Before the Board of Inquiry
Waterview Connection Project

in the matter of: the Resource Management Act 1991

and

in the matter of: a Board of Inquiry appointed under s 149J of the Resource Management Act 1991 to decide notices of requirement and resource consent applications by the NZ Transport Agency for the Waterview Connection Project

Statement of evidence of Graham Don (Avifauna) on behalf of the **NZ Transport Agency**

Dated: 9 November 2010

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STATEMENT OF EVIDENCE OF GRAHAM DON ON BEHALF OF THE NZ TRANSPORT AGENCY

INTRODUCTION

1 My full name is Graham Lloyd Don.

2 I am the Managing Director of Bioresearches Group Limited (*Bioresearches*), which specialises in Biological and Archaeological consultancy services. I have a Bachelor of Science with Majors in both Botany and Zoology, and a Master of Science with Honours in Zoology from the University of Auckland (1975). I have been in private practice for 35 years.

3 During that time I have undertaken ecological assessments throughout New Zealand in a wide range of habitats. For the past 20 years my principal area of responsibility regarding field assessments has been the wildlife aspects of various development proposals, especially the avifauna.

4 I have conducted numerous ecological investigations on behalf of regional councils, district councils, private entities, and others. Examples include:

4.1 Terrestrial bird surveys in 500 ha beech forest owned by the Department of Conservation near Reefton;

4.2 Terrestrial bird surveys in the c.108 ha Waikumete Cemetery for Waitakere City Council;

4.3 Surveys of native forest habitat and forest remnants for Winstone Aggregates, Stevensons, Holcim, Wharehine, and Kaipara Excavators;

4.4 Ecological surveys and terrestrial and wetland bird counts within the Long Bay Structure Plan Area from 2004 to 2006.

4.5 Terrestrial and wetland bird survey of the c.200 ha Te Puni wetland, Waikato River (Winstone Aggregates);

4.6 Specific fernbird surveys at many locations, for example, Harbourview Reserve (Waitakere City), Kuratau (Lake Taupo; Trustees of Pukawa D2 & D3), Ouaha Ridge (Lake Taupo; NZ Forest Managers), Te Tumu (Tauranga; Te Tumu Landowners).

4.7 Other recent coastal bird surveys that I have completed are listed in **Annexure A** to my evidence.

5 My evidence is given in support of notices of requirement and applications for resource consents lodged with the Environmental Protection Authority (*EPA*) by the NZ Transport Agency (*NZTA*) on 20 August 2010 in relation to the Waterview Connection Project (*Project*). The Project comprises works previously investigated and developed as two separate projects, being:

5.1 The State Highway 16 (*SH16*) Causeway Project; and

5.2 The State Highway 20 (*SH20*) Waterview Connection Project.

6 I am familiar with the area that the Project covers, and the State highway and roading network in the vicinity of the Project.

7 I have read the Code of Conduct for Expert Witnesses as contained in the Environment Court Consolidated Practice Note (2006), and agree to comply with it. In preparing my evidence, I have not omitted to consider material facts known to me that might alter or detract from my opinions expressed.

SCOPE OF EVIDENCE

8 My evidence will deal with the following:

8.1 Executive Summary;

8.2 Background and role;

8.3 Summary of assessment of avifauna effects;

8.4 Post-lodgement events;

8.5 Comments on submissions; and

8.6 Proposed Avian conditions.

EXECUTIVE SUMMARY

9 In my opinion the effect of the Project on terrestrial, coastal and marsh birds will be minor and will not result in a decrease in the diversity of birdlife. Any effects that do result are likely to be temporary and low level and would be mitigated by the proposed avian conditions outlined in **Annexure B** to my evidence.

BACKGROUND AND ROLE

10 The NZTA retained Bioresearches as part of a consortia team to assist with the investigation, engineering and planning of the SH16 component of the Project and I was asked to prepare the assessment of the avifauna effects for that part of the Project. Mr

Dave Slaven of Boffa Miskell Limited was retained to assess the effects of the SH20 (Waterview) component of the Project on avifauna. After the SH16 and SH20 Projects were merged, I was asked to prepare an Assessment of Avian Ecological Effects Report (*Report*) in relation to the effects of the entire Project on avifauna.

