IN THE MATTER OF of the Resource Management Act 1991

AND

IN THE MATTER OF of Resource Consents and Notices of Requirement for the Central Interceptor main project works under the Auckland Council District Plan (Auckland City Isthmus and Manukau Sections), the Auckland Council Regional Plans: Air, Land and Water; Sediment Control; and Coastal, and the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health

STATEMENT OF EVIDENCE IN REPLY OF LEO DONALD HILLS ON BEHALF OF WATERCARE SERVICES LIMITED

TRAFFIC

1. INTRODUCTION

Qualifications and experience

1.1 My name is Leo Hills. My qualifications and experience are set out in my primary statement of evidence.

1.2 I confirm that I have reviewed, and agree to comply with, the Code of Conduct for Expert Witnesses set out in the Environment Court's Practice Note (2011).

Scope of this evidence in reply

1.3 The purpose of this evidence in reply is to comment on the two expert traffic witnesses who presented evidence on behalf of two submitters at the hearing on Monday 5 August 2013, and also to comment on the suggested use of Councillors Drive as access to the Mount Albert War Memorial Reserve site.

1.4 The two expert traffic witnesses who produced evidence were:

(a) Mr John Burgess, on behalf of Foodstuffs (Auckland) Limited ("**Foodstuffs**") in respect of the May Road site; and

(b) Mr Bryce Hall, on behalf of St Lukes Gardens Apartments Progressive Society Incorporated in respect of the Lyon Avenue site.

1.5 The submitters who suggested the use of Councillors Drive were Mr Webb and Ms Gordon.

1.6 I address the three sites in turn.

2. MAY ROAD SITE

Mr John Burgess' Evidence

2.1 In paragraph 2.3 of his evidence Mr Burgess discusses the traffic modelling and, in particular, the potential for additional queuing on the right turn from May Road into Roma Road. I note that Mr Burgess states that "*although the modelling indicates that the Roma Road intersection will continue to operate satisfactorily overall, there will be potential effects for short periods of the day*".

2.2 I note that the modelling undertaken as part of the TDG Traffic Impact Assessment which was attached as Technical Report E of Part D ("**Traffic Report"**) to the Central Interceptor Main Project Works Assessment of Effects on the Environment, dated August 2012 ("**AEE**") shows that the 95th percentile queue length for the right turn from May Road into Roma Road will increase slightly in the critical morning peak period (29.5m to 30.2m). I have re-run this model based on the new vehicle route proposed (entry via Roma Road / exit via May Road) and confirm the increase in this queue length is almost exactly the same (31m), with this new vehicle route. The Project is only adding 14 additional car movements and five additional truck movements to this right turn movement in the critical morning peak period which currently already experiences 162 movements per hour. Overall, while any additional traffic will have an effect on the operation of an intersection, in this case the effect will be minimal.

2.3 Through paragraphs 3.1 to 3.17 there is discussion regarding the use of the Roma Road driveway as a two-way driveway. In particular in paragraph 3.17, Mr Burgess states that there is still some uncertainty

regarding Watercare's ability to actually establish the May Road driveway and one-way system, as proposed Designation Condition (TM.3D) of the Hearing Set stated it was still "*subject to agreement with the owner of the land*". Thus, he has assessed the notified option of the Roma Road driveway providing both access and egress. I agree that the condition provided flexibility and could, in theory, have enabled Watercare to revert back to the two-way Roma Road option. This was not the intention. As such, in the Reply Set this condition has been amended to remove the above qualification so that access and egress will definitely be via a one-way system with entry from Roma Road. Therefore, I consider that Mr Burgess' comments relating to two-way access at Roma Road no longer remain relevant.

2.4 In paragraph 3.18 (and also in the conclusion in paragraph 4.1), Mr Burgess also correctly notes that in Designation Condition TM.3D as proposed in the Hearing Set, only "heavy" vehicles are restricted to the one-way system, not all vehicles. This was never the intention of this condition. In the Reply Set the words *"heavy vehicles"* have been replaced with *"all vehicles"* in proposed Designation Condition TM.3D. This would mean that there is no potential for conflict between entering and exiting vehicles on the Roma Road driveway. It will also mean that the majority of the Roma Road construction access driveway can be narrowed to 3.5m (of the 7.5m width available) and centered in the middle of the access-way which would allow for greater separation from the adjacent buildings.

