THE HIGH COURT OF SOUTH AFRICA

(WESTERN CAPE DIVISION)

JUDGMENT

Case No: 21774/2014

In the matter between

JOHAN MELCHIOR BOTES **PLAINTIFF**

and

MEC: WESTERN CAPE DEPARTMENT OF TRANSPORT AND PUBLIC WORKS **DEFENDANT**

Coram: Rogers J

Heard: 12, 14, 23 & 30 October 2020

Delivered: 6 November 2020 (by email to the parties and same-day release to SAFLII)

JUDGMENT

Rogers J

Introduction

[1] On the morning of Wednesday 5 December 2012 the plaintiff set out from the family farm near Velddrif in his red Opel Corsa bakkie, intending to drive to Durbanville in the Cape Peninsula. He turned left off the farm road onto the R399 in the direction of Velddrif. After slightly more than one kilometre his vehicle veered off the left side of the road. It must have cartwheeled through the air because it landed on top of a wall forming part of the entrance gates to a farm, its nose facing back in the direction from which the plaintiff had been driving.

[2] The plaintiff was flung from the bakkie, and was found 15 m from its final resting place. He suffered life changing injuries. He has no memory of the event. A passer-by summoned help. The police got the call at 06:40.

[3] The plaintiff sues the defendant as the MEC of the provincial department responsible for the R399, alleging a wrongful and negligent failure to maintain the road. Since there were no eyewitnesses, those advising the plaintiff have tried to reconstruct the occurrence. For that purpose, the plaintiff engaged Mr Louis Roodt, a civil engineer with more than 30 years' experience in the design of roads and road safety and who is university lecturer on this subject.

[4] The defendant engaged Mr Schalk Carstens, the department's Chief Engineer: Traffic Engineering in the Road Design Directorate of the Road Network Management Branch. He is a civil engineer with more than 30 years of experience in the geometric design, construction, maintenance and management of provincial roads.

[5] Mr Roodt and Mr Carstens furnished reports, produced a joint minute and testified. I raised certain queries with them in a post-hearing note addressed to counsel, and the experts responded in a further joint minute.

[6] In what follows, I use the words left and right with reference to the westerly direction in which the plaintiff was driving towards Velddrif.

Factual background

[7] The R399 runs between Piketberg and Velddrif. It was built in 1966 in accordance with standards then prevailing for such a road. It was rebuilt in 2015-2017. In the first half of 2015, when the parties' experts inspected the accident scene, that stretch of the road had not yet been rebuilt. The original road carried one lane of traffic in each direction. Each tarmac lane was 3,1 m wide with a 0,6 m gravel shoulder. (Tarred shoulders only became the norm in the 1980s.)

[8] The accident happened on a stretch of road just before it curved to the left and went down a hill.[1] On that stretch the lanes were separated by a dotted line with solid barrier lines on each side. The lane width of 3,1 m was measured from the centre of the road (the dotted line). The width, measured from the outer edge of the left barrier line to the left shoulder, was 2,8 m.

[9] The plaintiff's allegation is that the defendant negligently allowed an unsafe edge drop between the tarmac and gravel shoulder to go unrepaired. Mr Roodt's initial theory was formed on the basis of a yaw (skid) line on the tarmac in the left lane, apparently formed by a tyre of the bakkie as it was careening off the road. The yaw line was shown in photographs taken at the scene shortly after

[1] The critical stretch of road is between the two cones shown on exhibit B2, with the left bend ahead and the Bovenrivier gates on the left. Exhibit A68 photo 2 shows the hill down which the plaintiff would have travelled had he successfully navigated the bend.

the accident.[2] Mr Roodt only visited the scene in February 2015. In this vicinity of the road he observed what he considered to be an unsafe edge drop between the left lane and left shoulder.

[10] His theory was that the plaintiff drifted off the tarmac so that the left wheels of the bakkie were on the gravel shoulder. When he steered to the right to bring the vehicle back onto the road, the inner edge of the left wheels met resistance from the edge drop ('snagged' is the word he used). This caused the plaintiff to turn more sharply to the right. As soon the left wheels were back on the tarmac, the sharp right turn became too extreme (called the 'slingshot effect' by an American expert, Dr John Glennon), and the plaintiff instinctively turned the steering wheel sharply to the left, causing a loss of control and the yaw mark as the bakkie veered off the left side of the road.

