

**BEFORE THE HEARINGS PANEL FOR THE QUEENSTOWN LAKES  
PROPOSED DISTRICT PLAN**

**IN THE MATTER** of the Resource Management Act 1991

**AND**

**IN THE MATTER** of Hearing Stream 13 – Queenstown Mapping

**AND**

**IN THE MATTER** Submission 715, Jardine Family Trust and Remarkables  
Station Limited

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**SUMMARY AND SUPPLEMENTARY EVIDENCE OF JASON BARTLETT  
8 August 2017**

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## INTRODUCTION

- 1 I have been engaged by the land owners and Submitters, Jardine Family Trust and Remarkables Station Limited (715) to provide traffic engineering advice in relation to the zone change requested in their Submission, 715.
- 2 In preparing this summary and supplementary evidence I have reviewed:
  - (a) The rebuttal evidence of Ms Wendy Banks for QLDC, Section 6;
  - (b) The rebuttal evidence of Mr Anthony MacColl (NZTA), Sections 14 to 23;
  - (c) The rebuttal evidence of Mr Antony Sizemore for NZTA, Sections 28 to 31; and
  - (d) The rebuttal evidence of Mr Andrew Carr for JPROA.
- 3 In this evidence I have provided supplementary information with respect to a possible access intersection from Kingston Road (SH6) and traffic modelling for access to the zone change either via Maori Jack Road or direct access via a new intersection from SH6.

## REBUTTAL EVIDENCE

- 4 The primary concern raised by Ms Banks appears to be the lack of traffic modelling to confirm that a direct SH6 access to the additional 541 residential lots within Homestead bay is possible. This is driven by the number of dwellings within the overall Jacks Point Zone being significantly greater than provided for in the current QLDC/NZTA traffic model. It appears from this concern that Ms Banks does not support the overall network traffic modelling undertaken by QLDC and NZTA in 2016. Within this evidence I will provide further modelling for the proposed access to the extension of the Homestead Bay portion of the Jacks Point Zone.
- 5 The rebuttal evidence of Mr MacColl and Mr Sizemore both for NZTA raise concerns that they have not been provided with any details of a possible direct access from SH6 to serve the extended Homestead Bay residential area. In addition, Mr MacColl and Mr Sizemore would both expect that increased traffic from the Homestead Bay would ideally use

the existing Jacks Point Zone accesses if this is possible. Both consider that provision a further SH6 access, if required, would be outside of this District Plan process.

- 6 The rebuttal evidence of Mr Carr for JPROA was primarily concerned with the potential traffic effects of the Homestead Bay extension on the residence of Jacks Point. This included effects of traffic; on Maori Jack Road which is a privately owned road operated by JPROA, and at the existing intersection with SH6. Mr Carr considers that operational effects at the intersection of Maori Jack Road and SH6 would be a direct downstream traffic effect that should be assessed.

#### SUPPLEMENTARY EVIDENCE

- 7 I have undertaken traffic modelling in order to consider the concerns raised within the rebuttal evidence. To undertake this I have had to establish both a design year base line without the additional 541 residential lots at Homestead Bay. To complete this I have relied on the following:

- (a) The base traffic flow on SH6 is from the QLDC/NZTA traffic model. For SH6 traffic I have used the 2045 am and pm peak period traffic flows. 2045 is likely to be well beyond the anticipated design year for this zone change and a robust basis for assessment;
- (b) Base traffic flow for the Jacks Point portion of the Jacks Point Zone is based on development of 800 residential dwellings. This considered to be a realist base traffic flow for Maori Jack Road;
- (c) The portion of Homestead Bay development enabled under the Operative QLDC District Plan, 244 residential dwellings will use Maori Jack Road for access. This portion of homestead Bay traffic is considered to use Maori Jack Road regardless of alternative access options; and
- (d) That traffic generation and distribution rates are based on the evidence of Mr Carr<sup>1</sup>. It is noted that this is identical to the

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<sup>1</sup> Refer Rebuttal Evidence of Mr Carr, paragraphs 17 & 18.

generation and distribution rates assumed in the QLDC/NZTA traffic model for the Jacks Point Zone.