2.5 Through paragraphs 3.19 to 3.25 Mr Burgess discusses the potential for two-way access via May Road, with no use of Roma Road for construction. Mr Burgess describes a management method, in paragraph 3.24, of having trucks wait on May Road (in a new painted flush median) to check whether a truck is exiting from the driveway before entering the site. I have considered this option and, as per my comments regarding the two-way operation option at May Road in my supplementary evidence, I see this option to be feasible. However, I also consider it to be an inferior option to the one-way option that is now proposed. This is due to:

(a) Trucks having to wait on a District Arterial Road (albeit in a painted median) which is not, in my opinion, good practice.

(b) The entering trucks would not only have to deal with both vehicles and pedestrians travelling on May Road when assessing gaps in traffic flows, but would also need to keep a careful watch on exiting vehicles. This has the potential to lead to safety issues and, in particular, trucks potentially blocking May Road when turning due to them not noticing an approaching exiting vehicle.

(c) As I noted previously in my supplementary evidence, May Road is a District Arterial Road (as opposed to Roma Road being a Local Road) and experiences considerably greater traffic volumes than Roma Road (measured in August 2011 as 1,400 vehicles per hour on May Road vs 242 vehicles per hour on Roma Road in the evening commuter peak period).

(d) The speed environment at the Roma Road driveway is much lower than that at May Road, and as such, is more appropriate for truck access. In this regard I have measured the approaching speeds (located at both driveways) and have recorded both the average and 85th percentile operating speeds. For Roma Road the average and operating speed was 38km/hr and 45km/hr respectively, while for May Road this speed was 51km/hr and 56 km/hr. As such, the May Road driveway experiences a much higher speed environment.

2.6 Overall, it remains my opinion that the two-way access off May Road is inferior to the one-way Roma Road / May Road option now proposed by Watercare.

2.7 In paragraph 3.9 of his evidence, Mr Burgess agrees that a truck and trailer would physically be able to make a left turn movement into the Roma Road driveway without crossing the centre line of Roma Road. However, he notes that this would involve quite a tight turn which will utilise the full extremities of the driveway access and thus, in reality, he considers the truck and trailer drivers are more likely to cross the centre line before turning into the site.

2.8 In regards to this issue, a more detailed truck tracking curve for a truck and trailer turning left from Roma Road into the access driveway is included as **Attachment F** of this evidence. With appropriate design of the

driveway splays as shown (including the removal of 23m of on-street parking), I consider that the truck and trailer will not necessarily use the full extremities of the driveway. Further, in my experience the majority of driveways used by heavy vehicles are designed to just accommodate the largest vehicle expected in order to minimise the crossing distance and hence the pedestrian conflict area. As such, drivers of large trucks are used to driveways that have been designed to just accommodate their vehicle.

2.9 Further in this regard, should a truck driver cross the centre line for some reason, I would note that the surrounding area is a relatively low speed environment (as noted previously in my speed surveys at paragraph 2.4(d) above) and also experiences good sight distances to the end of the street / Foodstuffs' driveways.

2.10 Finally, in his conclusion at paragraph 4.1, Mr Burgess notes that the one-way system recently proposed would provide some relief by halving the number of trucks *"but would not remove entirely the potential conflict between entering trucks and other exiting vehicles unless the one-way operation was for all vehicle movements".* With the proposed amendment to proposed Designation Condition TM.3D making <u>all</u> vehicles use the one-way system, rather than heavy vehicles only, this potential conflict is completely eliminated.

3. LYON AVENUE

Mr Bryce Hall's evidence

3.1 Firstly, in regards to Mr Hall's evidence (in particular paragraphs 3.5 and 3.7) and the legal submissions presented by Mr Fuller, I strongly disagree with the notion that I have not discussed or assessed the appropriateness of using Morning Star Place for construction access supposedly because of reliance on existing legal rights. I undertook a normal assessment of the effects of using this route. In Sections 4.3.6 to 4.3.8 of my original Traffic Report (which forms part of the AEE), I discussed the operation of Morning Star Place. This was followed after receipt of submissions by a more detailed review of the Morning Star Place access option as well as six other potential options for access in relation to linkage to the major road network, pedestrian safety, vehicular safety / capacity and parking effects. Following this further review, my primary evidence details the

general results of the comparison between the options (including Morning Star Place) in paragraphs 5.40 to 5.52, as well as commenting on submissions in paragraphs 5.53 to 5.67. In particular, I note that in **Attachment A** to my primary evidence all the potential mitigation measures that I have developed / suggested for the Lyon Avenue site (section 1.4 of **Attachment A**) relate to the effect on Morning Star Place or the pedestrian access within the Roy Clements Treeway.