[11] On the assumption of a slingshot effect, Mr Roodt extrapolated backwards to the point where the bakkie's left wheels might have snagged against the road edge. He measured the edge drop as exceeding 50 mm in that vicinity. The shoulder itself was only about 0,5 m wide before falling away at a steep angle. He quoted from a paper by Dr Glennon where the latter said that edge drops of two inches or even lower could cause a driver to lose control because of the slingshot effect. (Two inches is about 51 mm.)

[12] Unlike Mr Roodt, Mr Carstens had access to the police docket, including the statement by the first responder and the sketch plan and photographs of Sgt Meyi. These showed that the accident had happened differently. The plaintiff's bakkie had drifted into the right lane, and its right wheels had gone off the right shoulder. The bakkie had then gone back onto the tarmac and veered off on the

[2] The yaw line can be seen on B9, leading towards the cone on the left of the road. See also at A46 and A72. In the post-hearing note, I raised with the experts the fact that the angle and extent of the yaw line shown on A46 and A72 seemed very different from the one shown on B9. From their supplementary joint minute, I gather that the apparent differences are a result of different camera lens focal lengths and angles of observation.

left side. There were tyre tracks on the gravel showing where the bakkie's right wheels went off the tarmac (point B) and where they came back onto the tarmac (point C). The police measured the straight-line distance from B to C as 72 m (the curved path would have been slightly longer).

[13] Mr Carstens got one of his engineers to measure the left edge drops at three points over a 40 meter stretch and found them to be 28 mm, 43 mm and 40 mm respectively. He did not regard this depth as excessive – in maintenance terms, a grade 1 issue (not requiring urgent attention). He reported that 'test drives at speed over the edge of surfacing … did not reveal any difficulty to bring the test vehicle back onto the road surfacing'. The test drives were undertaken by the same engineer. According to Mr Carstens, the engineer was driving a Toyota bakkie at or close to the speed limit.

[14] Mr Carstens opined that the momentum required to cause the vehicle to land up on top of the wall indicated that the crash happened 'at a relatively high-speed', but he added that he was not an accident reconstruction specialist.

[15] Having received Mr Carstens' report, Mr Roodt revised his theory. He now surmised that when the plaintiff realised that he had drifted onto the right shoulder, he tried to steer the bakkie back onto the road. The inner edge of the right wheels snagged against the edge drop, so he steered more sharply to the left. As soon as the right wheels were back on the tarmac, this sharp left turn became too extreme, producing the opposite slingshot to the one he had previously hypothesised. The plaintiff lost control, and the vehicle veered off the left side of the road, (On this theory, the plaintiff did not try to correct his line of travel by a sharp right turn.)

[16] Because the road had been reconstructed by the time he received Mr Carstens' report, Mr Roodt was not able to measure the edge drop at point C on

the right shoulder. In his oral evidence, he expressed the opinion that the edge drop at point C, as shown on exhibit A84, was ‘quite severe’, sufficiently deep to snag a wheel. He considered a drop of more than 40 mm as being in the ‘warning’ category while a drop of more than 60 mm – 75 mm was ‘unsafe’. He believed that snagging was the most probable explanation for the occurrence but he could not say it was the only possibility.

[17] The plaintiff called Sgt Meyi to prove the photographs which Mr Carstens had referenced. It emerged that Sgt Meyi had a fuller set of photographs, and these were handed in as exhibit B. The cone in photo B1 marks point B, and the exiting right tyre track on the shoulder is clearly visible. The cone in photo B4 marks point C, and the re-entry tyre track on the shoulder is again clearly visible.

[18] Mr Roodt was recalled after Sgt Meyi’s full set of photographs came to hand. Those photographs (in particular photos B6 – B9) showed the edge drop and its shadow-line more clearly. Mr Roodt described the edge drop as ‘very pronounced’ and ‘excessive’ and in the ‘unsafe’ category, though he acknowledged that this was a qualitative assessment.

[19] Mr Carstens testified that the road was reconstructed not because of dangerous edge drops but because mole activity underneath the road was causing subsidence and potholes. Eventually it was not cost-effective to keep on repairing it. The particular stretch of road on which the accident happened did not seem to him to have been particularly affected by mole activity. There was no sign of uneven patching.

