

28 April 2010

Grant Birkinshaw  
28 Major Drive  
Kelson  
Lower Hutt



1000.wr

Dear Grant

## **Phil Shinnick's Long Jump World Record – Wind Simulation**

### **Background**

As you are aware, on 25<sup>th</sup> May 1963 at Modesto, Phil Shinnick of the University of Washington jumped what was then a world record distance long jump of 8.33m (27'4"). However, it is a requirement for a valid world long jump record that the mean wind speed measured by an anemometer 20m from the take-off point over a 5 second period from the time a jumper starts their run-up has to be less than 2.0m/s. Unfortunately, the wind monitoring equipment that is required for a valid world record was not used to monitor the jump. While Dr Glover, who operated the equipment at other events that day believed that based on his wide experience, Mr Shinnick's jump was not wind assisted, his belief did not constitute sufficient evidence for the jump to be recognised by the IAAF.

There are some visual records of Mr Shinnick's jump. These include film showing Mr Shinnick as he starts his run-up. In this film, there are two indicators of the wind conditions occurring at this time, these being (1) flags on the flagpoles around the perimeter of the stadium, and (2) a line of bunting running at an angle directly behind Mr Shinnick as he starts his run. Both of these show some movement due to the wind that was blowing at the time. However, it is the movement of the bunting that is critical to any scientific assessment of the wind speed. If the movement of the bunting was shown to be less than would occur for a mean wind speed of 2.0m/s, it could be reasonably assumed that the wind conditions during Mr Shinnick's jump were less than required for a valid world record.

### **Wind Tunnel Tests**

The following is a description of tests carried out in Opus Central Laboratories boundary layer wind tunnel to simulate the motion of bunting under mean wind speed conditions of 2.0m/s. I have attached a copy of our service profile that shows the type of wind engineering work that Central Laboratories has been involved in.

#### *Bunting*

For these tests we used bunting that had been made that was as close as possible in terms of the size and weight of material to that shown in the film of the jump. This bunting was strung horizontally across the low speed test section of the wind tunnel.

#### *Wind Simulation*

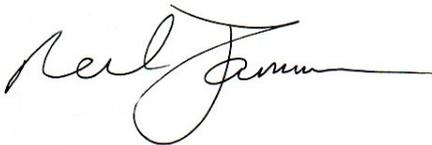
The tests were carried out in the low speed test section of Central Laboratories boundary layer wind tunnel. The wind simulation included some turbulence in the wind flow. Wind speeds in the wind tunnel were monitored using a hot-film anemometer and a PC based data acquisition system. This was calibrated prior to the tests, and the wind tunnel speed was adjusted so that the mean wind speed averaged over 5 seconds was consistently just less than 2.0m/s. Tests were carried out with the bunting strung across the wind tunnel at right angles to the wind flow, and also at an angle of 45° to the flow. It was considered that from the film record taken on the day that these represented the most

appropriate configurations given the wind directions observed from the film taken on the day of Mr Shinnick's jump. Short video records were made of the tests that show the movement of the bunting in wind conditions that were just below the threshold of the maximum wind speed allowed for a valid world record. I have enclosed a CD with video records of the two different tests (BUNTING 0 Degrees.AVI and BUNTING 45 Degrees.AVI), together with a short video of the start of Mr Shinnick's run-up (Phil Shinnick 1a.AVI).

### **Assessment of Wind Tunnel Test Videos**

Comparing the video footage from (1) the start of Mr Shinnick's jump and (2) the bunting tests carried out in the wind tunnel for wind speeds just below the threshold for a valid world record, shows much less movement of the bunting in the former. This is strong evidence that the wind conditions during Mr Shinnick's jump were within the 2.0m/s threshold, and that there is no reason for him not to be credited with a valid record on the basis of wind assistance.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Neil Jamieson', with a long horizontal flourish extending to the right.

Neil Jamieson  
Research Leader  
Aerodynamics

## SHORT FORM AGREEMENT FOR CONSULTANT ENGAGEMENT (COMMERCIAL)

**BETWEEN:**.....  
(CLIENT)

AND: OPUS INTERNATIONAL CONSULTANTS .....  
(CONSULTANT)

<b>PROJECT:</b>  WIND ASSESSMENT – TORRENS TCE APARTMENTS	<b>CLIENT ADDRESS:</b>  
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**SCOPE & NATURE OF THE SERVICES:**

AS PER OFFER OF SERVICE DATED 16TH MARCH 2010

**PROGRAMME FOR THE SERVICES:**

AS PER OFFER OF SERVICE DATED 16TH MARCH 2010

**FEES & TIMING OF PAYMENTS:**

AS PER OFFER OF SERVICE DATED 16TH MARCH 2010

**INFORMATION OR SERVICES TO BE PROVIDED BY THE CLIENT:**

AS PER OFFER OF SERVICE DATED 16TH MARCH 2010

*The Client engages the Consultant to provide the Services described above and the Consultant agrees to perform the Services for the remuneration provided above. Both Parties agree to be bound by the provision of the Short Form Model Conditions of Engagement (overleaf), including clauses 1,8 and 9, and any variations noted below. Once signed, this agreement, together with the conditions overleaf and any attachments, will replace all or any oral agreement previously reached between the Parties.*

**VARIATIONS TO THE SHORT FORM MODEL CONDITIONS OF ENGAGEMENT (OVERLEAF):**

(Add to Clause 8)

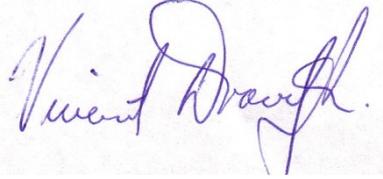
The Consultant shall not be liable for and the Client will indemnify the Consultant for any loss or damage whatsoever arising from a breach of this agreement by the Consultant, directly or indirectly arising out of, resulting from, in consequence of, contributed to or aggravated by asbestos in whatever form or quantity.