3.2 I agree with Mr Hall (at paragraphs 4.5 to 4.7 of his evidence) that parked vehicles can extend into Morning Star Place reducing its overall width. I have measured the actual remaining width on Morning Star Place (between two parked cars on either side of the road) and found the minimum on-site dimension still to be approximately 7.2m. The parked cars have been taken into account in terms of the tracking diagram shown on page 69 of the Hearing Drawing Set showing two single unit dump trucks passing each other along the entire length of Morning Star Place. Of note, this drawing not only shows the tracking body of the vehicle, but also a 500mm clearance from the truck.

3.3 In paragraphs 5.15 and 5.16 of his evidence, Mr Hall notes the requirement for articulated trucks to access the site and states that this has not been assessed. I understand this will be an infrequent event and only potentially relating to precast / steel delivery, can be managed to not occur at the same time as any other truck movement, and would likely only occur for short durations to match the construction scheduling. The size of this articulated truck will be limited to the site itself and the ability to turn the truck around on-site.

3.4 Accordingly, I do not consider the largest semi-trailer permitted in New Zealand (19m long) will be able to access the site as it will simply be unable to turn around on-site. Rather, I would expect the semi-trailer / articulated truck to be smaller at approximately 13.5m long with 11m long flat-decks. **Attachment G** to this evidence shows the tracking (access and egress) of such a semi-trailer. Of note, an entering semi-trailer can pass another semi-trailer (or any other vehicle) over the entire length of Morning Star Place except for the final 50m closest to the construction access. In my experience, given the low numbers of such trucks expected, (approximately 20 in total) this cross-over can easily be safely accommodated by an on-site spotter as part of the final detailed Traffic Management Plan ("**TMP**") for this site.

3.5 The majority of Mr Hall's evidence (paragraphs 4.1 to 4.11 and 5.1 to 5.13) relates to the suitability of Morning Star Place to cater for the additional trucks expected during construction. In this regard I note:

(a) As Mr Hall noted, I have also witnessed pedestrians walking along Morning Star Place. At the same time I have also witnessed these pedestrians moving out of the carriageway when vehicles approach. The construction trucks are likely to be even more noticeable to pedestrians which will give ample time for the pedestrians to move out of the carriageway.

(b) Morning Star Place is a low speed environment. I have measured the average and 85th percentile operating speeds to be 23km/hr and 27km/hr respectively. This slow speed is due in part to signage (10km/hr posted speed limit) and the presence of four raised speed tables. I would expect any TMP developed for this site to emphasise and enforce truck drivers travelling at an appropriate speed.

(c) As Mr Hall notes, Morning Star Place carries in the order of 1,100 to 1,600 vehicles per day. Traffic surveys I have undertaken show peak hours to be up to 113 vehicles per hour which would support Mr Hall's assessment. Typically, Local Roads carry less than 1,000 vehicles per day (although many do carry more). As such, the traffic on Morning Star Place is already higher than typically experienced on Local Roads. The additional traffic generated by the Project will add between 6 - 9% in the peak hour and 4 - 6% on a daily basis. While over half this additional traffic will be single unit trucks, it does demonstrate the actual increase will be minimal.

3.6 Further, I note that the St Lukes Gardens Apartments were developed in stages with many of the apartment buildings being constructed while other buildings were occupied. As such, Morning Star Place has experienced significant levels of construction activity in the past while some apartments were occupied. In this regard, a search of the New Zealand Transport Agency's Crash Analysis System shows no reported accidents on Morning Star Place (which is included in the database even though it is a private road) over the last 10 years. This excellent safety record was confirmed by Mr Lancaster (Building Manager) in his evidence and through answers

to questions by the Commissioners where he noted he was not aware of any incident on Morning Star Place since he has lived there.

3.7 Overall, it is my opinion that with a TMP created in accordance with the proposed Designation Conditions TM.1 - TM3, the effects created by the increase in vehicle numbers on Morning Star Place can be appropriately mitigated.