[20] Like Mr Roodt, Mr Carstens (or more accurately his engineering assistant) did not measure the edge drop on the right shoulder. His qualitative assessment of the edge drop shown in Sgt Meyi’s photographs at point C was that it was not deep enough to cause snagging. His rough assessment was that the drop was

between 30 mm and 50 mm. It was more severe than he had thought from the less distinct photographs he previously saw, but he still felt that a driver would only have felt the drop as a ‘bump’. It was not enough to impede the vehicle’s path back onto the tarmac.

[21] He took issue with Mr Roodt’s opinion that the plaintiff had control of the bakkie while it was travelling with its right wheels on the right shoulder. He said that the bakkie’s right wheels would only have caused the tracks one sees in Sgt Meyi’s photographs if there was skidding, which he attributed to braking. If the wheels were turning freely, they would not have left such a prominent imprint on the gravel, which was quite a hard surface.

[22] Mr Carstens disagreed with Mr Roodt that the shoulders could have been brought up to tarmac level inexpensively by using a grader to push *in situ* material up to the road edge. It would have been necessary to import gravel from a quarry near Vredenberg. The operation would have been complicated by the fact that the shoulders of the R399 were narrower than the standard roller. Of course, if this operation were to have been undertaken, it would have been over a lengthy stretch of road, perhaps its full distance, and not merely the few metres which turned out to be of possible significance to the plaintiff’s accident.

[23] In his view, the department would have concentrated its efforts on the ordinary line of travel, ie the tarmac surface. A dangerous pothole in the tarmac would require correction within 24 hours. Gravel shoulders are less important, since they are not intended for travel at the same speed as the tarmac surface. (He made an exception for intersections with side roads, because turning vehicles tend to cut corners, but point C was not sufficiently close to an intersection for this exception to be relevant.)

[24] With reference to the further photographs, Mr Roodt prepared a short supplementary report on which he elaborated when recalled. He stated that if one extended the right wheels' re-entry line without material deviation, the bakkie would have travelled onto the tarmac at a more gentle angle than the sharp left angle indicated by the yaw line.[3] This demonstrated, in his view, that at the re-entry point the plaintiff must have steered more sharply to the left to overcome the resistance of the edge drop and never thereafter regained control of his vehicle.

The issues

[25] The issues are (a) whether the defendant wrongfully failed to maintain the road; (b) whether such wrongful failure was negligent; and (c) whether such wrongful and negligent conduct causally contributed to the accident. If these questions are answered affirmatively, there is the further question whether the plaintiff was contributorily negligent.

[26] In the initial plea, the defendant pleaded contributory negligence in general terms, alleging that the plaintiff failed to keep a proper look-out, failed to apply his brakes timeously or at all, and failed to exercise proper or adequate control over his vehicle. After the conclusion of evidence, the defendant without objection amended his plea to add the allegation that the plaintiff's failure to exercise proper and adequate control of his vehicle caused it to drive on the wrong side of the road in the face of oncoming traffic.

[27] The defendant also wanted to add an allegation that the plaintiff failed to wear his seat-belt, but there was an objection to the amendment, and the defendant abandoned it. This amendment would probably have led to a postponement and the reopening of the parties' cases. There was no indication that the defendant had undertaken the investigations necessary to establish whether or not the plaintiff

[3] See his red lines at A107.

was wearing his seat-belt, though the fact that he was totally ejected from the vehicle might suggest, in the absence of seat-belt failure, that he was not.

The plaintiff's conduct

[28] Although the plaintiff's contributory negligence is only relevant if the defendant's department is found to have been causally negligent, it is convenient to start with his conduct. The sun rises at about 05:30 in Velddrif.[4] Since the police got the call at 06:40, it seems probably that the sun was up by the time of accident. The plaintiff was driving in a westerly direction so the sun was behind him.

[29] There is no doubt that the plaintiff was negligent to a large degree. He not only crossed over the solid barrier lines as he was approaching a blind bend but went so far onto the wrong side of the road that his right wheels went onto the right shoulder. One does not know what caused him to do so, but it is a fair assumption that he underestimated the road's curve to the left and therefore went too wide to the right. He was familiar with the road, so one must conclude that he was not paying attention.

[30] I also think it likely that his lack of attention was accompanied by too high a speed. I do not say that he was exceeding the posted speed limit of 100 km/h, but that might have been too fast, given the quality and narrowness of the road and the fact that he was approaching a left bend.