11 The Report was lodged with the EPA on 20 August 2010 as part of the overall Assessment of Environmental Effects (*AEE*) (specifically, Part G, Technical Report G.3).

SUMMARY OF ASSESSMENT OF AVIAN ECOLOGICAL EFFECTS

12 In this section of my evidence I will describe the methodology and key conclusions of the Report.

Summary of Methodology

13 Terrestrial birds were assessed[1] via specific surveys in Sector 5 (Great North Road Interchange) and Sector 9 (Alan Wood Reserve) from 2000 to 2008 inclusive. The methods used were counts along transects (distance sampling), presence/absence recordings and standard five-minute counts. An inspection of terrestrial habitats in the remaining sectors indicated that no formal surveys were warranted; the habitat was limited and only suitable for typical, common urban birds.

14 Marsh birds using rush marsh and mangrove habitats were surveyed[2] at Oakley Creek (Sector 4 east and Sector 5) using transects to establish bird presence (direct observation, footprints) and lure tapes. Surveys within the Project's footprint along the edges of Traherne and Pollen Island (Sectors 2, 3 and 4) relied on direct observation and inspection of the habitat for footprints.

15 Coastal birds were documented in three surveys.[3] Firstly, an overview survey was conducted (2007-08) throughout the wider Project area from Whau Creek to Point Chevalier and in Waterview Estuary. That included Sectors 2 (Whau Creek) and 4 (Reclamation) and involved 12 low tide and 3 high tide counts from 9 stations.

16 Secondly, a specific causeway survey (Sector 4) was completed in March 2007 to assess bird use of the likely works footprint in the maritime and intertidal areas and in the adjacent intertidal habitats. Both sides of the causeway were surveyed; a total of 41 counts over a full range of tidal conditions were completed along an 800 metre length of causeway and habitat use data was also recorded.

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1 Section 3.1 of my Report.

2 Section 3.3 of my Report.

3 Section 3.2 of my Report.

17 Thirdly, coastal birds using the areas of and adjacent to the proposed Construction Yard 1 at Te Atatu (Sector 1) for roosting at high tide were recorded on a regular basis from March 2010 to February 2011 inclusive.

Summary of Assessment

18 The overall conclusion of my Report[4] is that the effect of the Project on terrestrial, coastal and marsh birds will be minor and will not result in a decrease in the diversity of birdlife. Any effects that do result are likely to be temporary and low level and would be mitigated by the proposals outlined below.

Terrestrial Birds

19 Terrestrial birds are those commonly found in urban and coastal edge habitats and consist of common native and introduced species.[5] In my opinion there will be no significant adverse effects in relation to any at risk or threatened terrestrial birds as a result of the Project. The effect of the Project on common terrestrial birds could, however, be minimised by scheduling more major vegetation clearance (e.g. Oakley Creek) to occur outside the bird breeding season of September to December, where practicable.

20 Banded rail were not recorded within the Project Area. Though this does not confirm the species' absence, cumulative evidence suggests that if present, numbers are probably very low. No fernbird were recorded within the Project Area.[6] Any loss of potential banded rail habitat will be mitigated by animal pest control on Traherne Island and along the Coastal Marine Area (*CMA*) frontage.

Coastal Birds

21 Coastal bird surveys confirmed that the area surrounding the Waterview Inlet is a notable feeding and roosting habitat for waders and other coastal bird species.[7] The area of mudflat and shellbank habitat surrounding the Inlet is well used owing to a combination of substrate structure, provision of roost sites and the fish-concentrating effect of the Causeway Bridge. The area supports a year-round population of threatened bird species, with numbers especially elevated during spring and summer by the presence of seasonal national and international migrants.

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4 As set out in section 9 of my Report.

5 Refer section 4.1 of my Report.

6 Refer section 4.3 of my Report.

7 Refer section 4.2 of my Report.

Evaluation of Project Effects

22 I have recommended the provision of temporary roosting sites for pied shags in mitigation.[8] No adverse effect on the mangrove roosting areas, used by white-faced heron, is likely and shags will continue to feed in the Causeway Bridge area and beneath it. Overall the diversity and numbers of birds using the area of the Waterview Inlet adjacent to the Project Area will not diminish, except during intermittent construction events such as sudden noise increases. The effects will be short-term and temporary.

