2012 FAI 2

SHERIFFDOM OF GRAMPIAN, HIGHLAND and ISLANDS at DORNOCH

Under the Fatal Accident and Sudden Deaths Inquiry (Scotland) Act 1976

Case No.

DETERMINATION

by

SHERIFF DAVID OMAN SUTHERLAND

in the Inquiry into the death of

DAVID MICHAEL BOWES

DORNOCH, December 2011

Having heard evidence and submissions on 13th, 14th and 15th June and 8th August 2011, I made the following determination:-

(1) In terms of Section 6(1)(a) of the 1976 Act, David Michael Bowes died on 2nd February 2010 shortly after 10.00a.m. as a result of drowning in the waters of the Kyle of Tongue to the north of the A838 Tongue to Durness road. The deceased was, at the time of his death, in the course of his self employment as a plumbing and heating engineer.

(2) In terms of Section 6(1)(b) of the 1976 Act, the accident which resulted in David Michael Bowes' ("the deceased") death was caused when the Toyota Hilux pickup, registered number SC09 BJL, driven by the deceased left the A838 at the Kyle of Tongue causeway, striking the bridge parapet causing several of the parapet stanchions to break and give way. As a result of the stanchions fracture, the parapet failed to

restrain the deceased's vehicle which left the bridge, falling in to the water and coming to rest on its roof.

(3) In terms of Section 6(1)(c) of the 1976 Act, the accident might have been avoided if the bridge parapets had been replaced with a modern vehicle restraint system which conformed to current standards. The collision would still have occurred, but the impact would have been absorbed by the deformation of the parapet structure, resulting in the vehicle being bounced back into the carriageway. Another reasonable precaution whereby the accident might have been avoided would have been the installation of a temporary secondary parapet, providing additional retention of vehicles on the bridge.

(4) In terms of Section 6(1)(e) of the 1976 Act, the decision to cease twice yearly inspections of the Tongue Bridge parapets by Highland Council when the parapet was described as requiring replacement is relevant to the circumstances of the deceased's death in that there was no continuing risk assessment of a safety structure already condemned and awaiting replacement.

NOTE

[1] I began the inquiry by hearing evidence from Ann Margaret Scott, retired head teacher and partner of the deceased, Mr Bowes. She described how she lived with the deceased, a self employed plumber who employed two trained employees and one trainee. She described how, on 2nd February 2010, the deceased had left home for work just after 8.00a.m. He had phoned her later saying that he had returned home and was leaving to see a customer at about 9.45a.m. She estimated that it would take about twenty minutes to reach the Kyle of Tongue causeway.

[2] Ms Scott confirmed that the deceased had no health problems and she described him as a moderate to slow driver who was extremely safety conscious. He was very experienced in driving in winter conditions. The vehicle being driven by the deceased was a four-wheel drive and was approximately six months old.

[3] The timing of the deceased reaching the causeway was also spoken to by Ross MacIntosh, an employee of the deceased, who spoke of crossing the causeway at 9.30a.m. and receiving a phone call some half an hour later asking him to attend the locus. He arrived there at about 10.45a.m., by which time the deceased had been taken away to hospital.

[4] I next heard from Ian MacLeod, paramedic, who described how he had been in an ambulance crossing the causeway about 10.10a.m. when he saw a vehicle in the water. He described how he went over the barrier and along the shoreline but he could not see anyone. He described how the vehicle was some distance out in deep water and there was a danger in disturbing the vehicle. People tried to form a human chain and eventually a rope was secured on to the vehicle. The vehicle was uprighted and the deceased was removed from the vehicle. He described how he took the deceased by stretcher to the ambulance and tried to resuscitate him. CPR was attempted for some time without any sign of life.

[5] Ian Barnes, paramedic, also spoke of coming upon the accident on the causeway. He raised the alarm with his headquarters and described how he saw tracks gently veering off into the barrier. He described how full resuscitation was attempted to no avail, which attempt carried on until the deceased arrived at Raigmore Hospital.

[6] Albert Walsh, a community voluntary driver, described coming on to the accident on the causeway. He spoke of snow covering the carriageway and the causeway being very slippery. He went down on to the rocks and managed to ascertain the registration number of the vehicle. He saw

someone in the driver's seat and went back up to tell the ambulance driver. He indicated that the track from his carriageway to the place where the vehicle went through the barrier was a gentle curve.