[31] I also find that the plaintiff compounded his negligence by the way he drove after his right wheels went off the right shoulder. All indications are that he was still travelling at a relatively high speed when he turned back onto the tarmac. He seems not to have had time to steer correctively to the right when he found himself veering over the road to the left. Although there is no evidence from a

[4] This is based on the time of sunrise in Cape Town, which is more or less on the same longitude.

mechanical engineer or other expert to estimate at what speed the bakkie must have been travelling to reach its final resting place, common sense dictates that only a vehicle travelling at a high speed could have cartwheeled through the air so as to land up where the plaintiff's vehicle did.

[32] In photos B11 and B12 one can see an indentation in the ground below the left shoulder, just in front of the fence. From other photographs one can locate this indentation as being in the path the bakkie would have followed as it veered off the road.[5] Since there is no visible damage to the wire fence, one can deduce that the bakkie must have nose-dived off the left of the road; that the front right or left headlight of the bakkie (probably the right, to judge by the vehicle damage) ploughed into the ground, making the indentation; and that the bakkie then catapulted through the air over the fence before landing on top of the wall. I find it difficult to imagine that this could have happened if, at the time of the nose-dive, the bakkie was travelling significantly below 100 km/h.

[33] In my view, a reasonable driver, after realising that he had negligently strayed off the right shoulder, would have taken his foot off the accelerator and slowed down in order to gain complete control of his vehicle. A gravel shoulder is not intended to be driven upon at the same speed as the tarmac surface. The friction differential between the tarmac surface and the shoulder adds a further complication. While sharp braking would have been inadvisable with the right wheels on the gravel shoulder, gentle breaking to slow down the vehicle would have been prudent. One can see from the photographs that although the right shoulder drops away to the right, there was more than enough space for the plaintiff to have brought his vehicle safely to a stop completely off the tarmac on the right shoulder, before choosing a suitable moment to navigate his way back into his correct lane of travel.

[5] The bakkie left the road at left cone just before a large darkish plume of grass visible in photo B8. This plume is also visible in photos B11-12.

The defendant's conduct

Wrongfulness

[34] Turning to the defendant's conduct, the first question is wrongfulness. The defendant admitted in his plea that his department was responsible for managing and maintaining the road and that it owed members of the public a duty to maintain and keep it in a safe condition so that it was not a source of danger. The defendant denied that his department owed members of the public a duty to ensure that the edge drop did not exceed 25 mm. This disputed duty is the only one relevant in this case.

[35] The general duty on a public authority to maintain a road and keep it in a safe condition cannot mean that roads must be kept in a perfect condition or that any defect which might conceivably lead to a mishap must be repaired promptly or at all. The defendant's department has responsibility for a large road network. Of necessity, the work it does is constrained by its budget and staff complement, and it has to prioritise road maintenance requirements.

[36] In deciding whether a particular omission by a road authority is wrongful, the authority's control and supervision of the road is a necessary but insufficient precondition for liability. Affordability and proportionality must be considered. In *Administrateur, Transvaal v Van der Merwe* 1994 (4) SA 347 (A) the road authority had a policy in terms whereof, by reason of the cost factor, firebreaks were made alongside proclaimed roads only when requested by landowners and in cooperation with them. The court held that the omission to make firebreaks was not wrongful.

[37] In *MEC for the Department of Public Works, Roads and Transport v Botha* [2016] ZASCA 20, a case where an accident was caused by a tree which fell into the road, the plaintiff contended that the defendant had been under a duty

to examine the conditions of the ground and the roots at the base of trees in order to assess whether trees were at risk of falling and that there should have been a systematic programme of eliminating trees which could potentially be blown over. Swain AJA said that in the absence of evidence as to the costs and difficulty of taking these precautionary measures, the imposition of such a duty was unjustified. The trial court's finding in favour of the plaintiff was, however, upheld on the basis that the defendant's employees, having become aware that the tree had fallen across the road, had abandoned their attempt to remove it without placing any hazard signs to warn motorists.

