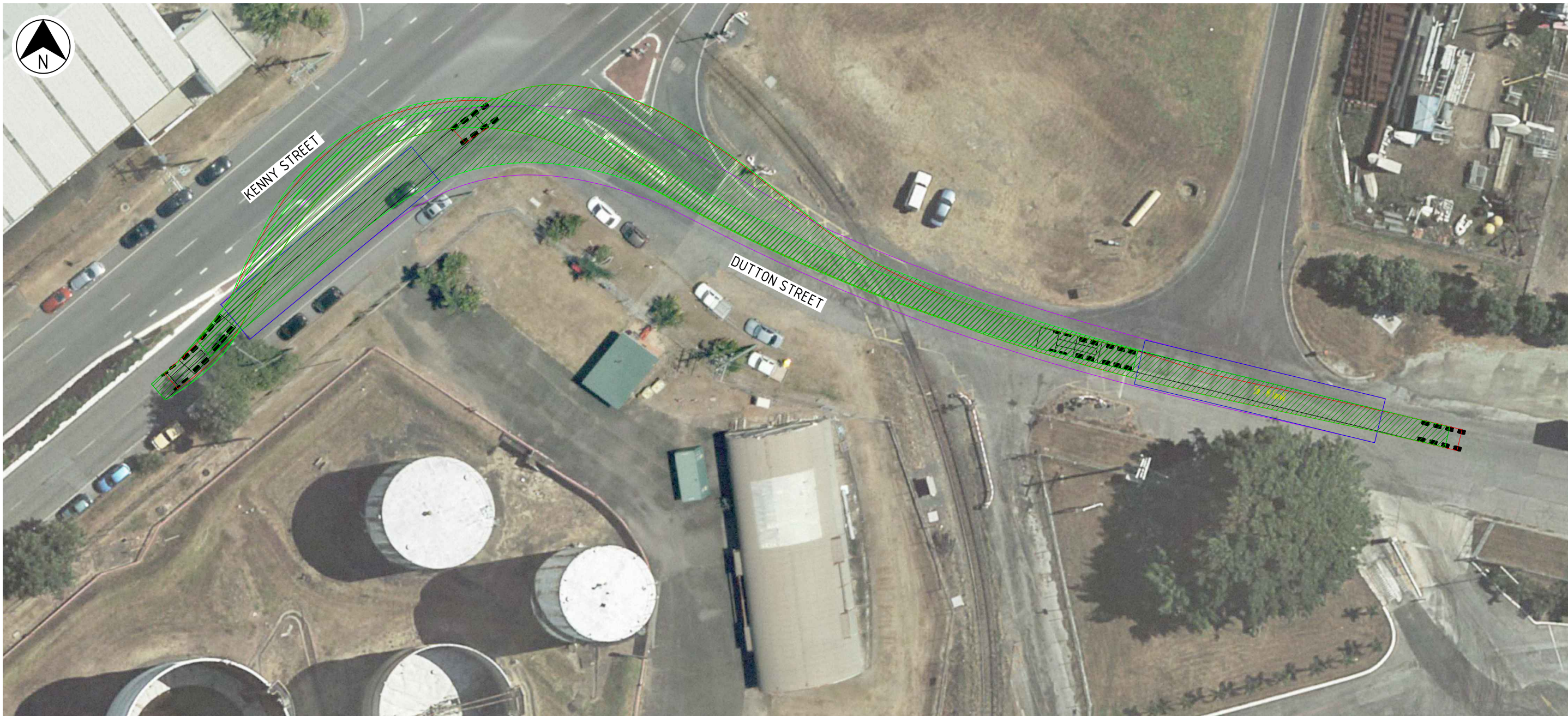
For the movement of oversize vehicles/combinations exceeding 4.5 metres wide but not exceeding 5.5 metres wide.