3.8 Mr Hall has reviewed two alternative options for access to the Lyon Avenue site as being:

(a) Mount Albert Grammar School ("**MAGS**") playing fields via Alberton Avenue; and

(b) 2 Wagener Place.

3.9 Of note, these access options are exactly the same as Option 3 and Option 7 which I have previously assessed in my primary evidence. Both the MAGS option and the 2 Wagener Place option have issues which I consider Mr Hall has not fully stated / addressed in his evidence.

3.10 In regards to the MAGS site, there is potential for conflict between the truck access and MAGS students / boarders near the vehicle entrance to Alberton Avenue. Fencing would ideally be required to separate the truck access and MAGS. Given that MAGS cars also use the access on Alberton Avenue, it is unlikely the trucks could be fully separated from MAGS cars near Alberton Avenue. This would be exacerbated by the lack of any footpaths, even nearby, or any defined pedestrian areas, or indeed any defined road. This area is shown in **Photograph 1** below:

Photograph 1: MAGS Alberton Avenue access

3.11 Truck movements would also need to be restricted to outside school peak periods at the MAGS site as the access goes through the school itself not just on a road passing outside (as noted by Mr Hall in paragraph 6.8 of his evidence).

3.12 While sight distance at the access is good (as noted by Mr Hall in paragraph 6.7 of his evidence), in my opinion (and as noted in paragraph 5.51 of my primary evidence), access would require a longer truck route due to left turn restrictions (to avoid right turn exits).

3.13 In regards to the 2 Wagener Place option, what is not evident in Mr Hall's photos in Figure 7 of his evidence is that this access is currently one-way in width. This is due to angled parking along the adjacent building as shown in **Photograph 2** below:

Photograph 2: 2 Wagener Place access

3.14 Further, sight distance from Wagener Place to the end of the access and parking area is somewhat restricted as shown in the above **Photograph 2**. This, together with the one-way access and presence of other car parking spaces in the access, would mean that:

(a) the access could only operate in one direction; or

(b) the access would have to be signalised; or

(c) the parking would have to be removed.

3.15 Traffic signals would be very difficult to manage in this situation as there would be parked vehicles effectively held within the traffic signals and, as such, for two-way access, I would recommend the angled on-site parking be removed.

3.16 Overall, as I noted in paragraph 5.52 of my primary evidence, both of these options could be made viable from a traffic engineering perspective. I did, however, note in paragraph 5.52 that from a traffic engineering perspective I considered that the best access option for the Lyon Avenue site was Morning Star Place. Following a review of the evidence presented by submitters, I still remain of this opinion.

4. MOUNT ALBERT WAR MEMORIAL RESERVE

4.1 I understand that a submitter[1] has asked if Councillors Drive[2] could be used as a potential access route from Wairere Avenue for the Mount Albert War Memorial Reserve site.

4.2 From a traffic / transportation point of view I consider that Councillors Drive would be an inferior option due to:

(a) Councillors Drive being narrow in places with a number of turns that would be unsuitable for large trucks; and

(b) Councillors Drive being more of a "carpark" environment than a road especially with the presence of the Mount Albert Community and Recreation Centre buildings.

4.3 I remain of the view that the proposed access from Wairere Avenue is appropriate.

4.4 In response to ongoing discussions with Ms Crafer, Watercare has now agreed to the imposition of an additional condition relating to the access to the Mount Albert War Memorial Reserve construction site. This condition, which is included in the Reply Set, requires:

> TM.3CB Heavy vehicles associated with construction at the Mount Albert War Memorial Reserve site must only turn left from Wairere Avenue onto New North Road when leaving the site.

4.5 This new condition reflects Watercare's proposed access arrangements and is consistent with recommendations previously set out in the Traffic Report[3] and in my primary statement of evidence.

---

1 Mr Webb and Ms Gordon.

2 Councillors Drive is shown on the very bottom of pages 49 and 50 of the Hearing Drawing Set parallel with the currently proposed construction access.

3 Technical Report E, referred to in Designation Condition DC.1(d) and Consent Condition 1.1(d).

5. CONCLUSION

5.1 I have reviewed the traffic engineering issues raised by the submitters in the hearing. I continue to support the Notices of Requirement and Resource Consents sought by Watercare relating to the Central Interceptor Project, and endorse the conditions proposed in the Reply Set.

Leo Donald Hills
13 August 2013