[38] In *Municipality of Cape Town v Bakkerud* 2000 (3) SA 1049 (SCA) the court again had affordability in mind as a relevant factor, contrasting the position of a small underfunded municipality with that of a large well-resourced municipality. What the legal convictions of the community demanded in a particular instance depended on the facts. Marais JA continued:

> '[28] … There can be no principle of law that all municipalities have at all times a legal duty to repair or to warn the public whenever and whatever potholes may occur in whatever pavements or streets may be vested in them.
>
> [29] It is tempting to construct such a legal duty on the strength of a sense of security engendered by the mere provision of a street or pavement by a municipality but I do not think one can generalise in that regard. It is axiomatic that man-made streets and pavements will not always be in the pristine condition in which they were when first constructed and that it would be well-nigh impossible for even the largest and most well-funded municipalities to keep them all in that state at all times. A reasonable sense of proportion is called for. The public must be taken to realise that and to have a care for its own safety when using the roads and pavements.'

[39] Marais JA added (para 31) that it was 'for a plaintiff to place before the court in any given case sufficient evidence to enable it to conclude that a legal duty to repair or to warn should be held to have existed.'

[40] The plaintiff, in my view, fell short of establishing a legal duty on the part of the defendant to ensure that edge drops did not exceed 25 mm or even 50 mm. Mr Roodt in his main report referred to a 1992 publication, 'TMH9: Standard Visual Assessment Manual for Flexible Roads', compiled by a subcommittee of the Committee of State Road Authorities. As I understood Mr Roodt's report, this publication stated that an edge drop exceeding 25 mm was considered undesirable while one in excess of 50 mm was unsafe. I could not find this statement in the publication, though there is a statement that a pothole deeper than 25 mm is a 'developing failure' while one deeper than 50 mm is 'severe'. In a post-hearing note I raised this query with the experts through counsel.

[41] Mr Roodt's response to my query acknowledged that these depths were not stated with reference to edge drops, but he considered that the safety of edge drops was comparable with the safety of potholes. Mr Carstens simply recorded that the TMH9 referred to potholes and edge breaks, not edge drops.

[42] I do not accept that the grading of the severity of potholes can be transposed to edge drops. The TMH9 is referring to a pothole in the tarmac surface, ie on the part of the road where vehicles can be expected to travel at the posted speed. The grading of potholes is, furthermore, defined not only with reference to their depth but also their width. The mechanics when a vehicle's wheel drops into a pothole at speed (an immediate drop followed by an immediate rise) are not the same as a vehicle moving from one level (the shoulder) to a higher level (the tarmac).

[43] A pothole may take a driver unawares. If it is noticed at the last moment, the driver may instinctively swerve and cause an accident. If the driver does not notice the pothole in time, the resultant mechanical shock may cause damage to the vehicle. By contrast, a driver who is partially on the shoulder and who is

keeping a proper lookout will take account of the possible difference in the levels of the shoulder and tarmac.

[44] There is also a distinction between the extent and frequency of work involved in repairing potholes as against raising shoulders to the level of the tarmac. Potholes develop sporadically here and there, and can be patched individually as they occur. By contrast, if the gravel shoulders of a rural road begin to drop in level due to erosion, the likelihood is that the road authority would need to rehabilitate the shoulders on both sides over the entire length of the road. In the present case, for example, it was not shown that the edge drops in the vicinity of the accident were materially different from those which existed over its 63 km length between Piketberg and Velddrif.

[45] Mr Carstens testified that rehabilitating the shoulders would be an extensive job involving the importation of gravel from a relatively distant quarry. The photographs in exhibit B tend to support his view that using a grader and *in situ* material would not have been feasible (the shoulders bank away at a steep angle, and do not seem to comprise loose material that could easily be moved). He also explained that the road carried a modest volume of traffic, about 650 vehicles per day (both directions). Most drivers would be regular users commuting between nearby towns or between neighbouring farms and nearby towns. The condition of the shoulders would be self-evident to the reasonably observant driver.

[46] Two of the cases cited by the plaintiff's counsel in argument concerned potholes (*McIntosh v Premier of the Province of KwaZulu Natal & another* 2008 (6) SA 1 (SCA) and *Loots v MEC for Transport, Roads and Public Works* [2018] ZANCHC 60), and do not shed much light on the present problem. I would simply note that the potholes were on the tarmac surface. In *McIntosh* the pothole was

said to have been 750 mm at its deepest, though this must be a typographical error, with 75 mm having been intended.[6] In *Loots* the pothole's depth was described by a witness as having been 2 cm higher than ankle height, which I take to be a total depth of about 90 mm – 100 mm, and it was so wide that it could not be straddled by a photographer.