For vehicles/combination in areas which require a greater number of escorts than specified in the Guidelines for Excess Dimension - Vehicles Carrying Indivisible Articles, Special Purpose Vehicles, Vehicles that require a Pilot or Escort - Form 4 and the Guideline for Excess Dimension Agricultural Vehicles and Agricultural Combinations - Form 14.

Transport and Main Roads
www.tmr.qld.gov.au



Appendix D. Vehicle Movement Swept Path Analysis at Intersections



PLAN
DUTTON STREET/KENNY STREET
SCALE 1:250

SCALE 1:250 (A1)
0 5 10 15 20 25m
5 4 3 2 1

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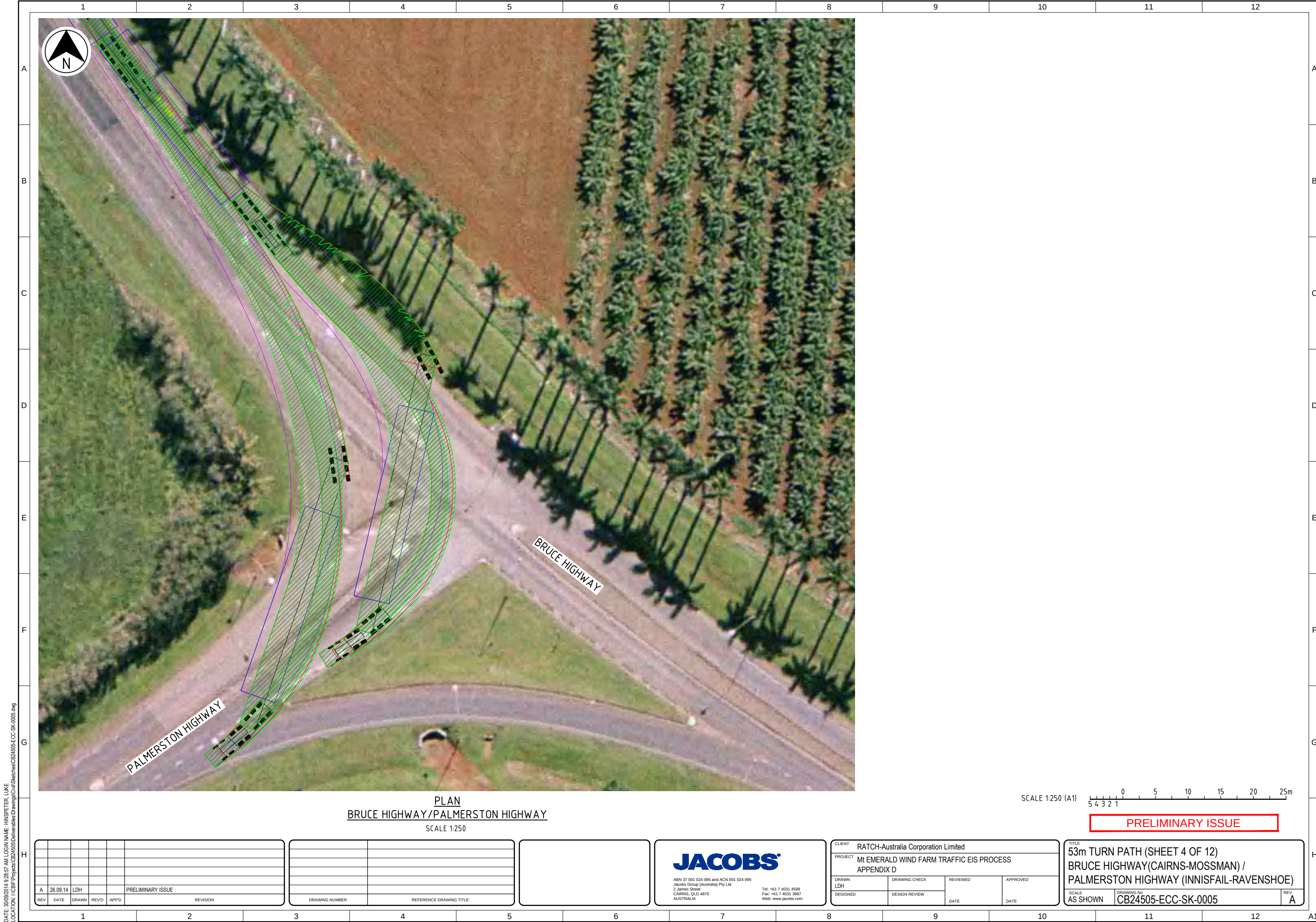
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TITLE 53m TURN PATH (SHEET 1 OF 12) DUTTON STREET / KENNY STREET		
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PLAN
BRUCE HIGHWAY/PALMERSTON HIGHWAY
SCALE 1:250