- 8 The traffic distributions and modelling results are provided in Attachment A.
- 9 For the allowable development of Jacks Point and Homestead Bay (244 dwellings) the Maori Jack Road intersection with SH6 will generally operate efficiently with queuing (delay 10 seconds am and 25 seconds pm) at the right turn from Maori Jack Road to SH6. The maximum queue length for this manoeuvre would be less one vehicle.
- 10 For modelling I have considered a scenario 1 where all development of Jacks Point and Homestead Bay (785 dwellings) use the existing intersection of Maori Jack Road with SH6. This scenario showed; that in the am peak period the left turn from Maori Jack to SH6 would fail, and in the pm peak period the right turn from SH6 to Maori Jack Road would have an increased queue length. The delays right turn from Maori Jack Road to SH6 will also increase although maximum queue lengths will still be less than one vehicle.
- 11 To manage the additional traffic for this modelled scenario the following improvements will be required:
  - (a) Create a left turn lane from Maori Jack Road and merge to SH6 northbound to reduce delay and queuing;
  - (b) Extend the existing right turn bay to accommodate longer right turn queue without affecting southbound through traffic; and
  - (c) Increase capacity of Maori Jack Road link for vehicular traffic and pedestrians<sup>2</sup>. In particularly increasing the footpath provision on Marori Jack Road and widening at the existing side road intersection within Jacks Point. This would be required to increase the capacity of the existing road and side road intersections.
- 12 It is expected that any improvements necessary such as those noted above would be part of any agreement with JPROA. Based on the modelled scenario 1 both NZTA and JPROA approvals will be required

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<sup>2</sup> Refer Rebuttal Evidence of Mr Carr, paragraphs 30 to 31.

to improve the capacity of the Maori Jack Road and the intersection with SH6. Without the approval of JPROA a new state highway intersection will be required to facilitate the extension of Homestead Bay residential area.

- 13 I have considered a scenario 2 where Jacks Point and a portion of Homestead Bay (244 residential dwellings) would use the existing Maori Jack Road intersection with SH6. In this scenario a new SH6 intersection would be provided to access the additional 541 residential dwellings at Homestead Bay. This scenario allows for increased through traffic at the existing Maori Jack Road intersection which is a concern raised by Mr Carr in his rebuttal evidence<sup>3</sup>.
- 14 Scenario 2 is reliant on a new access intersection to be located at the existing registered crossing place CP48. This intersection would be similar to the existing Maori Jack Road intersection and can be designed in accordance with current Austroads Guidance. Attachment B provides a possible intersection layout. At the location the available visibility sight distance is in excess of 300m in each direction which is the desirable safe intersection sight distance for a 110km/hr operating speed. I acknowledge the concerns of Mr MacColl and Mr Sizemore regarding a lack of detailed site information, for the avoidance of doubt the visibility sight distances at the site are approximately 400m to the south and 500m to the north.
- 15 Scenario 2 would be the only viable access to the proposed Homestead Bay extension if JPROA do not approve access via Maori Jack Road.
- 16 The Scenario 2 modelling suggests that the new T-intersection with the SH6 would generally operate efficiently with minimal queuing. With this scenario the downstream effects at the Maori Jack Road intersection would be:
- (a) Significantly increased left turn queuing in the am peak period. This can be relieved by the provision of a left turn lane from Maori Jack Road and merge to SH6 northbound;

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<sup>3</sup> Refer Rebuttal Evidence of Mr Carr, paragraphs 23 to 29.

- (b) Slight increase in the queue length for right turning from SH6 to Maori Jack Road. This may require the extension of the existing right turn bay. The delay for this manoeuvre will be minimal, approximately 12 seconds; and
  - (c) Increased queuing for right turning traffic from Maori Jack Road in both the am and pm peak periods although the maximum queue lengths will still be less than one vehicle.
- 17 This scenario 2 traffic modelling suggests that if a new state highway intersection is provided then there will be a need for improvements at the existing intersection of Maori Jack Road. These improvements are of a similar nature identified the scenario 1 modelling.
- 18 I have not transferred this modelling to other proposed state highway intersections that serve the Jacks Point Zone. It is expected that any additional improvement works at these intersections would be at the discretion of NZTA. Should NZTA wish to retain or improve the operational efficiency or safety of the state highway network beyond the immediate site this is likely to form part of any approvals from NZTA. At this stage it is noted that the SH6 intersection with Woolshed Road is limited to construction traffic only.
- 19 The modelling that I have undertaken is relatively detailed in nature. It is likely that this modelling will need to be repeated for any NZTA approvals at the time of development. As the order of development within the Jacks Point Zone progresses it is likely that additional modelling will be required by NZTA based on the extent of development committed and a realistic expectation of future design traffic. This has been the case with other intersection on the state highway network regardless of details discussed and agreed at a previous planning stages. It is possible that other development within, or beyond, the Jacks Point Zone may change the anticipated intersection layout or the method of control.
- 20 The modelling undertaken demonstrates that it is possible to provide an access to the proposed Homestead Bay extension facilitated by the Submission. The access to the extension may be either a new access intersection on SH6, or via Maori Jack Road. These options both require approvals from third parties.