[47] The only case I have found in which an edge drop has featured is *Van der Merwe v MEC, Public Works, Roads and Transport & another* [2019] ZAFSHC 6. In this case the accident was caused by a combination of an extensive edge break of 150 mm – 300 mm coupled with an edge drop of between 112 mm – 122 mm. The plaintiff had moved to the left of her lane to allow a faster vehicle to overtake. Because of the edge break, her left wheels came off the road, and the edge drop then stopped her from coming back onto the road, although the precise mechanics of the accident are not altogether clear from the judgment.

[48] What is of interest in *Van der Merwe* is the Free State Maintenance Quality Standards Manual which was adduced in evidence. It grades edge drops from '0' to '4'. A '0' grading connotes that the shoulder is at the same level as the tarmac. The other three gradings are defined thus:

> '1 - The gravel shoulder is in a reasonable condition, but the level difference between the edge of the surfacing and the gravel shoulder is a maximum of 50 mm. No dangerous situation exists yet and the traffic can move onto the shoulder at approximately 80 km/h. Minor damage occurs as a result of edge breakage.
>
> 2 - The gravel shoulder is in a poor condition and the level difference between the edge of the surfacing and the gravel shoulder is a maximum of 100 mm. In certain cases a dangerous situation may develop and edge breakage can occur. Movement onto the shoulder can only be done at low speed.

[6] In the trial court the maximum depth was said to have been agreed as 70 mm: *McIntosh v Premier of the Province of KwaZulu Natal & another* [2007] ZAKZHC 5.

> 3 - The gravel shoulder is in a very poor condition and the level difference between the edge of the surfacing and the gravel shoulder is more than 100 mm and creates a serious safety hazard and edge breakage occurs regularly. The traffic cannot utilise the shoulder.'

[49] What this suggests is that at least one provincial road authority in this country considers that an edge drop of 50 mm or less is not of serious concern. An edge drop of more than 50 mm but not exceeding 100 mm may lead to danger in certain circumstances, so that movement from the tarmac onto the shoulder should only be undertaken at low speeds. An edge drop exceeding 100 mm is hazardous.

[50] There is no evidence that the defendant's department has adopted the above grading system, but there is likewise nothing to show that the department does or should regard an edge drop of 50 mm as one requiring prioritisation. The plaintiff has not adduced evidence to show that it would be reasonable to expect of the defendant that all provincial roads should be so maintained that there is never an edge drop of 25 mm or even 50 mm.

[51] According to Mr Carstens' report, edge drops of 28 mm, 43 mm and 40 mm were measured on the left shoulder. Mr Roodt spoke of edge drops exceeding 50 mm. Since these measurements were taken in the first half of 2015, it is reasonable to infer that the edge drops would have been slightly less in December 2012. On the assumption that the edge drops along this road in December 2012 ranged from, say, 25 mm – 50 mm, I am not satisfied that a legal duty rested on the defendant to rehabilitate the shoulders so as to make them level with the tarmac. Stated differently, the defendant's omission to do so was not wrongful.

Negligence

[52] Having reached this conclusion, negligence and causation to not strictly arise, but I shall state my opinion on them in case my conclusion on wrongfulness is found to be wrong. As to negligence, the classic formulation of the test in

Kruger v Coetzee 1966 (2) SA 428 (A) calls for a two-step inquiry. Was the harm reasonably foreseeable? If so, what steps, if any, would the reasonable person have taken to guard against the harm and did the defendant fail to take those steps?

[53] I am willing to accept that a road authority should reasonably foresee that edge drops may cause a driver to lose control of his vehicle when drifting off the tarmac or when trying to regain the tarmac, and should reasonably foresee that the greater the depth of the edge drop the greater the likelihood of such loss of control.

[54] The defendant's counsel submitted that even if this were so, the defendant could not reasonably have foreseen that a driver would veer off the right shoulder rather than the left. I do not think that this matters. The first step in the negligence test does not require that the defendant should reasonably have been able to foresee the precise way in which the harm eventuated. It is enough that that the general nature of the harm was foreseeable (*McIntosh supra* para 13). The general nature of the harm here was the potential loss of control which a driver might experience when trying to regain the tarred surface over a significant edge drop.