23 The coastal bird activity that will be potentially disrupted most frequently by construction in my view will be roosting at high water in the intertidal area (e.g. rock rubble, mangroves), on the Motorway grass verge or on adjacent structures (e.g. bridge railings). That will apply to low numbers of birds (mainly shags, gulls, white-faced heron and occasional variable oystercatcher) in all survey blocks, except block 1S[9] where the roosting habitat is to the south of the low tide channel and reasonably well buffered. The most notable roosting activity, in the context of the survey area, is by shags (especially pied shags) on rock rubble near the southwestern Bridge abutment and on channel edge rocks adjacent to the northwestern bridge abutment (although the latter site is water-covered one hour before high water during 3.4 m tides and is therefore not a useful spring tide roost).

24 Overall, the numbers of birds using the upper intertidal maritime zone, motorway grass and adjacent structures for roosting during high tide periods are low and in my opinion the effects of construction will be no more than minor. I consider the loss of a small area of wrybill feeding habitat across the channel on the southern side of the Motorway Causeway to be an adverse effect but also relatively minor based on the area involved in comparison with the extensive area of that habitat type nearby.

25 The area referred to as 'Construction Yard No. 1' in Harbourview-Orangihina Park has been located to accommodate an area for roosting birds, thereby avoiding an adverse effect on coastal birds.[10]

26 There will be frequent fright reactions during the construction phase and birds will be displaced from the works areas on occasions.[11] That effect will be temporary and short-term. There may be

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[8] Section 8 of my Report. This is provided for in proposed avian condition A.2.

[9] See Figure 3.3 of my Report.

[10] Section 8 of my Report.

[11] As noted in Section 7.7.1 of my Report.

displacement from the intertidal areas beside the Causeway, but not from the main feeding banks that are separated from the Causeway by low tidal channels. In my opinion that effect will be minor as the availability of feeding habitat is unlikely to be limiting birds using the wider area.

27 Coastal birds currently feed and roost in high operational noise conditions adjacent to the Causeway and that will not change. Overall there will be an increase in the lateral extent of noisier conditions. At Traherne Island, there will be no significant change but operational noise levels will increase in the mangrove-dominated habitat of the CMA. No increase will occur on Pollen Island itself or in the significant wading bird area beyond the Island. The increases in noise will be relatively minor and will not result in birds vacating the affected areas of habitat.[12]

28 The change in the ambient light conditions is not likely to adversely affect coastal birds or reduce their nocturnal use of adjacent habitats. The vertical light environment and the risk of bird collision with lights will not change.[13]

29 In general there will be inevitable disruption to birds utilising the existing Causeway and Motorway edges, especially during the construction phase of the Project. Following completion of the works, coastal birds will acclimatise to the altered situation and continue to use those edge areas as at present. The key feeding habitats will not be reduced significantly, no major high tidal roost for wading birds will be affected, no breeding area is affected and shags will continue to use the built structures for roosting.

Summary of Avoidance, Remediation and Mitigation

30 Following the investigation of Construction Yard No. 1 at Harbourview-Orangihina Park in Te Atatu and the advice to the Project Team that it included a traditional high tide roosting area for coastal birds, the size and location of the Construction Yard was designed to accommodate a high tide bird roost. I consider that an adverse effect on the coastal birds at this roost site has thereby been avoided. The area that I consider should remain as a bird roost is shown in Figure 4.5 of my Report and in the Ecological Management Plan (ECOMP).

31 A number of species of coastal birds use the habitats adjacent to the Causeway, including the population of pied shags (threatened species) that feeds mainly under the bridge and uses the bridge abutments and adjacent areas for roosting at high water. The

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[12] Refer Section 7.7.1 of my Report.