**SUMMARY**

- 21 The Jardine Family Trust and Remarkables Station Limited Submission (715) seeks to rezone an area of rural land at Homestead Bay. It is possible that this zone change could provide up to 541 additional residential lots.
- 22 Following comments made in rebuttal evidence I have undertaken more robust traffic modelling which shows that:
- (a) Access to the proposed zone change can be provided via Maori Jack Road. This will require a number of improvements. If this access methodology is progressed approvals from both JPROA and NZTA will be required to allow for road upgrades; or
  - (b) Access to the proposed zone change can be provided from a new intersection onto SH6. This intersection can be constructed to meet the requirements of current Austroads guidance. Improvements will also be required at the existing Maori Jack Road intersection with SH6 and potentially other intersections serving the Jacks Point Zone. These improvements all require works within the state highway corridor. If this access methodology is progressed NZTA approval will be required.
- 23 The additional traffic modelling undertaken does not change my opinions expressed in my Evidence. The additional modelling does provide a more robust assessment in order to review potential transport effects and ascertain how these can be minimised. It is acknowledge that although effects can be minimised approvals of adjacent road controlling authorities will be required if the level of development at Homestead Bay exceeds the provisions of the Operative District Plan.

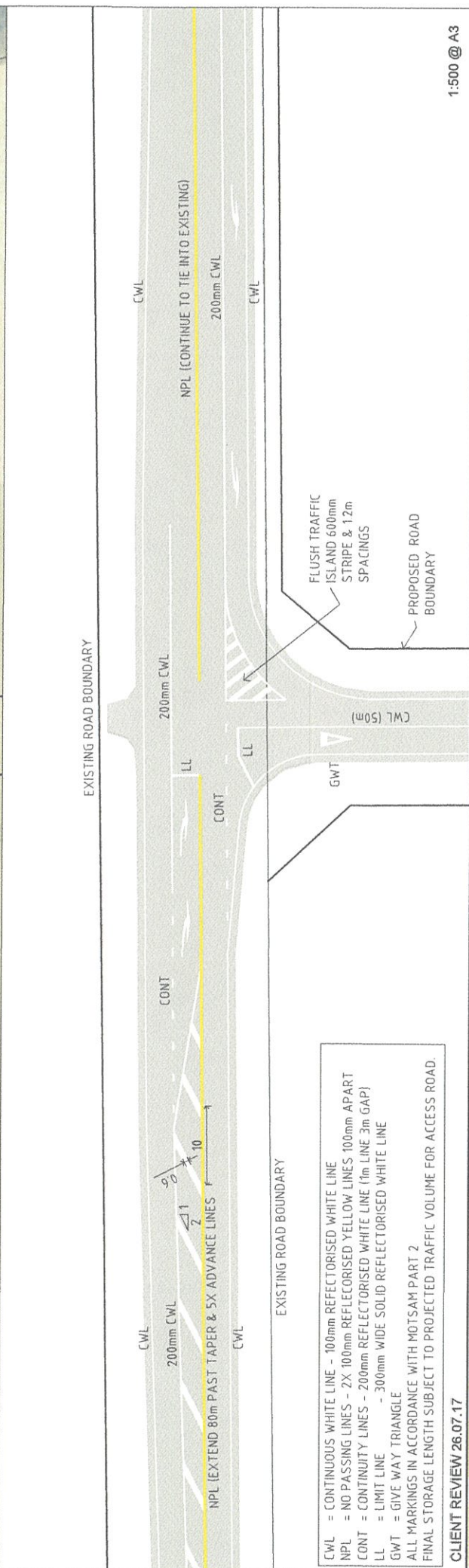
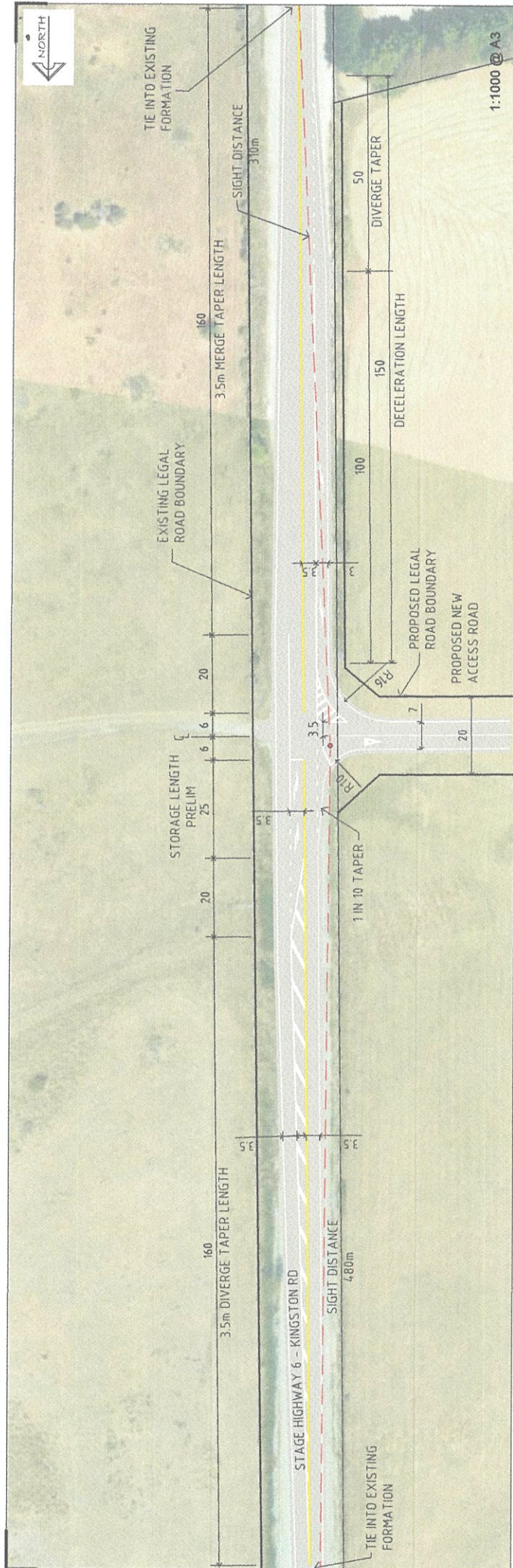
**Jason Bartlett**

**8 August 2017**

## **Attachment A – Traffic Distribution and Modelling**



## **Attachment B – Proposed State Highway Intersection Layout**



CLIENT REVIEW 26.07.17

CWL = CONTINUOUS WHITE LINE - 100mm REFLECTORISED WHITE LINE  
 NPL = NO PASSING LINES - 2X 100mm REFLECTORISED YELLOW LINES 100mm APART  
 CONT = CONTINUITY LINES - 200mm REFLECTORISED WHITE LINE (1m LINE 3m GAP)  
 LL = LIMIT LINE - 300mm WIDE SOLID REFLECTORISED WHITE LINE  
 GWT = GIVE WAY TRIANGLE  
 ALL MARKINGS IN ACCORDANCE WITH MOTSAM PART 2  
 FINAL STORAGE LENGTH SUBJECT TO PROJECTED TRAFFIC VOLUME FOR ACCESS ROAD

Rev.	Date	Revision Details	By
01	01/01/14		Jardine

Job No.	Drawing No.	Date	Scale	Datum & Level
12471	01	01/01/14	AS ABOVE	MT Nic 2000 & MSL

Author	Checked	Designed	Drawn	Reviewed
Jardine				

Note:  
 All dimensions shown are in metres unless otherwise stated.  
 All dimensions are to be checked against the site plan.  
 All dimensions are to be checked against the site plan.  
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## HOMESTEAD BAY PROPOSED SH6 INTERSECTION LAYOUT

**Clark Fortune McDonald & Associates**  
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