[55] The plaintiff has not, however, proved on a balance of probability that a reasonable road authority would have taken steps to guard against such harm in the case of the R399 in the condition in which it was in December 2012. Part of the plaintiff's difficulty is the absence of evidence of precisely how severe the edge drop problem was. In dealing with wrongfulness, I have already indicated that I cannot find on the evidence that an edge drop of 25 mm to 50 mm would be one that a road authority would be duty-bound to remedy, let alone prioritise. I cannot find on a balance of probability that the edge drop exceeded 50 mm.

[56] In considering what remedial measures, if any, could reasonably have been expected, one must bear in mind that it is only with hindsight that one can claim that the problem existed specifically at point C on the right shoulder. We are concerned with remedial measures that should arguably have been taken before the accident occurred. Point C would not have attracted particular attention. Whether re-establishing the level of the shoulders could reasonably have been expected depends on what the extent of the problem was. Did it affect the entire 63 km of the road? On average what was the extent of the edge drops? The fact that in isolated places there were edge drops of (say) 60 mm or more would not necessarily call for remedial measures if over most of the road's length the edge drops were 50 mm or less. A reasonable road authority could have concluded that the risk of harm was relatively slight in relation to the cost and effort of rehabilitation.

[57] The answer to the foregoing questions might also be affected by the decision to reconstruct the road entirely. Carstens testified that the R399 was identified for reconstruction in 2012 (based on the quality of the road rather than the shoulders). Planning, approval and tendering for a road reconstruction project typically take three years. If the only way of rehabilitating the shoulders of the old R399 was to import gravel and re-establish the levels along the whole distance of the road, the department might well have thought such rehabilitation an unreasonably expensive option, since the road was in any event to be completely rebuilt within two to three years.

[58] The plaintiff's counsel submitted that, as an alternative to rehabilitation, the defendant could have posted a lower speed limit, particularly in the vicinity of the bend where the accident happened. This ground of negligence was not pleaded. In any event, the posted speed limit of 100 km/h was a maximum, not an indication that it was in all situations a safe speed. The plaintiff knew the

condition of the road. He would have been aware of the bend. He would have known what speed was appropriate to that stretch of road.

[59] Negligence has thus not been established.

Causation

[60] I have two conflicting expert opinions about whether the edge drop at point C was sufficient to have affected the vehicle's path back onto the tarmac. The precise extent of the edge drop at point C has not been proved. It was never measured, and the experts' qualitative assessments, based on photographs, differ.

[61] If, as Mr Carstens considers, the edge drop at point C was in the range of 30 mm – 50 mm, would such an edge drop probably have affected the vehicle's progress back onto the road? He thought not. Mr Roodt, who perhaps considered the edge drop to be more severe than 50 mm, thought otherwise. Neither Mr Roodt nor Mr Carstens is an accident reconstruction expert. It is possible that a mechanical engineer could, with reference to the characteristics of the plaintiff's bakkie and the re-entry angle shown on the photographs, have presented evidence of the resistance which edge drops of varying assumed depths would have offered, assuming differing possible speeds at which the plaintiff was driving. As it is, I have no 'science' against which to test the bald conclusions expressed by Mr Roodt and Mr Carstens.

[62] Applying my own common sense, I do not find it particularly likely that the edge drop shown in the photographs would have affected the bakkie's path back onto the road. A significant edge drop would offer the greatest resistance to a vehicle if it were driving parallel to the edge drop, with the inner or outer faces of both the left or both the right tyres (as the case might be) flush against the edge. If the edge drop persisted over some distance, a vehicle so positioned might be

channelled along the edge, and a sharp turn might be needed to overcome the resistance.

[63] This was not the plaintiff's position. His left wheels, as far as we know, never left the tarmac. His right rear wheel was some distance from the edge as his vehicle re-approached the tarmac. Only his right front wheel made contact with the edge, and this was not parallel with, but at an acute angle to, the edge, so a relative small area of the inner face of the right tyre would have made contact with the edge. If, as I consider likely, the bakkie was travelling at some speed, its forward momentum, as imparted through the three wheels which were unimpeded by the edge drop, would surely have caused it to easily regain the tarmac without any pronounced steering adjustment.