[13] Refer Section 7.7.2 of my Report.

roosting areas will either be removed during construction or rendered unusable as a result of frequent disturbance. I have recommended mitigation in the form of temporary roosting structures[14] (e.g. posts, rails, floating platform) during the construction period adjacent to the Causeway Bridge. At this stage temporary rather than permanent roosting structures have been proposed because I consider that pied shags will use the new bridge abutments once construction has ceased.

32 Major vegetation clearance should be scheduled to occur outside the bird breeding season (September to December), as far as practicable, to avoid the destruction of nests containing eggs and juveniles.[15] Replanted areas will provide new habitat for terrestrial birds.

33 The Ecological Management Plan for the Project will include[16] provision for vegetation management (specifically weed control) and animal pest control on Traherne Island (northern and southern sides) and on the CMA frontage from Traherne Island North to Whau Creek to mitigate the cumulative effects of habitat removal along the Sector 2, 3 and 4 footprint. That provision and its details will be presented in the Traherne Island/Te Kou Natural Heritage Restoration Plan. That would benefit birds such as fernbird and banded rail, any nesting coastal birds such as New Zealand dotterel, pied stilt and variable oystercatcher on Pollen Island and common terrestrial species.

34 Proposed conditions to avoid or mitigate effects on avifauna are shown in **Annexure B** to my evidence.

POST-LODGEMENT EVENTS

35 Regular coastal bird and waterfowl counts in the vicinity of the proposed Construction Area No. 1 in Harbourview-Orangihina Park have continued around the time of and since Project lodgement. The recent results are shown in **Annexure C** to my evidence. They indicate continued, significant usage of this area in July 2010, with a decrease in the August to October 2010 inclusive period as birds move to breeding areas variously beyond this site and beyond the Waitemata Harbour. This analysis reinforces the need to retain an area for bird roosting in this vicinity.

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[14] Section 8 of my Report. See proposed avian condition A.2.

[15] Section 8 of my Report.

[16] See Section 3 of the ECOMP.

COMMENTS ON SUBMISSIONS

36 I have read submissions lodged on the Project that raise avian or related issues relevant to my area of expertise. In this section of my evidence I will address these submissions to the extent not already covered by my Report or preceding evidence.[17]

Avian biodiversity

37 Various submitters[18] were concerned about the impact of the Project on avian biodiversity. In my opinion, there will not be a reduction in the number of species of terrestrial, marshland or coastal birds using the Project area as a result of the Project. Biodiversity will be maintained and enhanced by the predator control proposed for Traherne Island and the CMA frontage of the Marine Reserve.

Habitat Loss/Replanting

38 Several submitters[19] were concerned about loss or degradation of bird habitat as a result of the Project. I have considered the effects of vegetation clearance and habitat reduction on birds[20] and have concluded the effects will be minor. Further, the replanted areas proposed by the Project will provide habitat for common urban terrestrial birds, and targeted replanting and weed control will occur on the edges of Traherne Island and the Marine Reserve, which may be utilised by banded rail in particular.

Construction Yard No. 1

39 The Te Atatu Pony Club[21] is opposed to the location of Construction Yard 1. As I have explained earlier in my evidence, the location of this Construction Yard reflects the specific need to accommodate the high tide bird roosting area in the paddocks adjacent to the motorway. Wading birds use the paddocks at Harbourview Orangihina Park, for roosting at high water but I have not observed any nesting. Those species will roost on both grazed pasture and mown grass. Of the numerical dominants, only oystercatchers generally roost throughout the Pony Club area. The smaller birds (such as NZ dotterel, banded dotterel and wrybill) roost mainly in the pylon paddock and adjacent paddocks based on the surveys I have completed. Their roosting behaviour does not

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[17] Several submitters, including Forest and Bird (Submitter No. 217) sought an extension of the Motu Manawa Marine Reserve to mitigate perceived effects on birdlife. These submissions will be addressed in opening legal submissions.

[18] Including the North Western Community Association and Friends of Oakley Creek.

[19] Including the North Western Community Association and Friends of Oakley Creek.

[20] Refer sections 7.1 and 7.3 of my Report.

[21] Submitter No. 64.

rely on the presence of the temporarily ponded area near SH16. I note that the submission by the Auckland Conservation Board[22] stated "The Board is pleased that birdlife on Otangihina/Harbourview will not be deprived of its roosts during the construction phase".