[7] John Findlay, builder, told the court how he went down to the vehicle but could not see anyone inside. He then went to the Tongue garage for a rope and on his return helped men from the Council Roads Department get a rope on to the vehicle and bring it to shore.

[8] I then heard from Alexander Morrison, Area Roads Foreman with Highland Council, who, when told of the accident, went immediately to assist in the rescue. When he arrived an ambulance was there together with two other vehicles. Mr Morrison, who had been 32 years in the local Coastguard, went in to the water to try and effect a rescue. He described how it was too great a risk to dive under the vehicle but he managed to clamber and swim twenty metres and attached a rope on to the tow-bar. They then managed to raise the vehicle up and get another line on to the front axel. This allowed the vehicle to be rolled back over on to its wheels.

[9] When he saw the deceased, he was floating face down in the vehicle. He was not restrained by any seat belt but was held by straps in the vehicle. Mr Morrison managed to cut him free and take him out by the passenger window.

[10] Police witnesses spoke to the investigation subsequent to the accident, which included preparation of an accident report (Production 3). They were unable to explain why the vehicle crossed the carriageway and crashed into the parapet but were able to state that there was no evidence of any excess speed. The fact that the airbags had not been activated, that there was no evidence of seat belt friction and the relatively limited amount of damage to the vehicle, all suggested that the impact had not occurred at high speed.

[11] Evidence was then led from Tim Norman, BSc MSc, Principal Materials Consultant with the Environmental Scientific Group who prepared a report

following his examination of stanchions and base plate retrieved from the parapet at the Kyle of Tongue causeway and sent to him by officers of Northern Constabulary.

[12] He stated in is report (Production 4) that his examination of the failed parapet posts showed the failure had occurred at the weld connection between the box section and base plates. The general quality of the workmanship with respect to welding was considered to be poor and would not meet approval to relevant standards of welding.

[13] Mr Norman stated that the quality of welding would not meet either modern welding standards or the standard expected at the time of construction in the early 1970s.

[14] He spoke of lack of root penetration and weld metal porosity caused by gas entering the weld material. A combination of these gave a weakening effect to the joint.

[15] Mr Norman explained how the stanchion was ductile and should deform under load, prior to fracture. This, however, had not occurred here which suggested to him that the load applied to the posts by the impact of the vehicle was within the elastic range of the material but sufficiently high enough to cause fracture of the weld joint to the base.

[16] Here, Mr Norman explained that a stanchion designed to absorb impact damage and deform as part of its absorption process ought to have been able to deform. Here there was no bending or deformation of the posts and they had just snapped off at the weld.

[17] The final witness to be heard was David MacKenzie, Chief Structural Engineer with Highland Council, who explained that the A838 was not a trunk road and therefore was a road which Highland Council was responsible for.

[18] He explained how the causeway and bridge had been opened to traffic in 1971. The Council arranged for a general inspection every three years with a principal inspection every nine years.

[19] A general inspection involves a visual inspection without specialist access and is carried out on foot at ground level. A principal inspection is carried out using specialist access, including ladders and special vehicles. There is fingertip access but it is still a visual inspection. Defects are recorded with diagnosis and recommendations.

[20] He spoke to the principal inspection report (Production 10) which had been carried out on 19th and 20th July 2005. This inspection had been carried out by L J Christie (now retired) an Engineer with Highland Council. In his report, Mr Christie, at page 5, stated that the bridge parapet should be replaced with a modern vehicle restraint system which conformed to current standards. He stated that repairs should be carried out as a matter of urgency.

[21] Mr MacKenzie said that Mr Christie had discussed the findings of his report with one of Mr MacKenzie's team. He agreed that Mr Christie's "severe" action needed, at page 16 of his report, was the highest priority ranking. He also noted that Mr Christie also recommended that the parapet should be checked every six months.

[22] Mr MacKenzie stated that he would not have placed the parapet in the same category of risk as Mr Christie, but did not disagree that six monthly inspections should be carried out.