[64] Also of some significance, in my view, is that photos B6 – B9 show no sign of channelling against the edge at the re-entry point. At 100 km/h, the bakkie was covering about 28 m/s. If the edge drop caused the plaintiff to feel resistance which he needed to overcome with a left turn, his reaction would not have been instantaneous even if it would have been quicker than an ordinary observational reaction. Yet the photographs indicate that the bakkie's right front wheel followed a regular course from the gravel onto the tarmac, without any deviation along the edge.

[65] Mr Roodt, when recalled, emphasised what he took to be a significant difference in the bakkie's re-entry angle (as shown by the tyre track on the gravel) in comparison with its angle across the tarmac (as shown by the yaw line). I have two main difficulties in attaching great significance to this observation.

[66] My first difficulty concerns the reliability of the angles shown in the photographs. The yaw line is visible in photos A46 and A72 and in photos B6 – B9. In A46 and A72 the angle of the yaw line, relative to the left shoulder,

appears to be more acute than the angle of the yaw line shown in B6 – B9, where it seems to be nearly 90° to the left shoulder. According to the supplementary joint minute, this is a distortion due to different camera lens focal lengths and angles of observation.

[67] Although not so stated in the supplementary joint minute, I assume the distortion is more pronounced in the foreground, in which case the yaw line shown in B6 – B9 is a more realistic representation than A46 and A72. But this is where the problem lies. Mr Roodt made his projections with reference to the re-entry tracks visible on the right shoulder in photos B6 – B9. The re-entry tracks in these photographs are in the foreground whereas the yaw line is in the distance. After taking account of photographic distortion, how different was the re-entry angle in truth from the yaw line angle? If one were judging the matter with reference to photo B10, where the photograph was taken from the middle of the road, one would not necessarily conclude that there was any material difference between the re-entry line and the yaw line, which is still faintly visible.

[68] A different way of making the same point is this. Photos B6 – B9 suggest that the bakkie's path of travel across the right lane of the tarmac (ie from the cone at point C to the centre road lines) was at a more gentle angle than its path from the centre road lines to the left shoulder. Either this is a matter of photographic distortion, or the more pronounced left turn did not occur at the re-entry point but in the middle of the road, something which could not be accounted for by the edge drop.

[69] Furthermore, in B6 and B7 a faint second parallel yaw line is visible to the right of the pronounced yaw line. I raised this in my post-hearing note. Mr Roodt's response was that he could not see the second line, whereas Mr Carstens said that he could. If Mr Carstens and I are right in our observations, it means that

the pronounced yaw line one sees in the photographs is not a continuation of the re-entry track of the bakkie's right wheels, but the bakkie's left wheels. This would fortify the view that there was relatively little change in the bakkie's path of travel off the shoulder and across the tarmac until it reached the centre line.

[70] My second difficulty, accepting for the moment that the yaw line followed a more pronounced angle across the tarmac then the re-entry line on the gravel, is the assumption that this was due to a left turn in order to overcome edge drop resistance. We do not know when the plaintiff became aware that he was off the right shoulder. He was approaching a blind bend. He may simply have got a fright and turned more sharply left at the point of re-entry or shortly after regaining the tarmac (the latter finding some support in the photographic evidence). If he had followed the more gentle path projected by Mr Roodt, he might have collided with an oncoming vehicle as it rounded the bend.

[71] The plaintiff thus did not prove on a balance of probability that if the defendant was guilty of wrongfully and negligently allowing a severe edge drop to develop at point C, such conduct causally contributed to the accident.

Conclusion

[72] It follows that the plaintiff's action cannot succeed, and the claim must be dismissed with costs. Since Mr Carstens is an in-house expert, there is no need to make any provision for qualifying expenses.

[73] Argument was initially scheduled to take place on 23 October 2020 by way of a virtual hearing. The matter stood down so that the experts could finalise their supplementary joint minute and for the defendant to decide whether it would press ahead with the seat-belt amendment. I understand from what I was told that it is this latter aspect which accounted for most of the delay. When we reconvened, the defendant's counsel, who was away from chambers, had a very

poor internet connection, which made further proceedings on that day impossible, though it is doubtful in any event whether argument could have been completed in the remaining time. I think in the circumstances that the defendant should bear the wasted costs of that day.

[74] I make the following order:

(a) The plaintiff's action is dismissed.

(b) The defendant is to pay the wasted costs of 23 October 2020.

(c) Save as aforesaid, the plaintiff must pay the defendant's costs.

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O L Rogers

Judge of the High Court

Western Cape Division

APPEARANCES

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