Effects of noise and light

40 Various submitters[23] expressed concern about the effects of noise and light on birds. Those issues have been addressed earlier in my evidence.

Asymmetrical causeway widening

41 Submitter No. 17 suggests that the widening should be confined to the southern side of the causeway. However that would remove a significant area of a preferred feeding habitat of wrybill that is a threatened species.

Monitoring

42 Some submitters[24] call for monitoring of 'at risk' species or of the impacts on biodiversity. I note that the ECOMP[25] and proposed avian conditions A.3 and A.4 already require monitoring.

PROPOSED AVIAN CONDITIONS

43 In the documentation lodged with the AEE, the NZTA included a set of Proposed Designation and Consent Conditions (see Part E, Appendix E.1). These included proposed avian conditions which I recommended would be appropriate to attach as conditions to the designations sought.

44 I consider that those conditions remain appropriate, however, I propose that two new conditions be added to address:

44.1 The need to avoid vegetation clearance outside the breeding season, where practicable; and

44.2 To require pest management, in specific locations.

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22 Submitter No. 209 (at paragraph 5).

23 Including Friends of Oakley Creek, the Auckland Conservation Board and some residents.

24 Including Submitter Nos. 186, 191, 225 and 230.

25 Refer ECOMP section 4.3.

45 A set of the proposed avian conditions (including the above amendments) is attached to my evidence as **Annexure B**.

Graham Don
November 2010

Annexures

Annexure A: Recent experience with coastal bird assessments
Annexure B: Proposed Avian conditions
Annexure C: Te Atatu Bird Roost Survey Results – 29/07/10 – 27/10/10

ANNEXURE A: RECENT EXPERIENCE WITH COASTAL BIRD SURVEYS

(i) Marsden Bay, Marsden Point, Northland (canal housing and marina development) (Marsden Cove Ltd)

- 40 ha of intertidal habitat divided into 3 sectors;
- 2000: May/June 20 counts and habitat use;
- 2003: Feb/Mar 36 counts and habitat use;
- 2005: Feb/Mar 36 counts and habitat use; habitat disturbance survey;
- 2007: Feb/Mar 36 counts and habitat use;
- 2008: Feb/Mar 36 counts and habitat use;
- 2009: Feb/Mar/Apr 36 counts and habitat use.

(ii) Hobson Bay, Waitemata Harbour (Auckland City)

- 21 ha of mangrove/intertidal habitat;
- 5 surveys; 36 counts and habitat use;
- 2003: February/March.

(iii) Wairoa River, Clevedon (Wairoa River Canal Partnership)

- 5.5 km of estuarine channel plus river mouth and approaches surveyed via kayak; 11 surveys of 11 sectors; total of 60.5 survey kilometres plus habitat use; plus banded rail surveys;
- 2003: November to March.

(iv) Tamaki River (Landco Ltd)

- 2004: February/March 600 m coastline; 40 hourly counts plus habitat use in 3 sectors;
- 2009: Feb/Mar 36 counts and habitat use over an 800 m section of coastline.

(v) Panmure Basin (Landco Ltd)

- 2005: February/March;
- 4 surveys x 10 hourly counts each and habitat use of entire Basin.

(vi) Half Moon Bay (New Zealand Transport Authority)

- 2005: March;
- 450 m section of Tamaki River coastline;
- 4 surveys; 40 counts and habitat use;
- locally significant variable oystercatcher feeding area.

(vii) Waipu: Ocean Beach (Whangarei District Council)

- 2007: February – March;
- 1 km coastline;
- 4 surveys; 24 counts and habitat use;
- variable oystercatcher frequent.

(viii) Waipu: Ocean Beach and River Mouth (Whangarei District Council)

- 2007: May – June;
- 1 km coastline and 900 m river mouth;
- 3 surveys ; 18 counts and habitat use;
- locally significant habitat for NZ dotterel and variable oystercatcher.

(ix) Pikes Point, Manukau Harbour (Ports of Auckland Ltd)

- 2007: April – May;
- 14 ha; 4 sectors;
- 4 surveys; 36 counts and habitat use;
- significant wrybill feeding area.