SCALE 1:250 (A1) 0 5 10 15 20 25m
5 4 3 2 1

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TITLE 53m TURN PATH (SHEET 4 OF 12) BRUCE HIGHWAY(CAIRNS-MOSSMAN) / PALMERSTON HIGHWAY (INNISFAIL-RAVENSHOE)		
SCALE AS SHOWN	DRAWING No CB24505-ECC-SK-0005	REV A

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PLAN
MILLAA MILLAA - MALANDA ROAD/MALANDA - ATHERTON ROAD
SCALE 1:250

SCALE 1:250 (A1)
5 4 3 2 1

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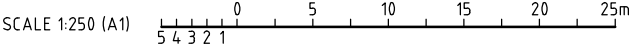
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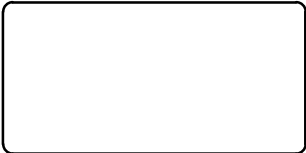
PLAN
MALANDA - ATHERTON ROAD/MARKS LANE
SCALE 1:250



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SCALE AS SHOWN	DRAWING No CB24505-ECC-SK-0011		



PLAN
GILLIES HWY/MARKS LANE
SCALE 1:500

SCALE 1:500 (A1)
10 8 6 4 2 0 10 20 30 40 50m

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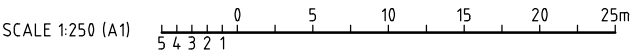
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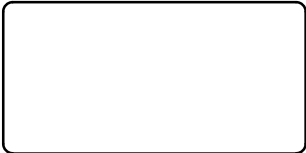
PLAN
MARKS LANE/TINAROO FALLS DAM ROAD
SCALE 1:250



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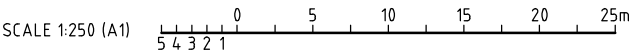
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TITLE 53m TURN PATH (SHEET 8 OF 12) MARKS LANE / TINAROO FALLS DAM ROAD		
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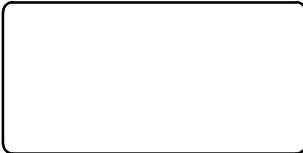
PLAN
TINAROO FALLS DAM ROAD/KAIRI ROAD
SCALE 1:250



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PLAN
KENNEDY HIGHWAY/HANSEN ROAD
SCALE 1:250

SCALE 1:250 (A1)
5 4 3 2 1

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TITLE 53m TURN PATH (SHEET 11 OF 12) KENNEDY HIGHWAY / HANSEN ROAD		
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PLAN
HANSEN ROAD/KIPPEN DRIVE
SCALE 1:250

SCALE 1:250 (A1)
5 4 3 2 1

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LDH			
DESIGNED	DESIGN REVIEW	DATE	DATE