**CLIENT AUTHORISED SIGNATORY (IES):**

**PRINT NAME:**  
**DATE:**

**CONSULTANTS AUTHORISED SIGNATORY (IES):**



**PRINT NAME:** V DRAVITZKI  
**DATE:** 16TH MARCH 2010

## **SHORT FORM MODEL CONDITIONS OF ENGAGEMENT (COMMERCIAL)**

1. The Consultant shall perform the Services as described in the attached documents. The Client and the Consultant agree that the Services are acquired for the purposes of a business and that the provisions of the Consumer Guarantees Act 1993 are excluded in relation to the Services.
2. In providing the Services the Consultant shall exercise the degree of skill, care and diligence normally expected of a competent professional.
3. The Client shall provide to the Consultant, free of cost, as soon as practicable following any request for information, all information in his or her power to obtain which may relate to the Services. The Consultant shall not, without the Client's prior consent, use information provided by the Client for purposes unrelated to the Services. In providing the information to the Consultant, the Client shall ensure compliance with the Copyright Act 1994 and shall identify any proprietary rights that any other person may have in any information provided.
4. The Client may order variations to the Services in writing or may request the Consultant to submit proposals for variation to the Services.
5. The Client shall pay the Consultant for the Services the fees and expenses at the times and in the manner set out in the attached documents. Where this Agreement has been entered by an Agent (or a person purporting to act as Agent) on behalf of the Client, the Agent and Client shall be jointly and severally liable for payment of all fees and expenses due to the Consultant under this Agreement.
6. All amounts payable by the Client shall be paid within twenty (20) working days of the relevant invoice being mailed to the Client. Late payment shall constitute a default, and the Client shall pay default interest on overdue amounts from the date payment falls due to the date of payment at the rate of the Consultant's overdraft rate plus 2% and in addition the costs of any actions taken by the Consultant to recover the debt.
7. Where Services are carried out on a time charge basis, the Consultant may purchase such incidental goods and/or Services as are reasonably required for the Consultant to perform the Services. The cost of obtaining such incidental goods and/or Services shall be payable by the Client. The Consultant shall maintain records which clearly identify time and expenses incurred.
8. The liability of the Consultant to the Client in respect of his or her Services for the project, whether in contract, tort or otherwise, shall be limited to the lesser of five times the value of the fees (exclusive GST and disbursements), or the sum of \$NZ 250,000. The Consultant shall only be liable to the Client for direct loss or damage suffered by the Client as the result of a breach by the Consultant of his or her obligations under this Agreement and shall not be liable for any loss of profits.
9. The Consultant acknowledges that the Consultant currently holds a policy of Professional Indemnity insurance for the lesser of \$NZ 250,000 or five times the value of the fees (exclusive of GST and disbursements). The Consultant undertakes to use all reasonable endeavours to maintain a similar policy of insurance for six years after the completion of the Services.
10. Neither the Client nor the Consultant shall be considered liable for any loss or damage resulting from any occurrence unless a claim is formally made on him or her within six years from completion of the Services.
11. If either Party is found liable to the other (whether in contract, tort or otherwise), and the claiming Party and/or a Third Party has contributed to the loss or damage, the liable Party shall only be liable to the proportional extent of its own contribution.
12. The Consultant shall retain intellectual property/copyright in all drawings, specifications and other documents prepared by the Consultant. The Client shall be entitled to use them or copy them only for the Works and the purpose for which they are intended. The ownership of data and factual information collected by the Consultant and paid for by the Client shall, after payment by the Client, lie with the Client. The Client may reproduce drawings, specifications and other documents in which the Consultant has copyright, as reasonably required in connection with the project but not otherwise. The Client shall have no right to use any of these documents where any or all of the fees and expenses remain payable to the Consultant.
13. The Consultant has not and will not assume any obligation as the Client's Agent or otherwise which may be imposed upon the Client from time to time pursuant to the Health and Safety in Employment Act 1992 ("the Act") arising out of this engagement. The Consultant and Client agree that in terms of the Act, the Consultant will not be the person who controls the place of work.
14. The Client may suspend all or part of the Services by notice to the Consultant who shall immediately make arrangements to stop the Services and minimise further expenditure. The Client and the Consultant may (in the event the other Party is in material default) terminate the Agreement by notice to the other Party. Suspension or termination shall not prejudice or affect the accrued rights or claims and liabilities of the Parties.
15. The Parties shall attempt in good faith to settle any dispute by mediation.
16. This Agreement is governed by the New Zealand law, the New Zealand courts have jurisdiction in respect of this Agreement, and all amounts are payable in New Zealand dollars.