(x) Auckland International Airport (Auckland Airport Ltd)

- 2007-09 bird hazard assessment and management investigations;
- all coastal bird groups plus waterfowl (ducks, black swan).

(xi) Whangamata Harbour (Whangamata Marina Society)

- 2007-08 marina pre-construction surveys (numbers, diversity and habitat use)
- Sept, Dec, Feb, Apr;

- 109 counts in each of ten lower Harbour sectors;
- 2008-10 marina construction and post-construction surveys (numbers, diversity and habitat use);
- Oct, Dec, Feb, June;
- 144 counts in each of nine lower Harbour sectors.

(xii) Pahurehure Inlet, Manukau Harbour (Papakura District Council)

- 2008: Jan, Feb, Mar, Jul;
- 72 counts and habitat use of entire Inlet.

(xiii) Hobsonville (Hobsonville Land Co.)

- July 2009 and February 2010;
- total of 32 counts and habitat use; 2.2 km of coastline;
- banded rail survey.

(xiv) Hatea (Whangarei Harbour) (Whangarei District Council)

- November and December 2009;
- 13 hourly counts and habitat use at proposed harbour bridge crossing;

(xv) Mangere Inlet (Manukau City Council);

- Kiwi Esplanade; 9 counts and habitat use; 1.5 km of coastline; January 2010;

(xvi) Panmure Basin (Transpower Ltd);

- January 2010;
- 8 counts and habitat use of western area.

ANNEXURE B: PROPOSED AVIAN CONDITIONS (AMENDED)[26]

A.1	The NZTA shall finalise, and implement through the CEMP, the Ecological Management Plan (ECOMP) submitted with this application.
A.2	The NZTA shall provide temporary high tide roosting structure(s) adjacent to the Causeway during construction, in accordance with the ECOMP, to the satisfaction of the [Auckland Council]. The temporary bird roosts shall be sized in accordance with the ECOMP, and located within the Waterview Estuary adjacent to the southern side of the causeway and in the vicinity of the existing Causeway bridge.
A.3	The NZTA shall employ a suitably qualified ecologist to undertake monitoring of the roosting areas located at: (a) The existing high tide roost in Harbourview-Orangihina Park; and (b) The temporary construction roosting structure(s) pursuant to Condition A.3. Monitoring shall be undertaken on a monthly basis, with a monitoring report prepared on a quarterly basis. The monitoring report shall be made available to the [Auckland Council] and/or Department of Conservation upon request.
A.4	Should the monitoring results indicate that the roosting sites have been abandoned, consultation shall be undertaken with the Department of Conservation and the [Auckland Council] to determine the need for and type of further management strategies (if any) required.
A.5	<u>Where practicable, vegetation clearance shall occur outside the bird breeding season of September to December.</u>
A.6	<u>Animal pest control shall be undertaken on Traherne Island (northern and southern sides) and on the CMA frontage of SH16 from Traherne Island North to Whau Creek.</u>

[26] Contained in AEE, Appendix E.1, page 39. The amended (new) conditions are shown as underlined.

ANNEXURE C: TE ATATU BIRD ROOST SURVEY RESULTS (29.7.10 – 8.11.10)

	29 July 2010	26 Aug 2010	27 Aug 2010	9 Sept 2010	14 Sept 2010	26 Oct 2010	27 Oct 2010	8 Nov 2010
banded dotterel	110	12	8	–	–	–	–	
black-backed gull	–	–	–	1	1	–	–	
New Zealand dotterel	11	–	3	–	–	–	–	3
paradise shelduck	–	–	–	–	–	2 + 7 J	2 + 7 J	2 + 8 J
red-billed gull	14	–	–	–	–	–	–	
South Island pied oystercatcher	164	46	71	36	5	–	–	
spur-winged plover	1	2	2	5	3	–	2	1
variable oystercatcher	–	–	2	–	–	–	–	
white-faced heron	–	1	–	–	–	–	–	
TOTAL	**300**	**61**	**86**	**42**	**9**	**9**	**11**	**14**

(J – juvenile)

∗ all results at high tide (3.0 – 3.4 m)