TITLE		REV
53m TURN PATH (SHEET 12 OF 12) HANSEN ROAD / KIPPEN DRIVE		A
SCALE	DRAWING No	
AS SHOWN	CB24505-ECC-SK-0017	



PLAN
MARTYN STREET/MULGRAVE ROAD
SCALE 1:250



PLAN
MULGRAVE ROAD/MARTYN STREET
SCALE 1:250

SCALE 1:250 (A1)
0 5 10 15 20 25m
5 4 3 2 1

PRELIMINARY ISSUE

REV	DATE	DRAWN	REV'D	APP'D	REVISION
A	26.09.14	LDH			PRELIMINARY ISSUE

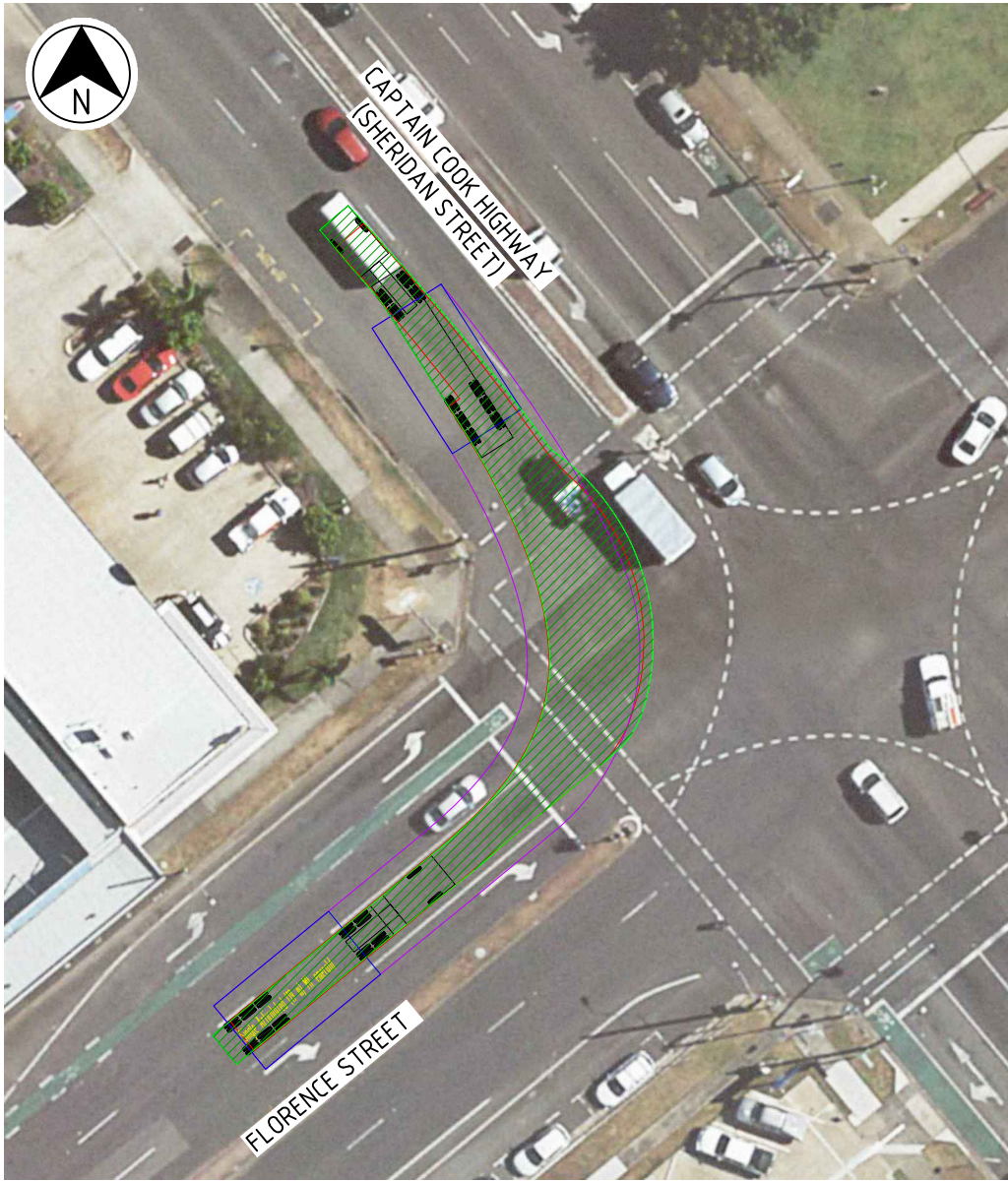
DRAWING NUMBER	REFERENCE DRAWING TITLE

JACOBS

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CLIENT RATCH-Australia Corporation Limited			
PROJECT Mt EMERALD WIND FARM TRAFFIC EIS PROCESS APPENDIX D			
DRAWN LDH	DRAWING CHECK	REVIEWED	APPROVED
DESIGNED	DESIGN REVIEW	DATE	DATE