[23] He referred to a report by Faber Maunsell Limited, Civil Engineers, dated 19th September 2008 (Production 11) which confirmed that:

"This type of parapet no longer complied with current requirements" and costed the replacement of the parapet at £125,000."

[24] In this report, at page 31, Faber Maunsell, in considering replacing the parapet, state:

"The parapet has deteriorated and the containment level is unclear. Should a vehicle incursion occur the parapet may not redirect the impacting vehicle as intended but instead break up resulting in impalement risks that would increase the risk of serious or fatal injuries."

[25] Against replacement, Faber Maunsell stated:

"Very low risk; low traffic flows. No evidence of parapet impact.
Risk may be reduced by application of speed limit.
High cost of replacement."

[26] At page 43 of their report relating to parapets they state:

"The existing parapet needs to be replaced because it has extensive cracking in the important connection between the posts and the bases and the standard of protection is no longer acceptable to current standards. However, a detailed risk assessment should be carried out to take into account the low risk of vehicle impact."

[27] Mr MacKenzie stated that subsequent to the accident, he carried out his own risk assessment which confirmed Faber Maunsell's own assessment of low risk.

[28] Questioned on why the six month inspections recommended appeared to stop in 2008, Mr MacKenzie stated that he had not taken that decision. The risk, as indicated by Faber Maunsell, was very low and therefore should be monitored. The Wick office of Highland Council, which had taken over from Golspie, decided to stop monitoring because the rate of deterioration of the stanchions had declined.

[29] Questioned regarding the apparent difference between Mr Christie's assessment and that of Faber Maunsell, Mr MacKenzie stated he felt that if Mr Christie was going to err, it was on the side of safety.

[30] He explained that the Council knew that the parapet had to be replaced. It was, however, a question of weighing up recommendations against existing resources and having to prioritise outstanding works. A decision had been taken for major refurbishment of the bridge causeway and piecemeal stopgap work was not justified given the level of risk identified.

[31] This was a tragic accident which could have been avoided. It is clear that the stanchions on the parapet did not do the job that they were designed to do, namely deform sufficiently to absorb impact throwing the vehicle back into the carriageway before breaking under the load. This failure occurred because of failure of weld connections between the box stanchions and the base plates of the failed stanchions. This was due to poor welding workmanship as described by Mr Norman. Such stanchions are designed to stretch to 20% of their length and the weld connection should be sufficiently strong to allow for this. This did not happen and allowed the deceased's vehicle to penetrate the parapet and enter the water below.

[32] In 2005 Mr Christie, a Highland Council Civil Engineer, inspected the parapet and produced a report in which he stated that the parapets were not to current standard and should be replaced with a modern vehicle restraint system. He described the action required as "severe" and that repairs should be carried out as a matter of urgency.

[33] His concerns were reviewed in 2008 in Faber Maunsell's report, which confirmed that the parapets no longer complied with current requirements. They stated that the existing parapet needed to be replaced but said that a detailed risk assessment should be carried out to take into account the low risk of vehicle impact. As far as I can see, no risk assessment was carried out until after the accident.

[34] While I appreciate the Council have competing claims on their budgets, at the very least there seems to have been an inordinate delay in implementing the recommendations of Mr Christie or, indeed, carrying out the risk assessment as recommended by Faber Maunsell. It is not clear why the Council's Wick office decided to stop the six monthly checks and it is unfortunate that no written documentation is available to shed light on this. The inescapable conclusion, however, is that if there had been earlier replacement of the parapet, the probability is that this tragedy would not have occurred, the accident probably resulting in minor injury and damage.

[35] At this stage the court would like to pay tribute to Alexander Morrison, the Highland Council Area Roads Foreman, who endeavoured to effect a rescue by clambering and swimming out to the vehicle and attaching a rope to the tow-bar and subsequently to the front axel. There was independent evidence of the dangerous situation that the vehicle was found in and it is a tribute to Mr Morrison's professionalism as a Coastguard and his lack of concern for his own personal safety that he acted in the manner in which he did. His evidence was, understandably, understated and did not fully describe the dangerous situation in which he placed himself, but the court would wish to pay tribute to his undoubted courage.

[36] The court would also like to convey its thanks to all who assisted in this inquiry and extends it condolences to Ms Scott and the family of the late David Michael Bowes.