TITLE 19m TURN PATH SHEET 2 OF 3		
SCALE AS SHOWN	DRAWING No CB24505-ECC-SK-0021	REV A



PLAN
FLORENCE STREET/CAPTAIN COOK HIGHWAY
SCALE 1:250



PLAN
CAPTAIN COOK HIGHWAY/KENNEDY HIGHWAY
SCALE 1:250

SCALE 1:250 (A1) 5 4 3 2 1 0 5 10 15 20 25m

PRELIMINARY ISSUE

REV	DATE	DRAWN	REV'D	APP'D	REVISION
A	26.09.14	LDH			PRELIMINARY ISSUE

DRAWING NUMBER	REFERENCE DRAWING TITLE

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CLIENT RATCH-Australia Corporation Limited			
PROJECT Mt EMERALD WIND FARM TRAFFIC EIS PROCESS APPENDIX D			
DRAWN LDH	DRAWING CHECK	REVIEWED	APPROVED
DESIGNED	DESIGN REVIEW	DATE	DATE

TITLE 19m TURN PATH SHEET 3 OF 3		
SCALE AS SHOWN	DRAWING No CB24505-ECC-SK-0022	REV A

Appendix E. Vehicle Movements expected during the 2-year construction and wind tower installation period

VEHICLE TYPE	VEHICLE MOVEMENTS		
	2-Year Construction Period	Breakdown of 2-Year Construction Period	
		Months 0-6 (Increased Activity)	Months 7-24
(A) Trucks - 10yd Dump Trucks/Trailers - Agitators - Flat Tray Trucks (10 tonne) - Elevated Platform Trucks	14,261 5 577 2	12,661 4 375 0	1,600 1 202 2
Total (A)	14,845	13,040	1,805
(B) Trucks - Semi/Low Loaders - Water Tankers	513 90	0 90	513 0
Total (B)	603	90	513
(C) Trucks - Overlength/Oversize Vehicles	78	0	78
Total (C)	78	0	78
(D) Light Vehicles - 4WD Vehicles - Bus/Coach 30 Seater	3,607 4,580	902 1,145	2,705 3,435
Total (D)	8,187	2,047	6,140
(E) Earth Moving Equipment (transported on low-loader) - Bulldozers - Graders - Vibrating Rollers - Excavators	6 3 5 7	4 2 4 5	2 1 1 2
Total (E)	21	15	6
(F) Cranes - 50 tonne plus Capacity - 400 tonne plus Capacity (Main Crane)	4 20	0 2	4 18
Total (F)	24	2	22
TOTAL Light Vehicles	8,187	2,047	6,140
Total Light Vehicles per day	14	3	10
Average Light Vehicle Trips per day	27	7	20
TOTAL Heavy Vehicles	15,571	13,147	2,424
Total Heavy Vehicles per day	26	22	4
Average Heavy Vehicle Trips per day	52	44	8
TOTAL Vehicles	23,758	15,194	8,564
Total Vehicles per day	40	25	14
Average Trips per day	79	51	29

* 'per day' value based on 300 working-days per year

Appendix F. Engineering Response to Question 25 (From Jacobs 2014)

4. Response to Question 25

4.1 Query

Provide further information on how staff travel to site can be managed in a way that will allow the maximum number of staff vehicles to remain below 30 vehicles per day as indicated in the Traffic Impact Assessment.

4.2 Response

To respond to the Question 25 of the ministerial call (dated 11 June 2014), the following reports were reviewed:

- Technical Note: Mount Emerald Wind Farm Traffic Impact Assessment Engineering Responses - 19 December 2012 undertaken by SKM. The report will be referred to as SKM 2012
- Mount Emerald Wind Farm Traffic Impact Assessment (TIA) – 8 August 2011 undertaken by SKM. This report will be referred to as SKM 2011

Based on the information reviewed, the SKM 2011 TIA report assumes a maximum of 30 vehicles per day for workers during the construction stage of the project. Appendix B of the SKM 2012 technical report outlines in detail the estimated number of workers per month for the two year construction phase. Figure 4-1 summarises the estimated total number of workers during the construction phase (based on the information provided within Appendix D (From SKM 2012 Appendix B)).

Figure 4-1 outlines the total estimated workers for the project during the construction phase (blue line) which includes the estimated construction-related workers (green line) and the estimated skilled/unskilled contract labourers (red line).

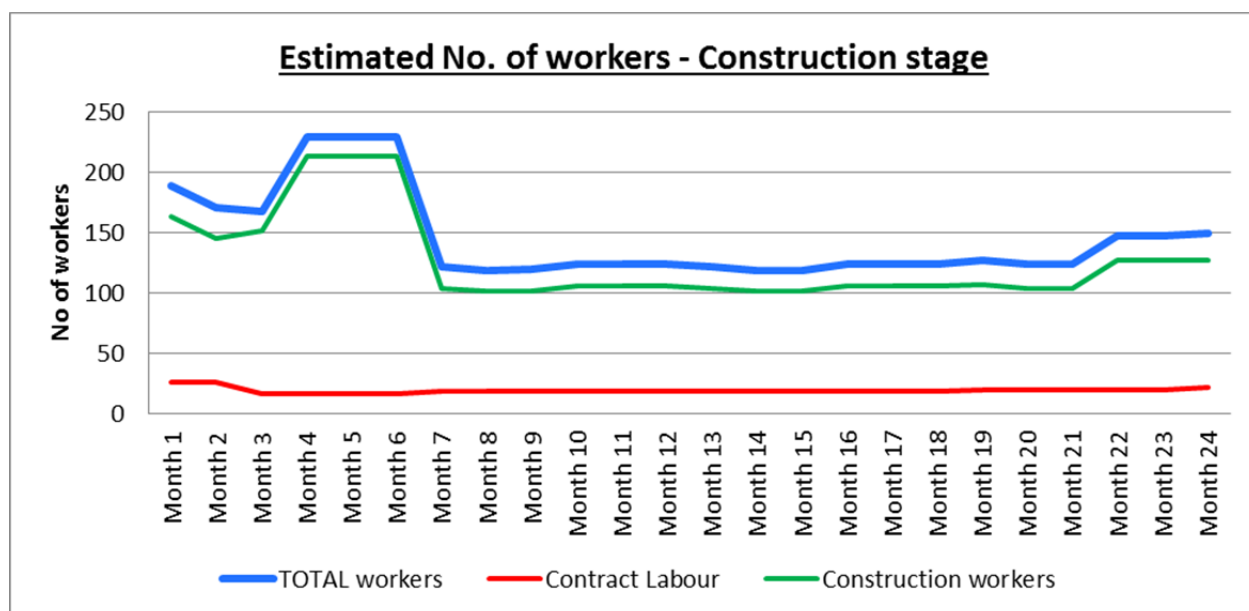


Figure 4-1 Estimated total number of workers during construction stage (24 months)

The estimated maximum numbers of workers expected to be on site during month 4 to month 6 of the construction phase is approximately 229. Of these 229 workers, 16 workers will be contract skilled and unskilled labourers and are expected to arrive and depart the site via individual or shared private vehicles.

The following assumptions (which are consistent with the previous traffic reports) have been adopted for the assessment:

- All construction workers are expected to arrive and depart the project site via dedicated 30 seater worker buses. These buses will have several pick up and drop off points at key townships
- All skilled and unskilled contract labourers are expected to arrive and depart the project site via their own vehicles. It is expected that some skilled and unskilled labourers arriving and departing the project site will carpool. Given the remote location of the project site to key townships, a conservative carpooling ratio of two people per car for the skilled and unskilled contract labours was adopted for this assessment

Based on the assumptions above, the maximum number of trips generated by the estimated number of workers during the construction is expected to be 16 vehicles per day, which comprise eight 30-seater buses and eight light vehicles. To provide a robust assessment, a nominal 10 additional vehicles per day has been added to allow for unscheduled visits, deliveries, private vehicles, miscellaneous tasks, and for construction workers who need to bring their own vehicles with trade specific tools. This makes an estimated total of 26 vehicle movements at the site per day.

Therefore, the estimated number of worker-related vehicles travelling to/from the project site is expected to be 26 vehicles per day which is expected to occur for only 3 of 24 months during the construction phase. The worker-related vehicles generated per day for the remaining 21 months will be less than the anticipated 26 vehicles per day experienced during the peak construction phase.

The estimated number of worker-related vehicles to /from the project site is less than the assumed 30 vehicles per day outlined within the SKM 2011 TIA report and SKM 2012 technical note. However, to maintain the number of worker-related vehicles arriving/departing the project site at or below the expected 30 vehicles per day, the following recommendations should be adopted by the client and the nominated construction contractor during the construction phase:

- The nominated construction contractor will provide a 30-seater shuttle bus services for construction workers arriving and departing the project site.
- The 30-seater shuttle bus will service the key townships where the construction workers live.
- Provide minimal or restricted on-site parking to discourage workers arriving to and departing from the project site via private vehicles.

These measures should be outlined in detail within the construction management plan to be developed in close consultation with the relevant Local Authorities and stakeholders.

Note that the estimated work-related vehicles per day outlined within this assessment are for a pre-feasibility design level. The construction schedule and estimated number of workers for each task may vary depending on the construction methods adopted by the nominated contractor for this project. Detailed worker numbers and construction schedules would become available once the project execution contracts have been awarded, which can only occur once this project is approved. Any changes to the construction worker numbers and schedules would be captured within a detailed construction traffic management plan which should be undertaken during the post approval stage in close consultation with the relevant Local Authorities and stakeholders.

Appendix G. Kennedy Highway traffic Count Data (2013)

Appendix G - Kennedy Highway Traffic Count Data (2013)

Data for Road Section : 32B - KENNEDY HIGHWAY (MAREEBA - RAVENSHOE)

District ID	Chainage (Start)	Chainage (End)	AADT	Growth Rate (1 Year)	Growth Rate (5 Years)	Growth Rate (10 Years)	Traffic (Count) Year	% Heavy Vehicle	% Light vehicle	% Short Vehicle	% Truck or Bus	% Road Train	% Articulated	Light Vehicle AADT	Heavy Vehicle AADT	Short Vehicle AADT	Truck or Bus AADT	Articulated AADT	Road Train AADT
11	0	25.49	5324	-1.92	1.82	2.36	2013	11.91	88.09	88.09	8	1.07	2.84	4690	634	4690	426	151	57
11	25.49	29.61	9173	-3.17	-1.32	0.71	2013	7.85	92.15	92.15	6.69	0.02	1.14	8453	720	8453	614	105	2
11	29.61	31.38	11574	3.36	1.14	2.11	2013	4.15	95.85	95.85	3.63	0	0.52	11094	480	11094	420	60	0
11	31.38	35.04	6739	-15.55	-0.94	0.88	2013	4.62	95.38	95.38	4.08	0.02	0.52	6428	311	6428	275	35	1
11	35.04	61.96	1494	1.29	1.59	5.57	2013	12.85	87.15	87.15	10.09	0.2	2.56	1302	192	1302	151	38	3
11	61.96	82.213	578	-60.81	-21.59	-7.82	2013	11.51	88.49	88.49	8.49	0.21	2.81	511	67	511	49	16	1